

# CABLINE®-UM

Part No. Plug: 20877-\*\*\*T-## / 21074-0\*\*T-01

Receptacle: 20879-\*\*\*E-## / 21076-0\*\*E-01

## Instruction Manual

18	S25392	November 27, 2025	T.Ono	M.Nakamura	T.Masunaga
17	S25186	May 1, 2025	K.Tanabe	M.Nakamura	H.Ikari
16	S25063	January 31, 2025	K.Tanabe	M.Nakamura	T.Masunaga
15	S25051	January 28, 2025	K.Tanabe	M.Nakamura	T.Masunaga
Rev.	ECN	Date	Prepared by	Checked by	Approved by

This manual is to explain the insertion & withdrawal methods and important points in handling of CABLINE-UM connector plug with cable for the purpose of proper use.

## 【Connector Name, Part number】

### ◆The cable side connector

Product Name : CABLINE-UM Plug

Part No. : 20877-#\*\*T-## / 21074-0\*\*T-01

### ◆The PCB side connector

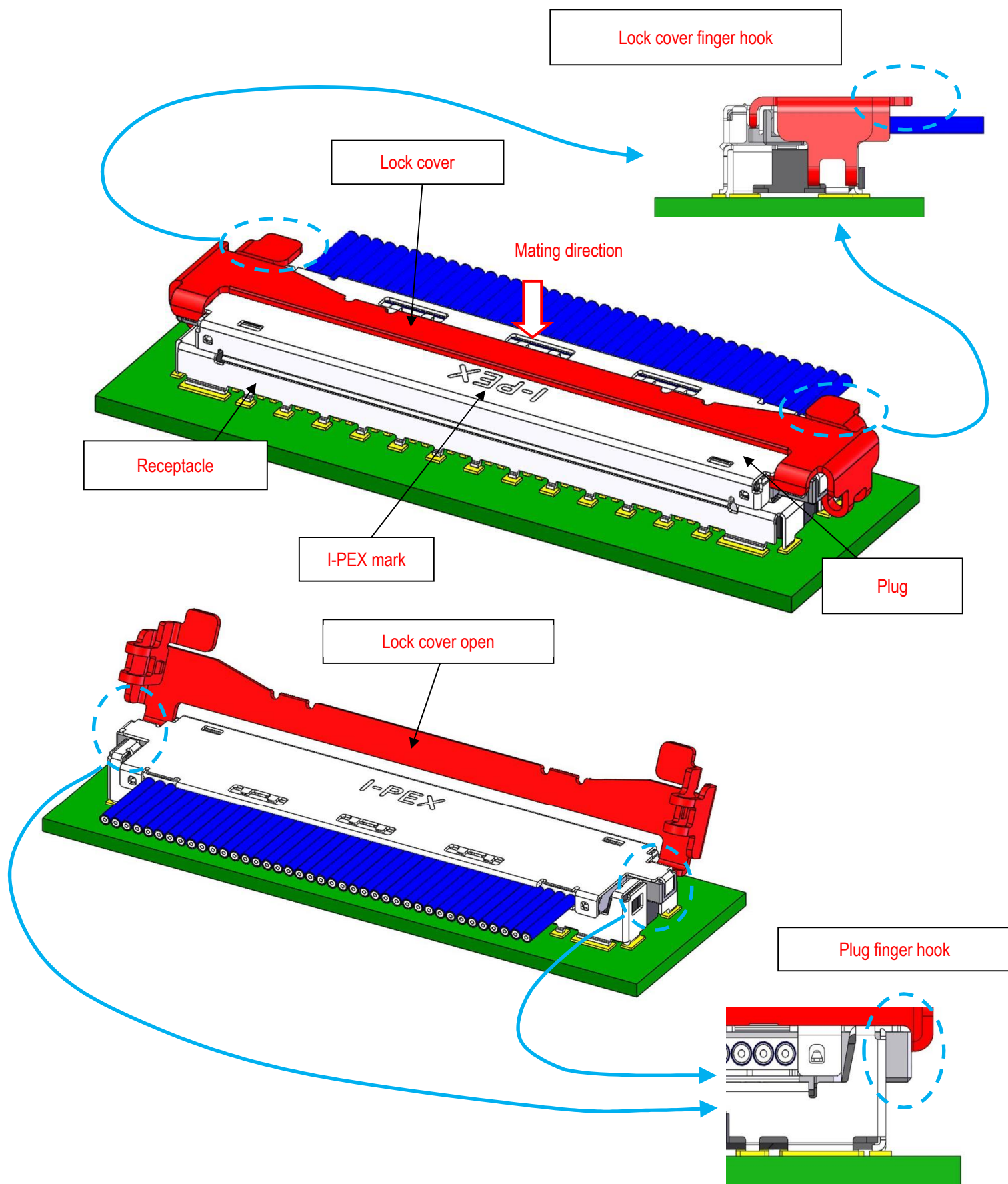
Product Name : CABLINE-UM Receptacle

Part No. : 20879-#\*\*E-## / 21076-0\*\*E-01

“ \*\* ” part shows the number of the connector position.

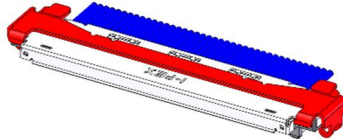
“ # ” part shows the variation. Please refer to the drawing for details.

【Names of each part of the connector.】

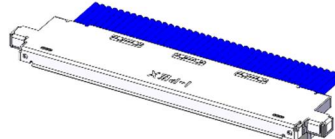


## 【Comparing Plug parts numbers】

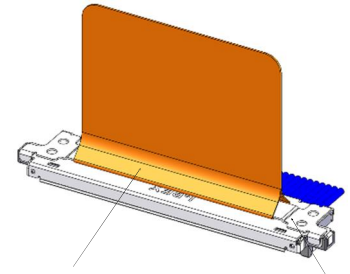
20877-##E-#1  
21074-0\*\*E-01  
With Lock Cover



20877-##E-#2  
Without Lock Cover

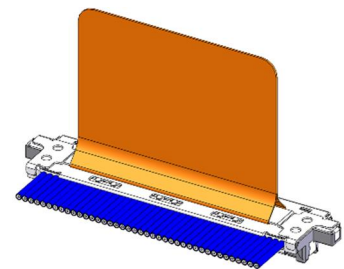
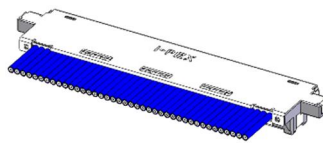
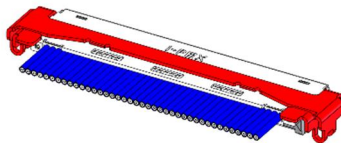


20877-##E-#3  
With PULL TAPE HOLDER



PULL TAPE

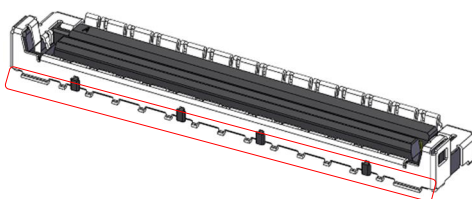
PULL TAPE HOLDER



## 【Comparing Receptacle parts numbers】

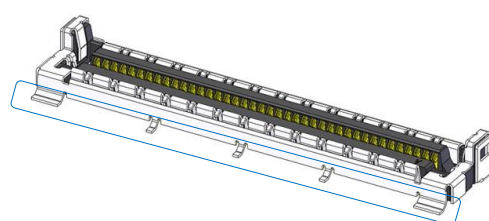
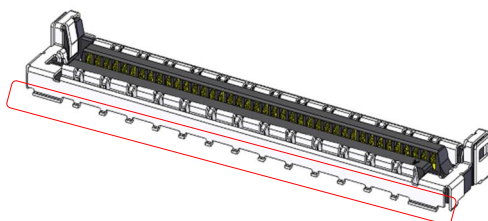
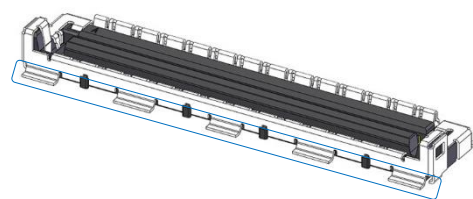
20879-##E-#1  
21076-0\*\*E-01  
Shell Soldering Area

Refer to red dotted box below.



20879-##E-#2  
Shell Soldering Area

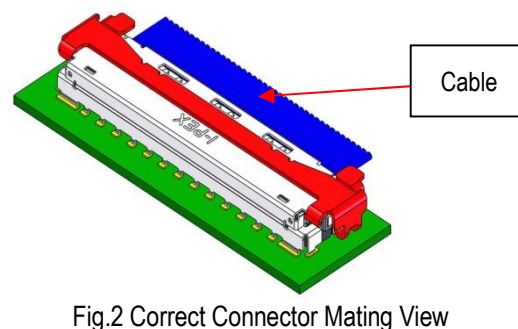
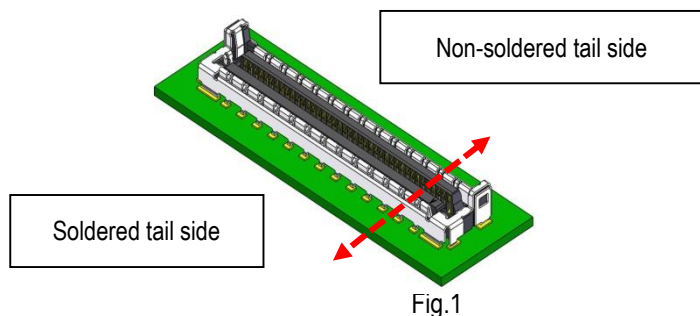
Refer to red dotted box below.



## 【Connector Insertion Manual】

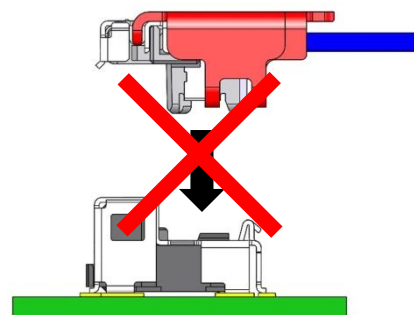
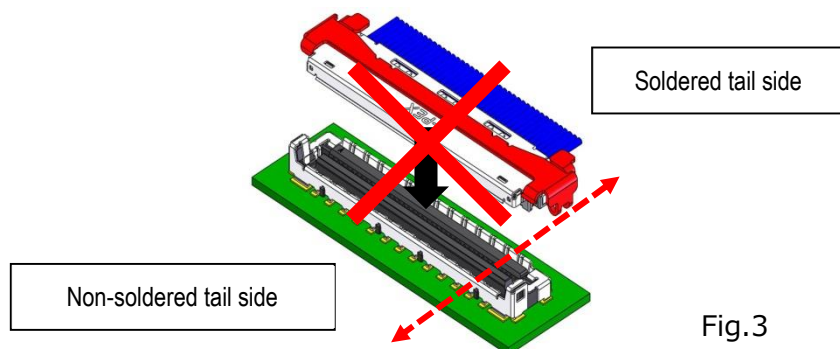
### 1. Which direction to mate

As shown in Fig.1, make sure to place a cable on non-soldered tail side.

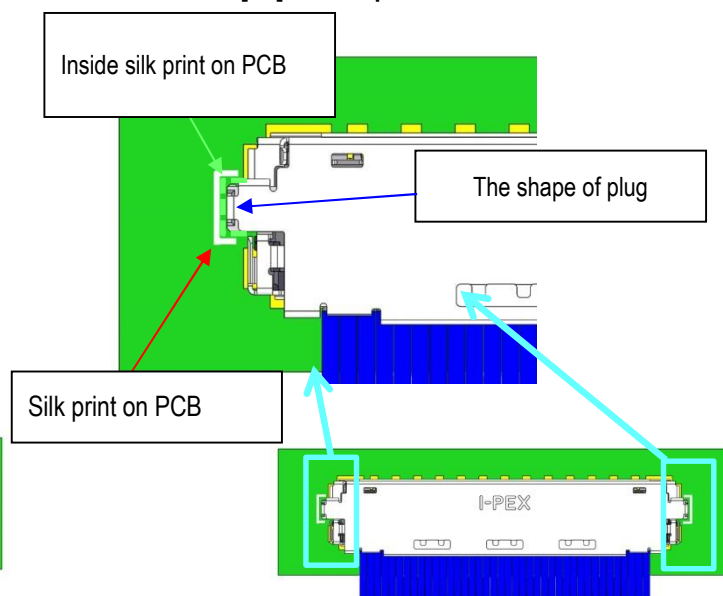
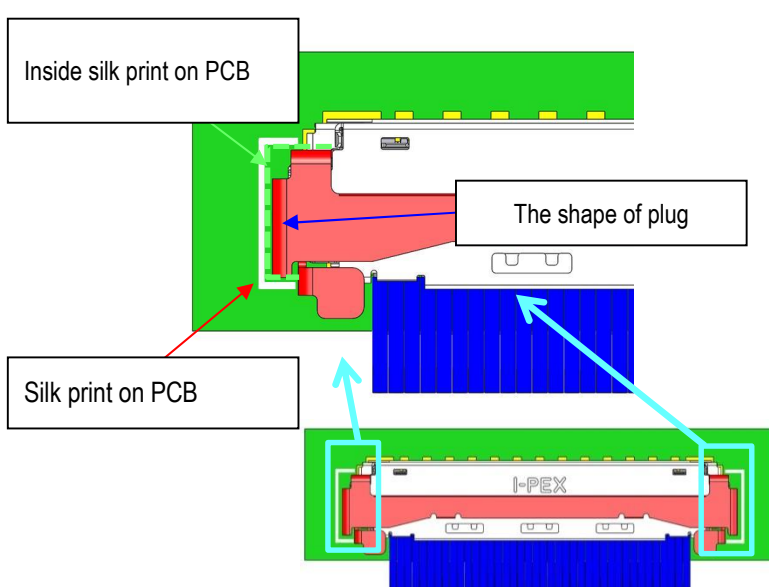


### CAUTION

Do not mate the connector while cable is at soldered tail side.



• As shown in Fig.4 and 5, Please set it so that both ends of PLUG are located within the "[ ]" of silk print on PCB.





- Always close lock cover before mating plug or it may deform lock cover which will decrease locking strength.

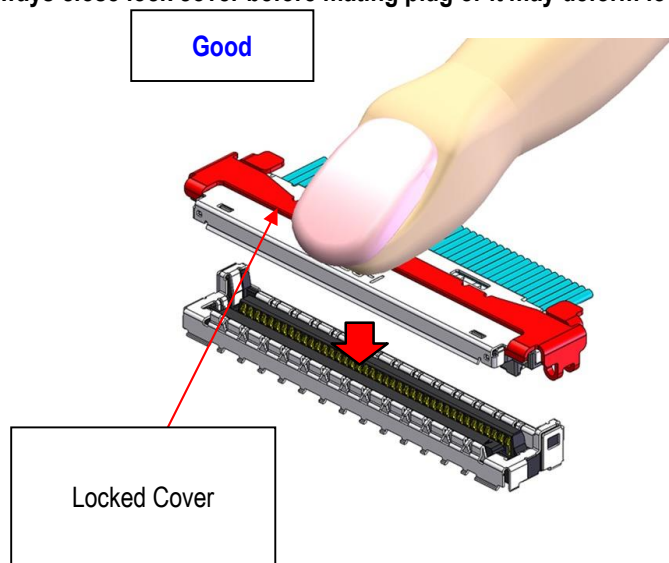


Fig.6

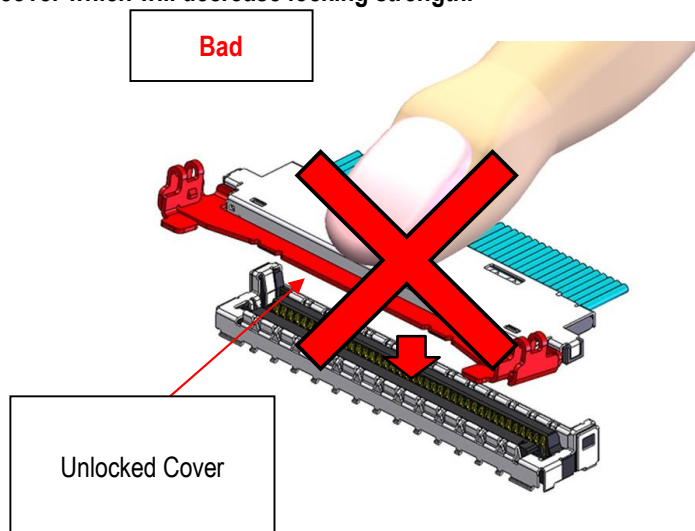


Fig.7

## 2. Pre-insert the cable connector into the receptacle connector.

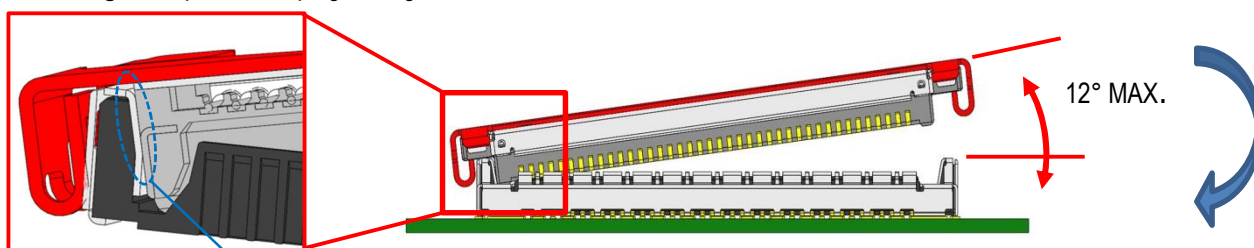
The insertion angle in the height direction is within  $12^\circ$  as shown in Fig.8.

After that, Pre-insert until the plug connector is parallel to the receptacle connector.

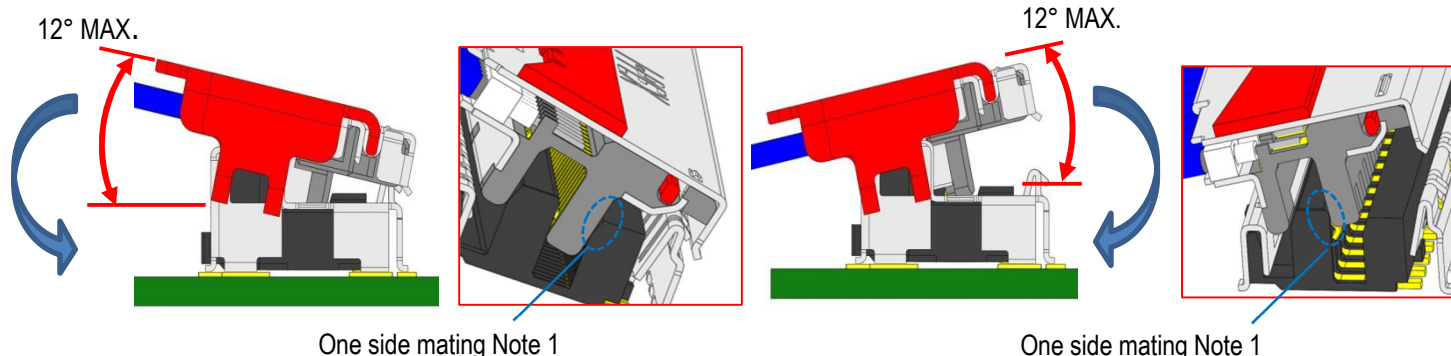
### CAUTION

- A support shall be designed and placed under PCB in order to prevent PCB from being deformed when cable connector is inserted with a pressing.
- The initial connector insertion angle allowance is given in Fig.8. Please set so that it becomes parallel without applying excessive force afterwards. Do not force to press cable connector when the insertion angle is out of this allowance angle.
- Do not mate the connector at an angle that exceeds the allowable angle or is out of the normal position. Connector damage may occur.

**Note 1. One side mating:** Receptacle and plug mating slot side wall are touched on one end



One side mating Note 1



One side mating Note 1

One side mating Note 1

Fig.8 Insertion angle allowance

## CAUTION

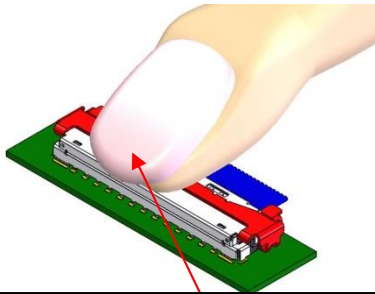
- If Pre-insert is NG, repeat step 2.

### 3. How to Mate

Push the center of cable connector vertically until it clicks.

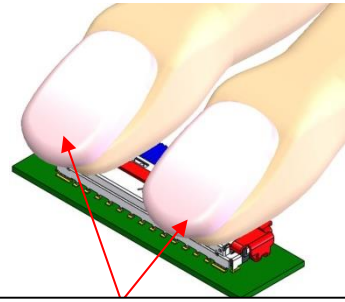
The clicking shows the mating completion. [Fig. 9]

Push both ends of the connector to make sure the mating is completed. [Fig. 10]



Push the center of connector

Fig.9



Then push both connector ends and check the mating condition to ensure that either end is securely inserted.

Fig.10

## CAUTION

- If the connector is not locked on both sides, it may fall off.

## 【How to Withdraw Cable Connector by finger】

- ① Lift a lock cover finger hook outward on one end and repeat it again on opposite side to release lock cover. Make sure that the inner lock part is completely released. (see Fig.11)

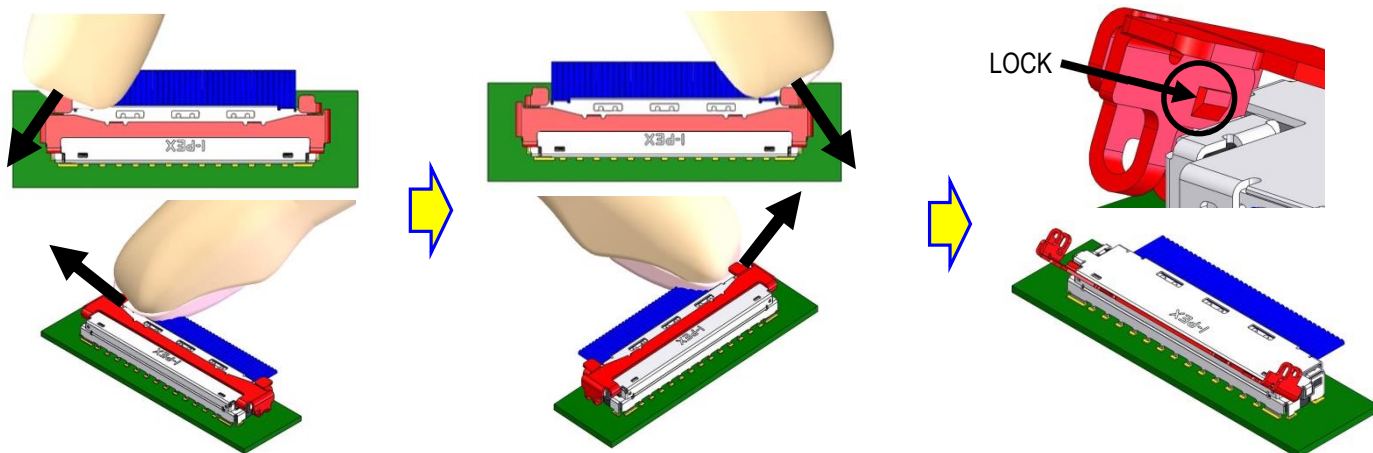
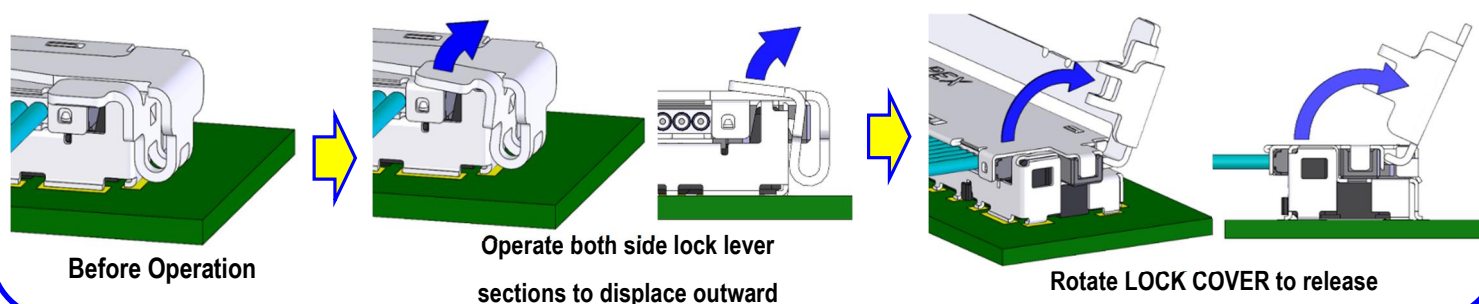


Fig.11

## CAUTION

- When releasing the lock, operate the lever part so that it is displaced outward from the center of the product. Pulling up vertically near the lever section or forcibly pulling it up by pushing it into the anti-cable side will destroy the lock and cause a reduction in locking force.

### Good operation



### Bad operating procedure

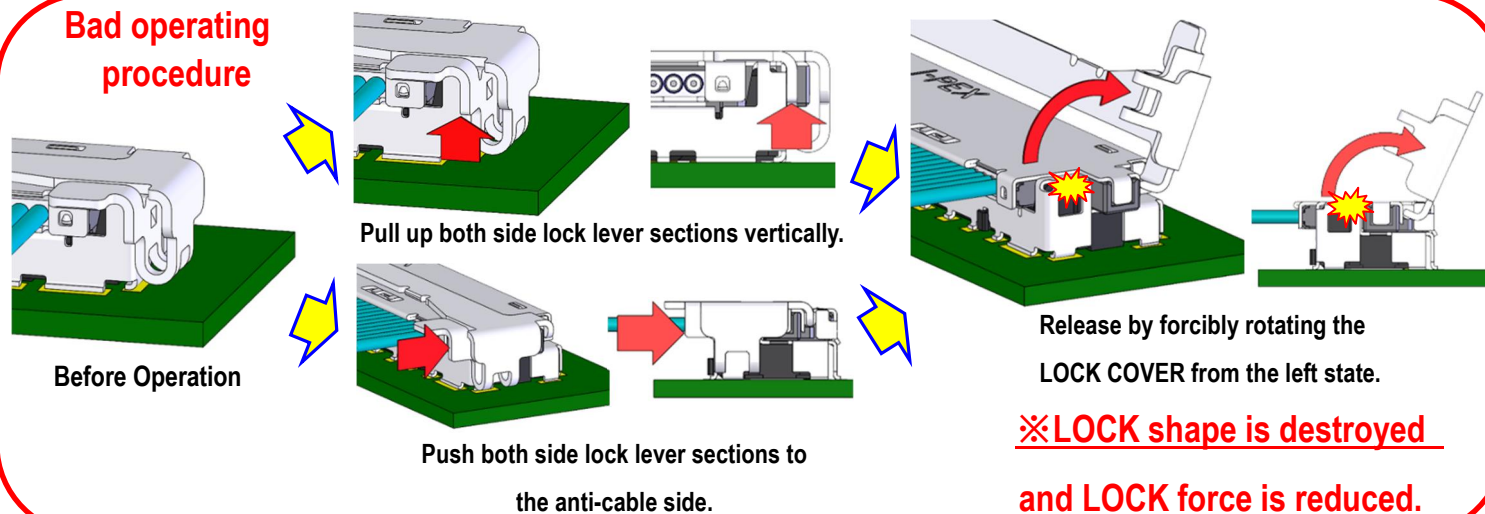


Fig.12



## ② TYPE 1 Connector removal method for 30P, 40P, 50P, and 60P (70P: Double-end Removal Prohibited)

Hook both ends of the plug with the nail and remove the connector. (see Fig.13)

## TYPE 2 Connector removal method for 30P, 40P, 50P, 60P, and 70P (70P: Single-end Removal Only)

Lift one end of the plug at a time and remove the connector. (see Fig.14)

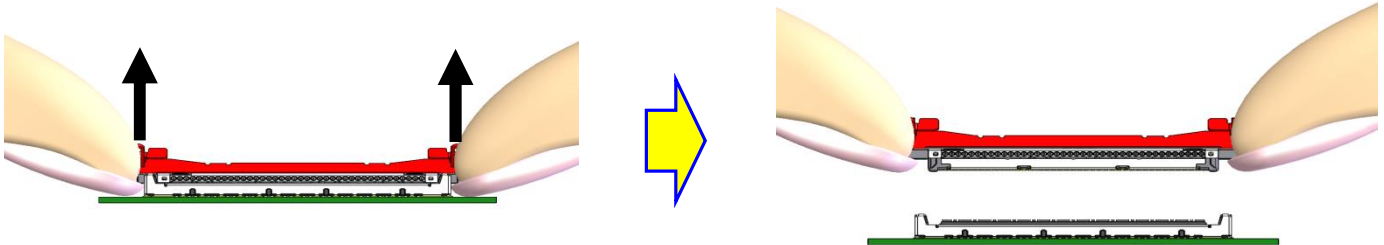


Fig.13 TYPE 1

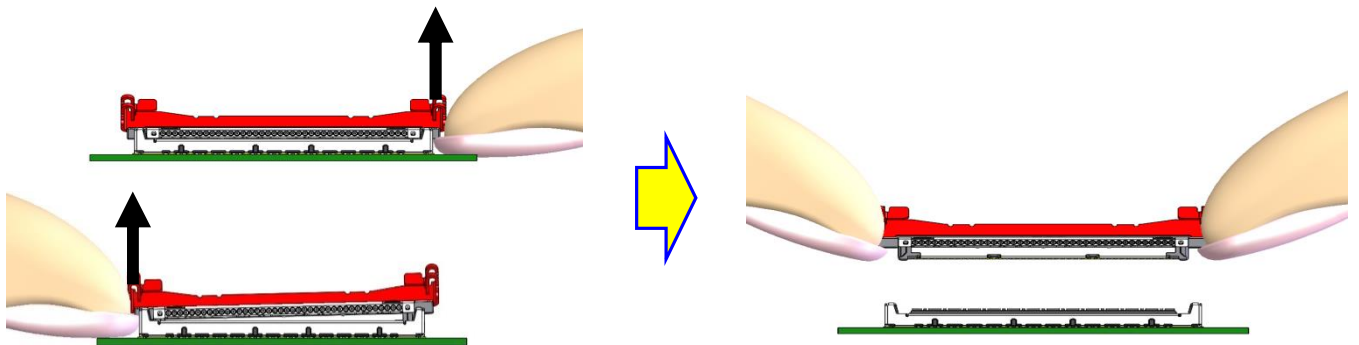


Fig.14 TYPE 2

### CAUTION

Fully insert fingernail under the tab bases and flip them up to remove the plug.

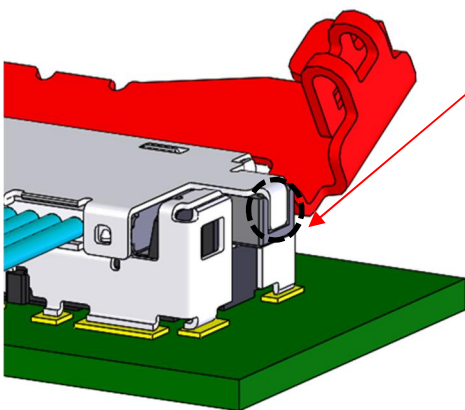


Fig.15

Do not lift the plug when load is applied only to Shell-A, as this may cause deformation.

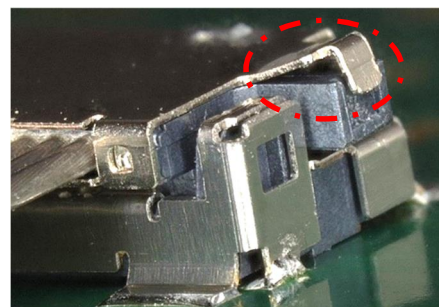


Photo.1 Shell-A deformation

## 【How to Withdraw Cable Connector by Unlock jig & Pull jig】

- ① Guide the Unlock jig to both side of the LOCK COVER as shown in Fig. 16-1, and set the JIG actuator at the bottom of the LOCK lever.
- ② If Unlock jig set is OK, pull up on Unlock jig to release the Lock

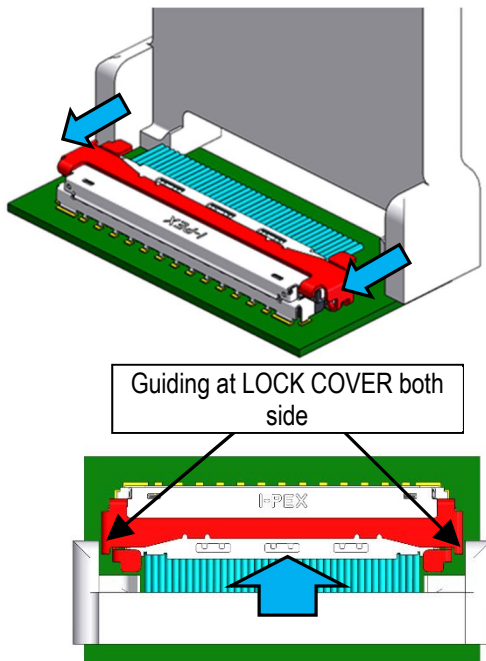
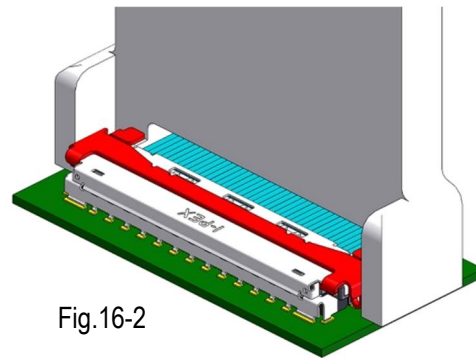


Fig.16-1



Set the JIG into the connector so that the LOCK operating shape of the JIG enters under the LOCK lever.  
(See Good condition)

If a Bad condition is encountered, start the process over from the condition shown in Fig. 16-1.

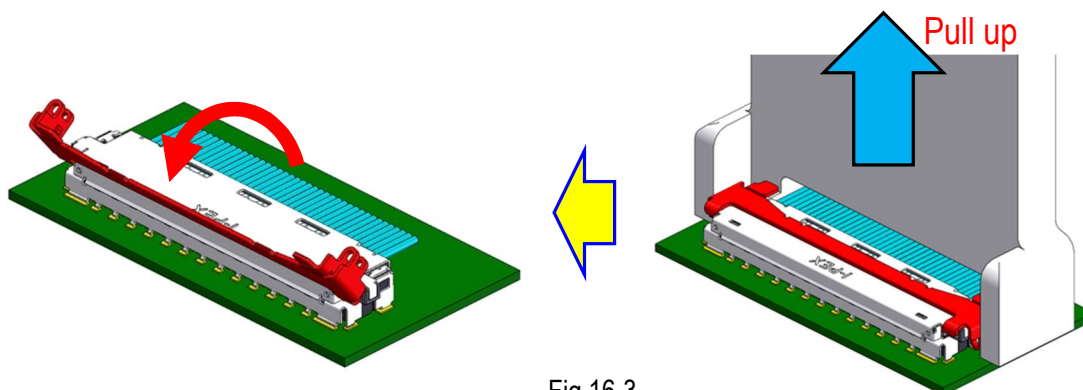
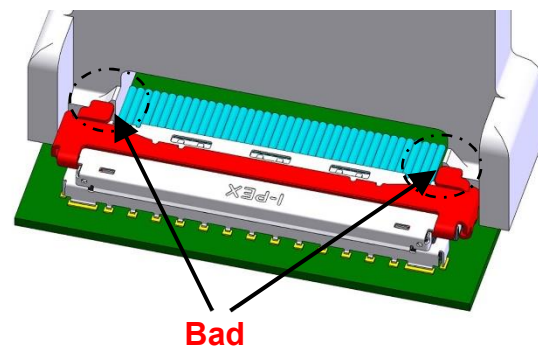
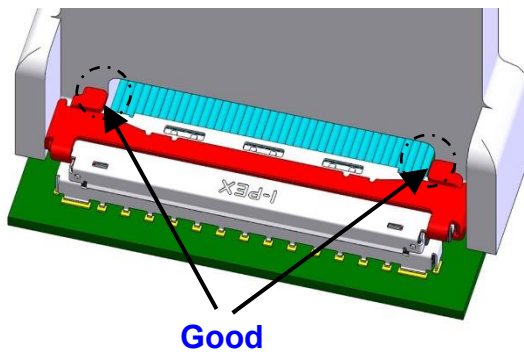
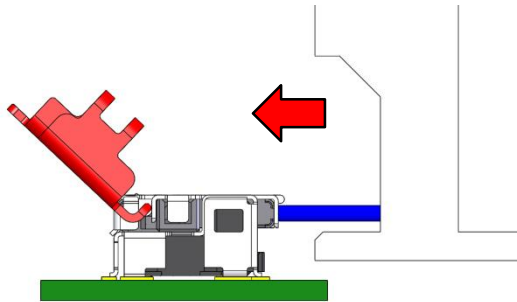


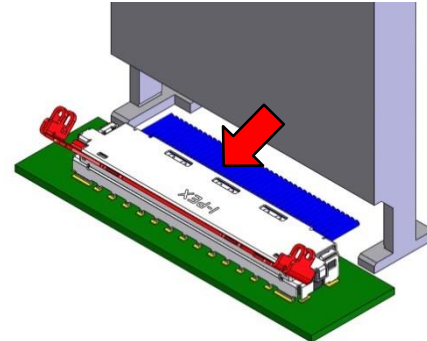
Fig.16-3

※Dual-Hook Pull Jig for 30P, 40P, 50P, and 60P. **Do not use on 70P.**

- ③ Slide the “dual-hook pull jig” from the cable side and attach the hooks to the cable connector. (see Fig.17)
- ④ Move the jig until it reaches the stopper, ensuring it holds the cable connector securely. (see Fig.18)
- ⑤ Lift the jig vertically away from the PCB surface. (see Fig.19)

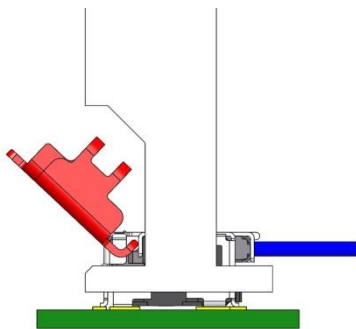


The side view

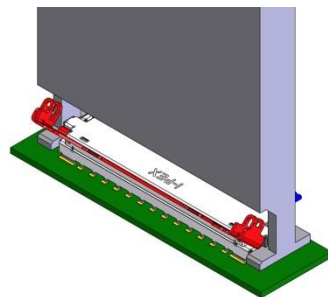


The front view

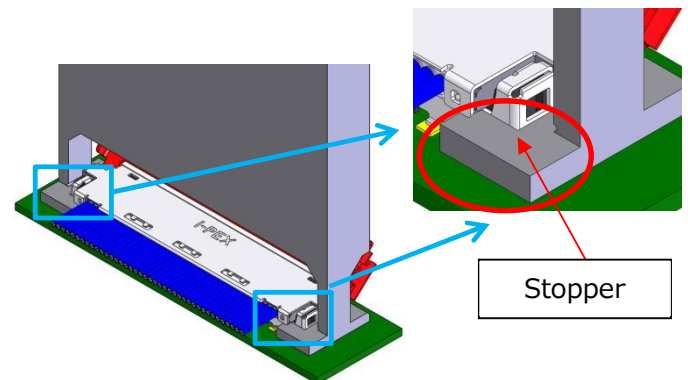
Fig.17



The side view

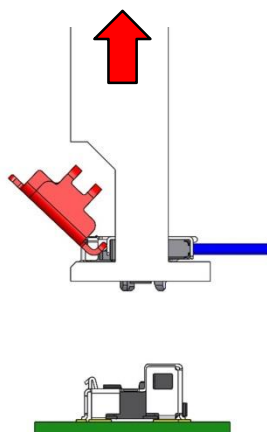


The front view

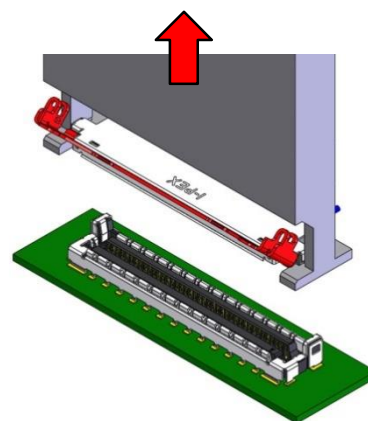


The back view

Fig.18



The side view



The front view

Fig.19

## ※ Single-Hook Pull Jig for 30P, 40P, 50P, 60P, and 70P.

- ③ Slide the “single-hook pull jig” parallel to the PCB and set it onto the connector. (Fig.20)
- ④ Insert the jig into one side of the plug. (Fig.21)
- ⑤ Lift the jig vertically from the PCB to remove the connector from the hooked side. Once one side is removed, insert the jig on the opposite side and repeat the removal process. (Fig.22)

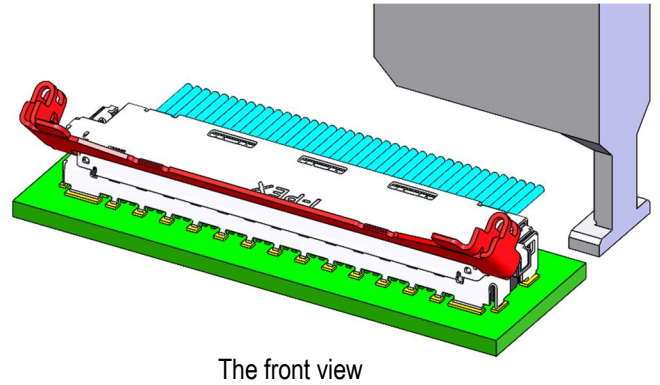
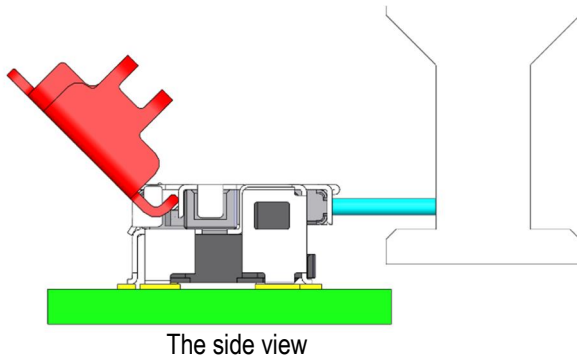


Fig.20

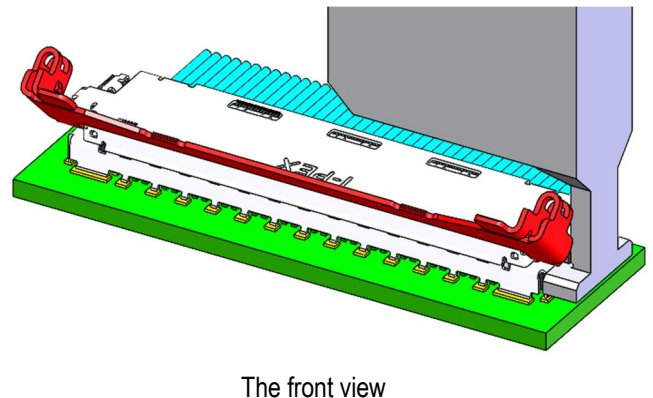
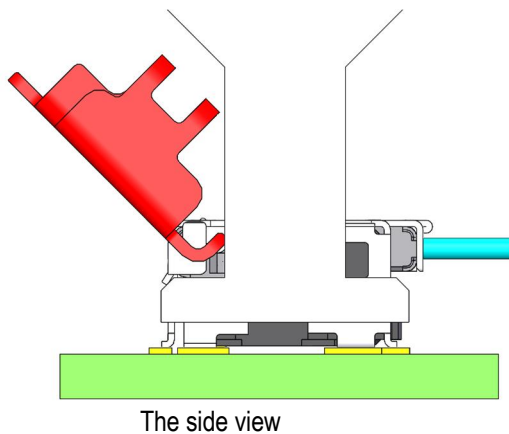


Fig.21

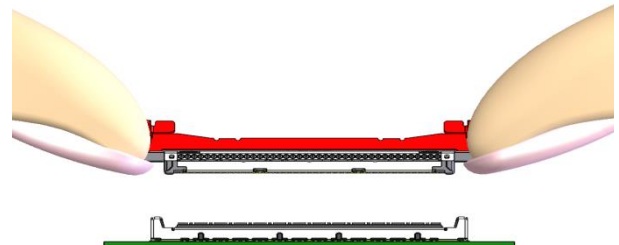
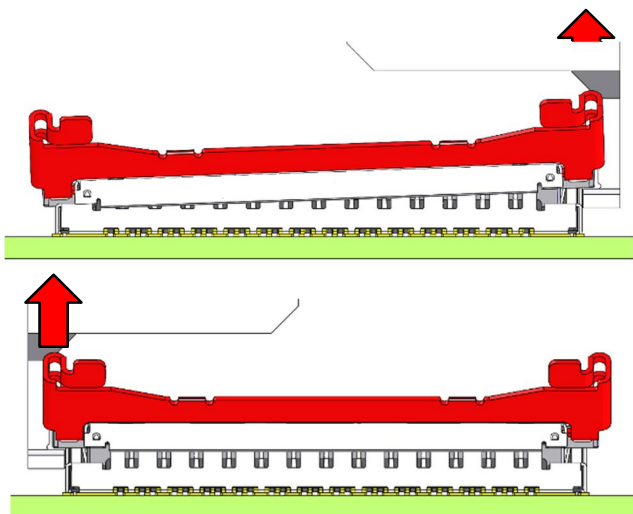


Fig.22

## CAUTION

Fully insert fingernail under the tab bases and flip them up to remove the plug.

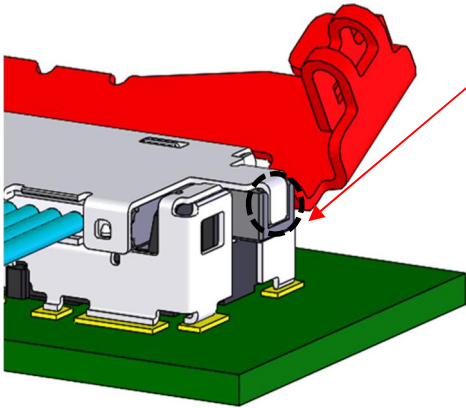


Fig.23

Do not lift the plug when load is applied only to Shell-A, as this may cause deformation.

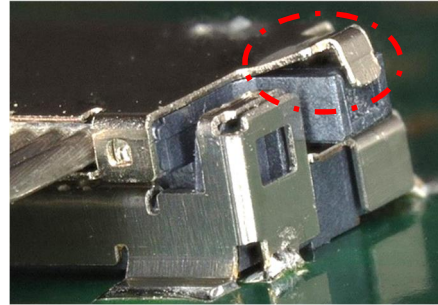


Photo.2 Shell-A Deformation



## 【Unlock Jig】

When withdrawal using Unlock jig, jig shape is presented in Fig.24 for reference.

pos.	A	B	C
30P	17.3	12.5	20.3
40P	21.3	16.5	24.3
50P	25.3	20.5	28.3
60P	29.3	24.5	32.3
70P	33.3	28.5	36.3

Unit: mm

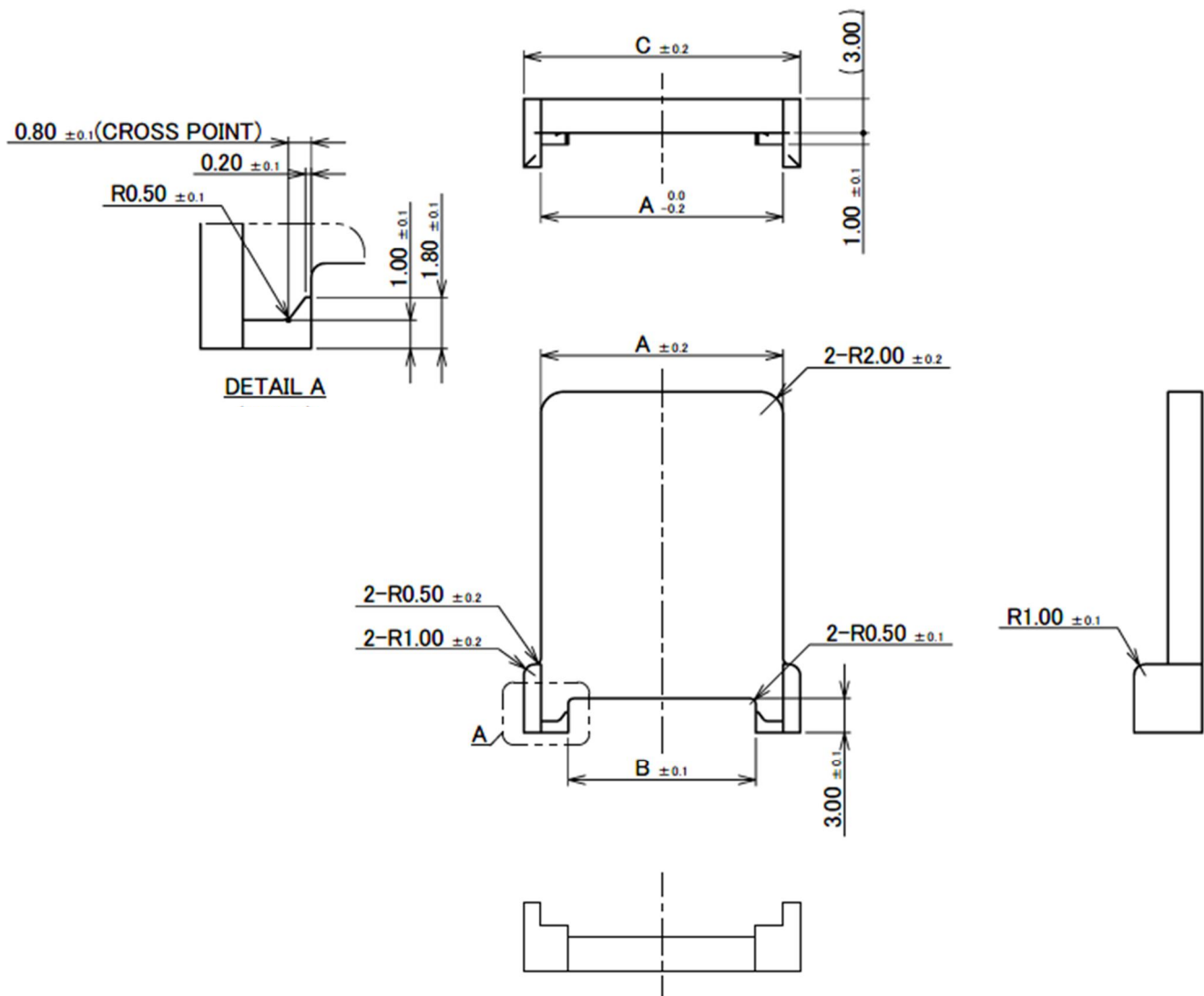


Fig.24 Reference: Unlock Jig

## 【Dual-Hook Pull Jig】

Refer to Figure 25 for the dual-hook pull jig shape and dimensions, provided for reference.

pos.	A	B	C	D
30P	18.2	16.6	12.8	15.5
40P	22.2	20.6	16.8	19.5
50P	26.2	24.6	20.8	23.5
60P	30.2	28.6	24.8	27.5

※Use single-hook pull jig for 70P.

Unit: mm

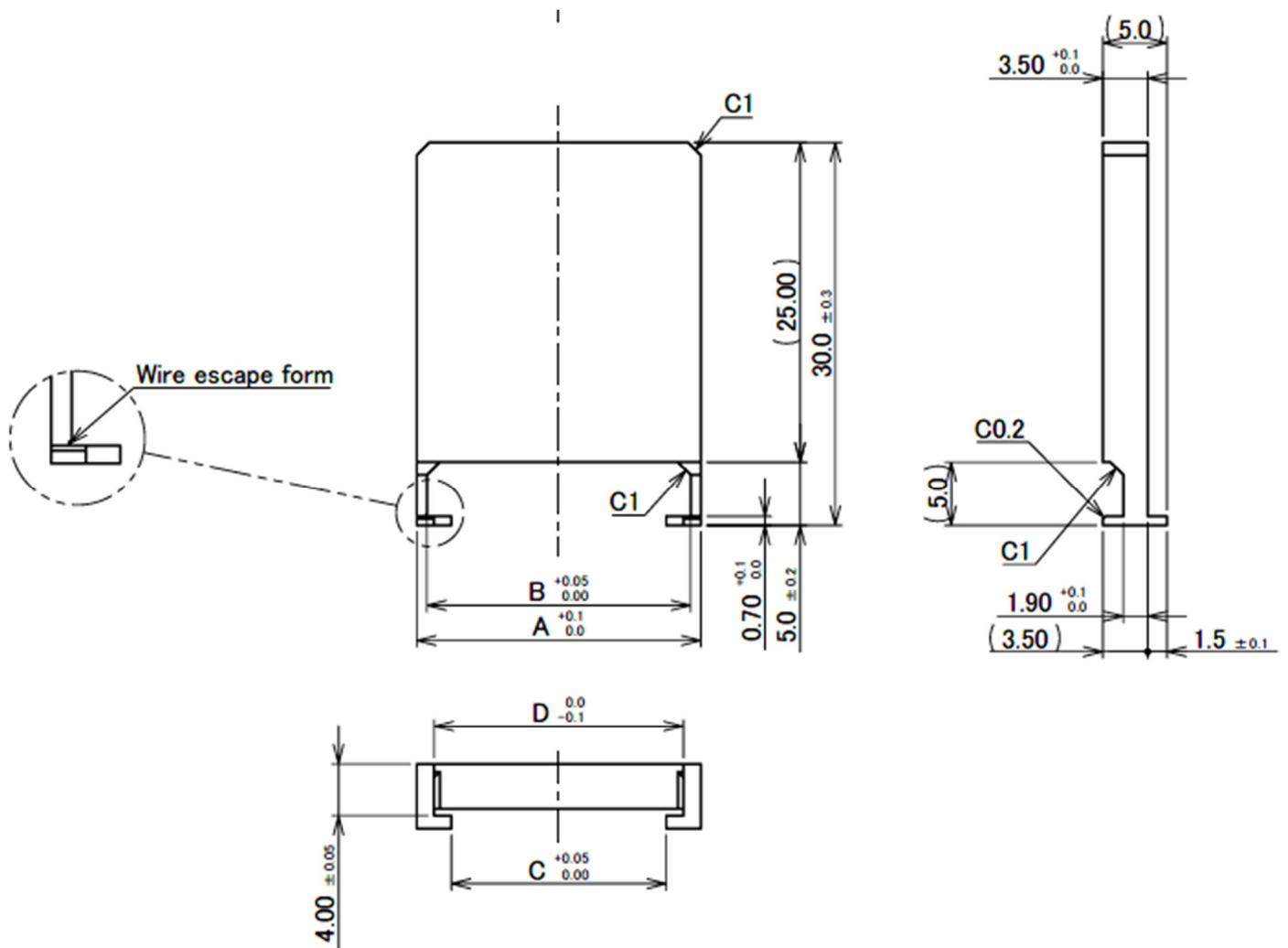


Fig.25 Reference: Dual-Hook Pull Jig

**【Single-Hook Pull Jig】**

Refer to Figure 26 for the single-hook pull jig shape and dimensions, provided for reference. This jig is applicable for all pin counts.

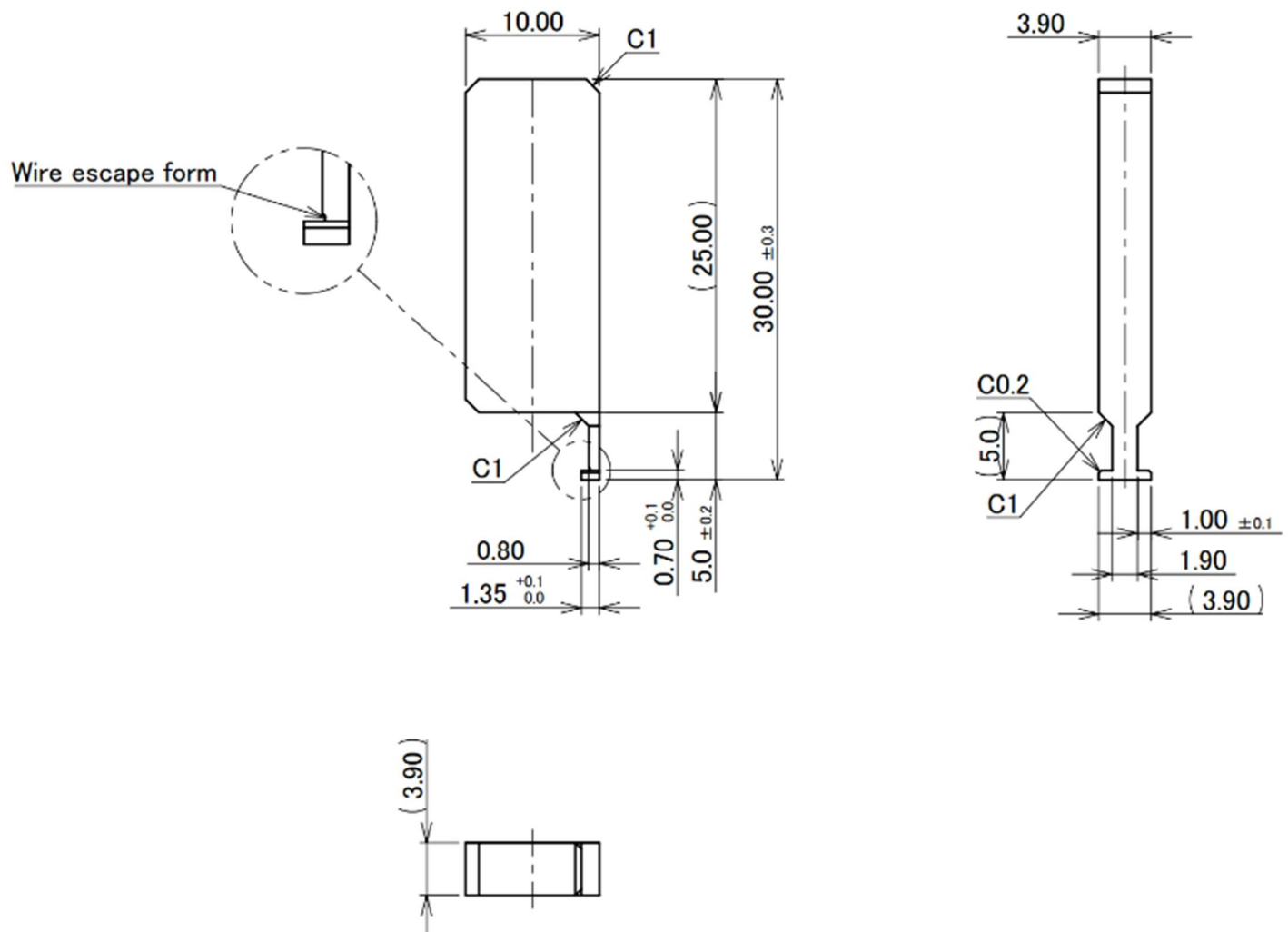


Fig.26 Reference: Single-Hook Pull Jig

## CAUTION

- Do not lift lock cover finger hook inward or excessive force applied to the connectors may damage them.
  - Do not unmate a cable connector by pulling cable.
  - When withdrawing the connector, we recommend that you pull the finger perpendicular to PCB.
- When removing one side (cable pitch direction) first, please do not apply load to the top of the connector. (see Fig.28)
- Allowable mating angle is shown in Fig.29. When the jig is lifted up to un-mate the cable connector, The unmating angle must be within this tolerance.

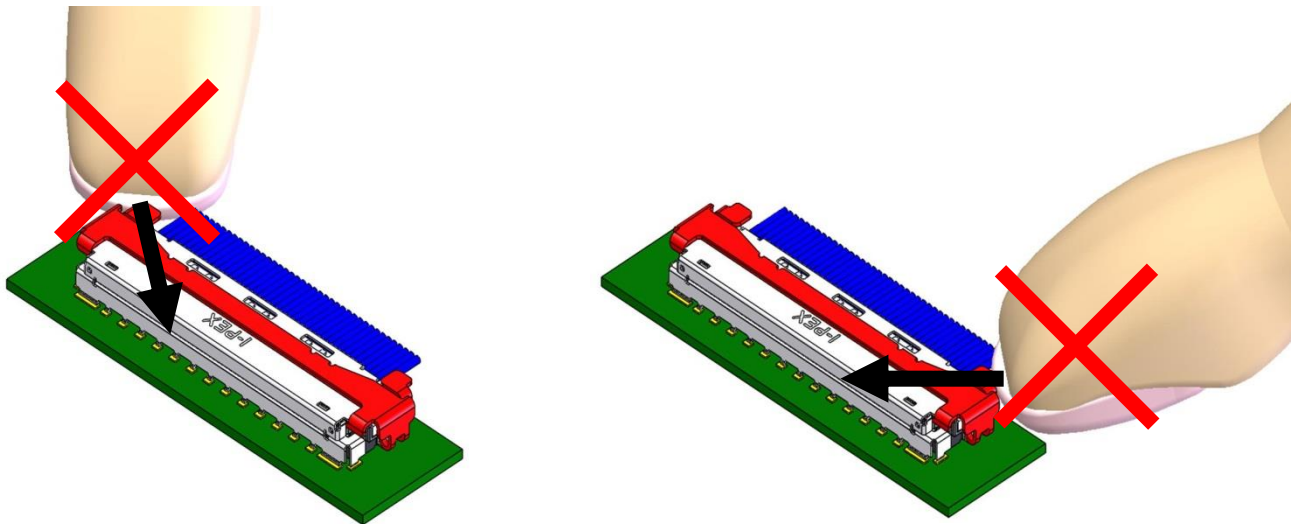


Fig.27

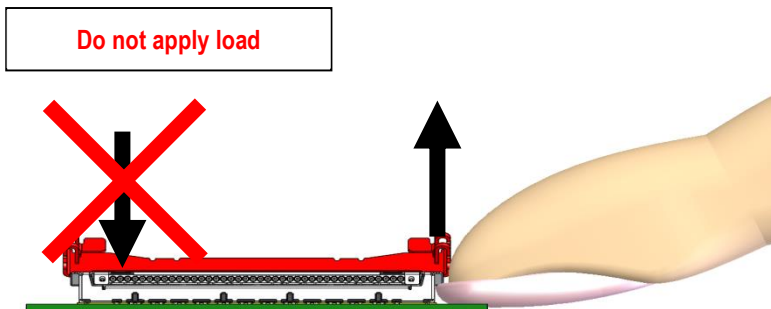


Fig.28

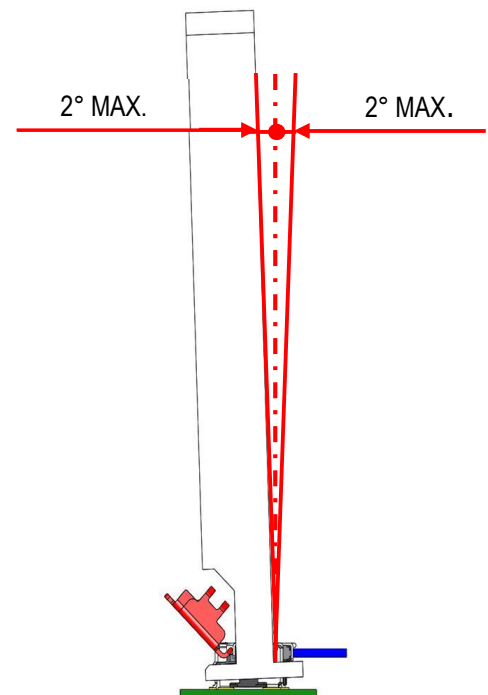


Fig.29 Allowance connector mating angle

## CAUTION

- Do not unmate plug before opening lock cover, or it may damage receptacle and decreases plug retention force.

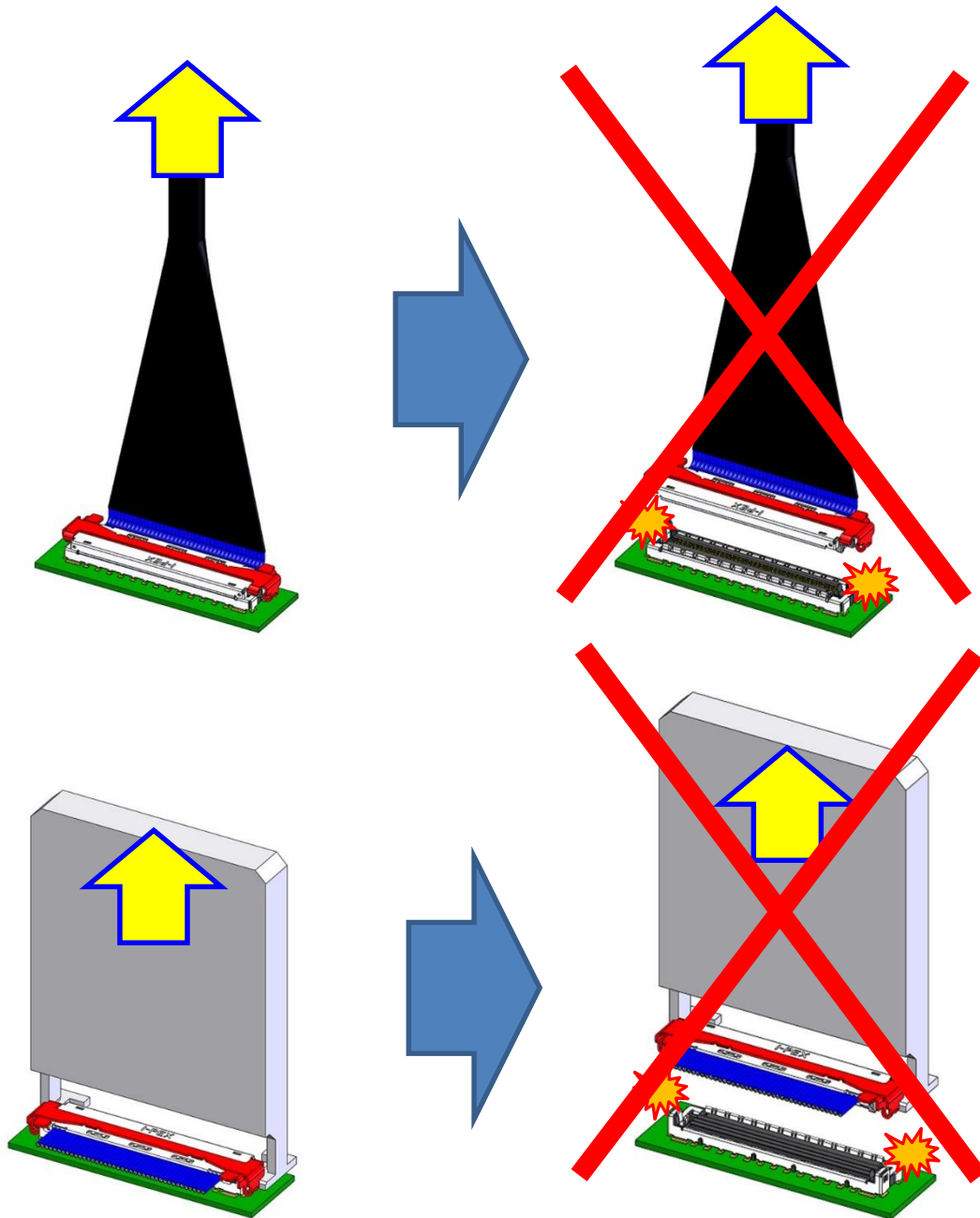


Fig.30 Unmating connectors by force

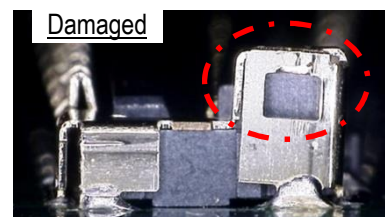
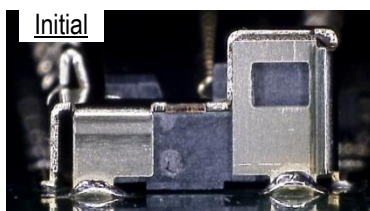


Photo.3 Damaged RECE.



## 【How to unmate by using PULL TAPE】

※For connector with PULL TAPE HOLDER only

- ① Place the TAPE attached to the PULL TAPE HOLDER vertically against PCB.

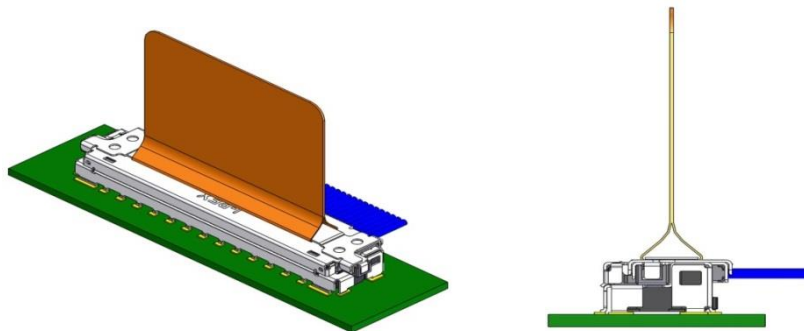


Fig.31 Mated Connector with PULL TAPE

- ② Hold center of the PULL TAPE with fingers and pull up vertically to unmate plug from receptacle.

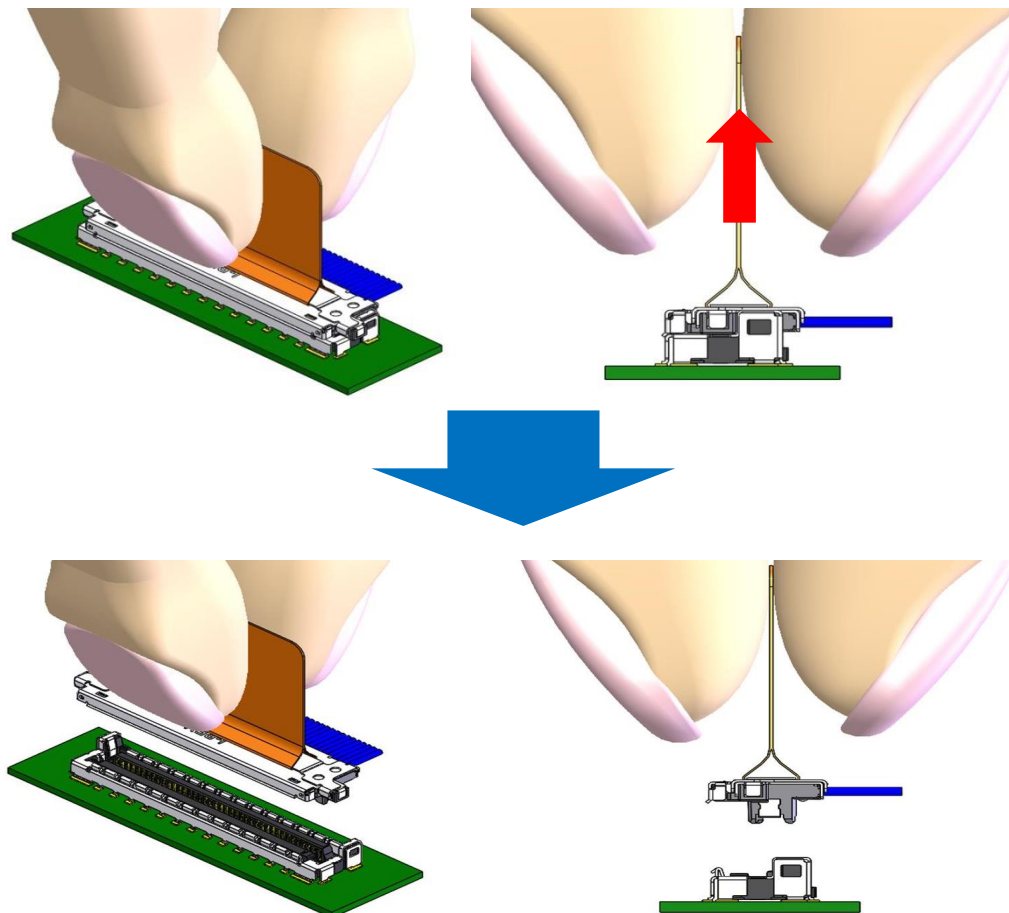


Fig.32 Unmating connectors by pulling PULL TAPE

## CAUTION

- Do not pull one side of the PULL TAPE and rotate it while unmating. [Fig. 33]  
Do not pull the PULL TAPE toward arrowed direction, or it may tear the PULL TAPE and deform SHELL-A and PULL TAPE HOLDER. Make sure to hold center of the PULL TAPE and pull it up vertically. [Fig. 34]
- Do not exceed PULL TAPE slanted allowance angle while connectors were mated. [Fig. 35]

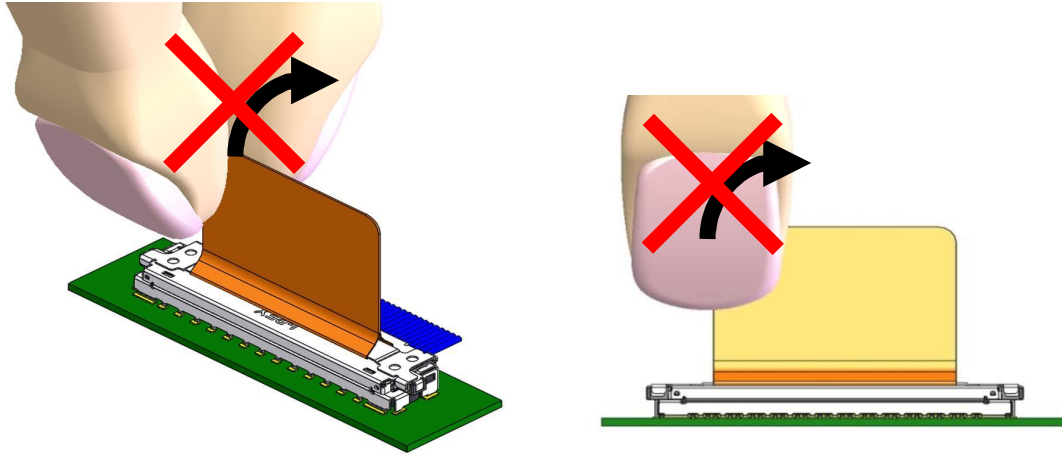


Fig.33 Do not pull one side of the PULL TAPE

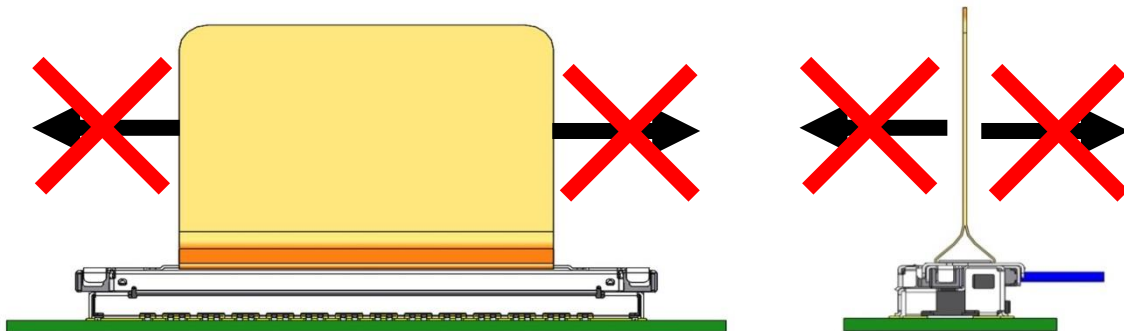


Fig.34 Prohibited PULL TAPE pulling direction

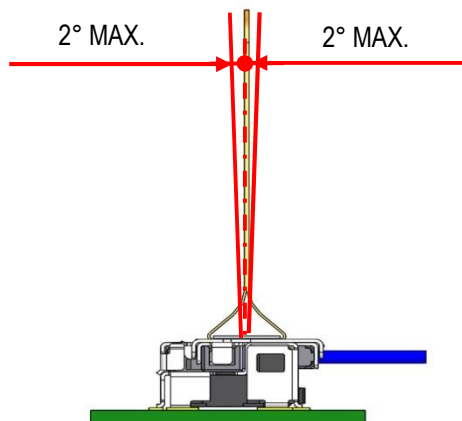
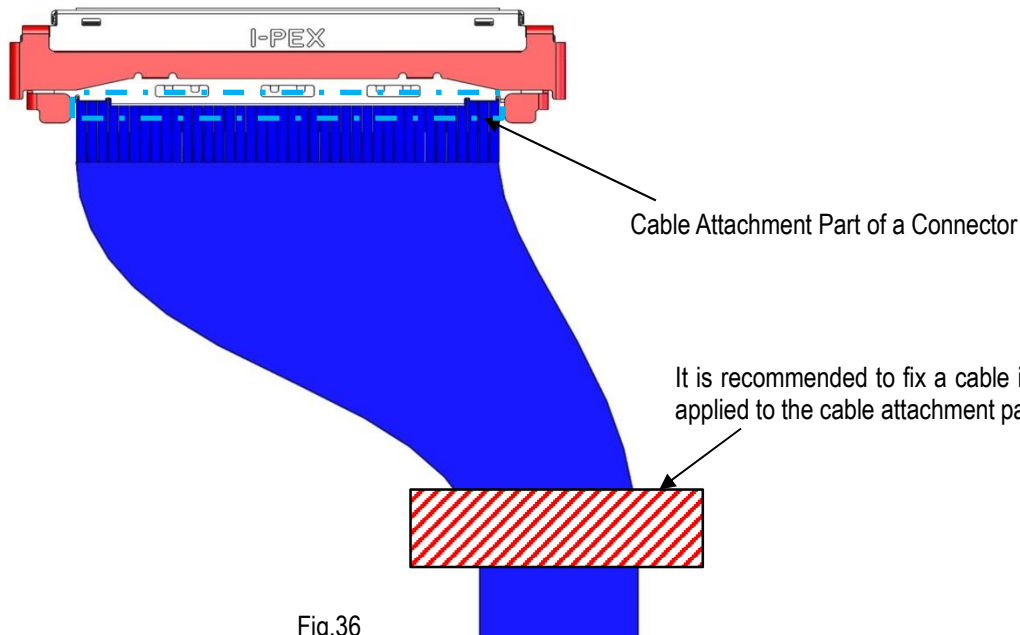


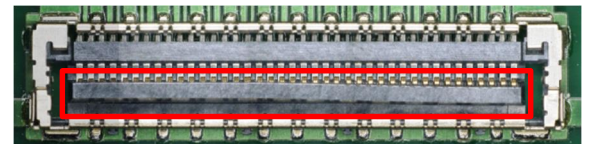
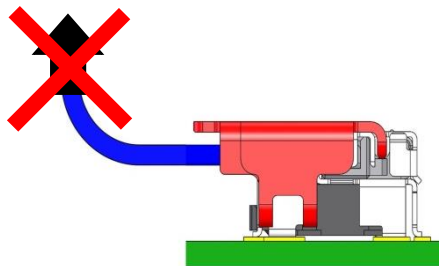
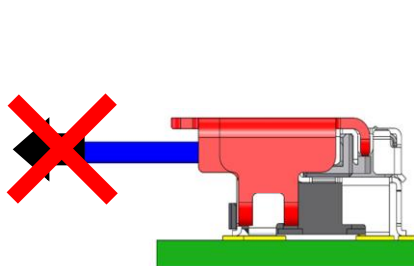
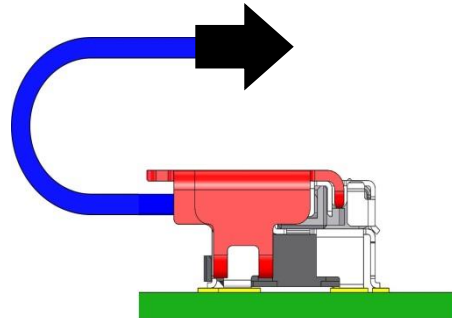
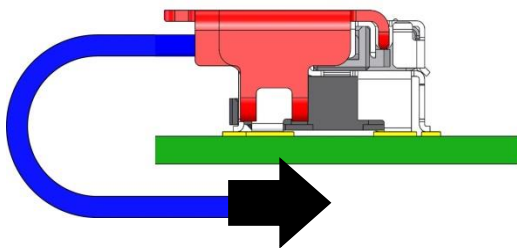
Fig.35 PULL TAPE slanted allowance angle

## 【Caution in Cable Connector Handling】

- Handle the cable connector carefully in cable harnessing work so that pulling force is NOT applied to specific cables.
- Be careful so that pulling force and/or repeated bending force is NOT applied to the cable attachment part of a cable connector.



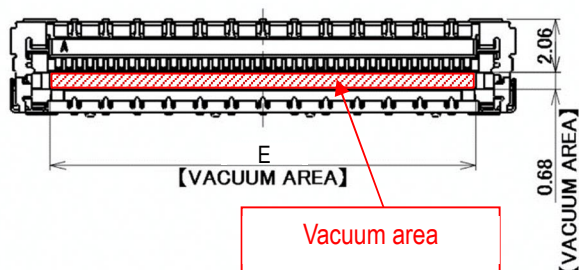
- Do not pull cable that will apply excess force to it or it may damage or unmate the connectors. [Fig. 37]
- Do not pull cable to unmate connectors or it may damage receptacle. [Fig. 38]



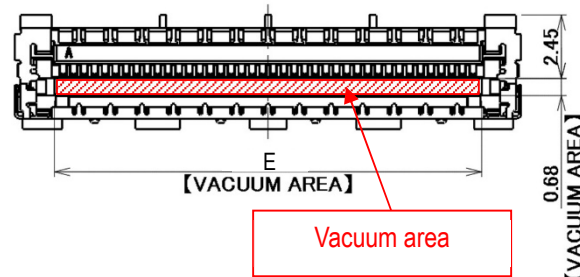
**【Recommend Vacuum Nozzle Design for Receptacle】**

Figure 39 shows the recommended vacuum areas of receptacle top surface. If current vacuum nozzle for mounter cannot vacuum well, refer to figure 40 for recommended vacuum nozzle design.

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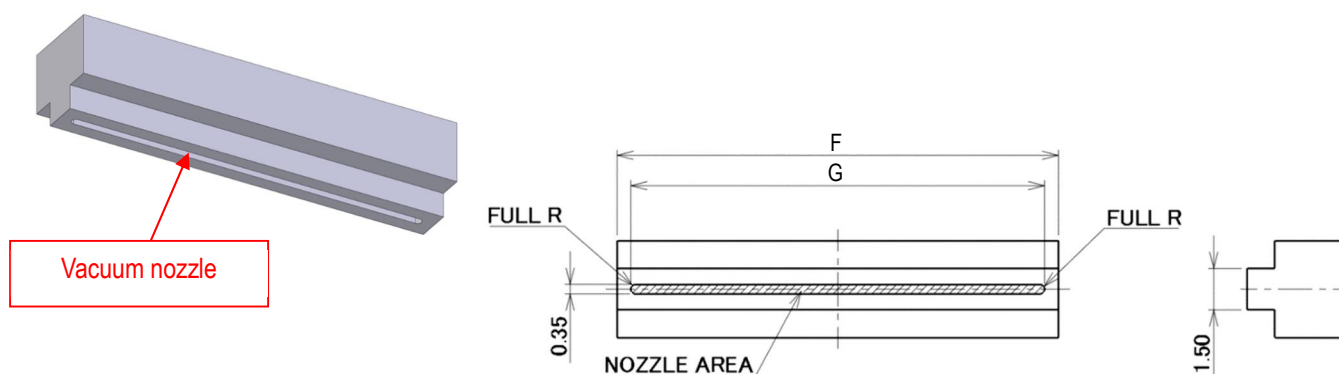


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Pos.	E
30	12.07
40	16.07
50	20.07
60	24.07
70	28.07

Fig.39 Recommended Receptacle Vacuum Area [Unit: mm]



Pos.	F	G
30	12.00	11.00
40	16.00	15.00
50	20.00	19.00
60	24.00	23.00
70	28.00	27.00

Fig.40 Recommended Vacuum Nozzle Design [Unit: mm]