

## ix Industrial Soldering Plug Cable Assembly Instructions.

### 1. Scope of Applications

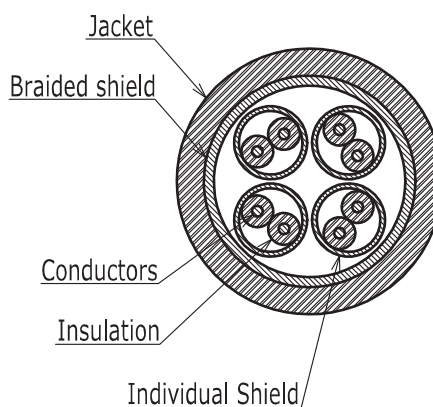
This manual specifies cable assembly procedures of the IX40G Series.

### 2. Applicable Products

09451812560 ix Industrial® type A

09451819000 ix Industrial® type B

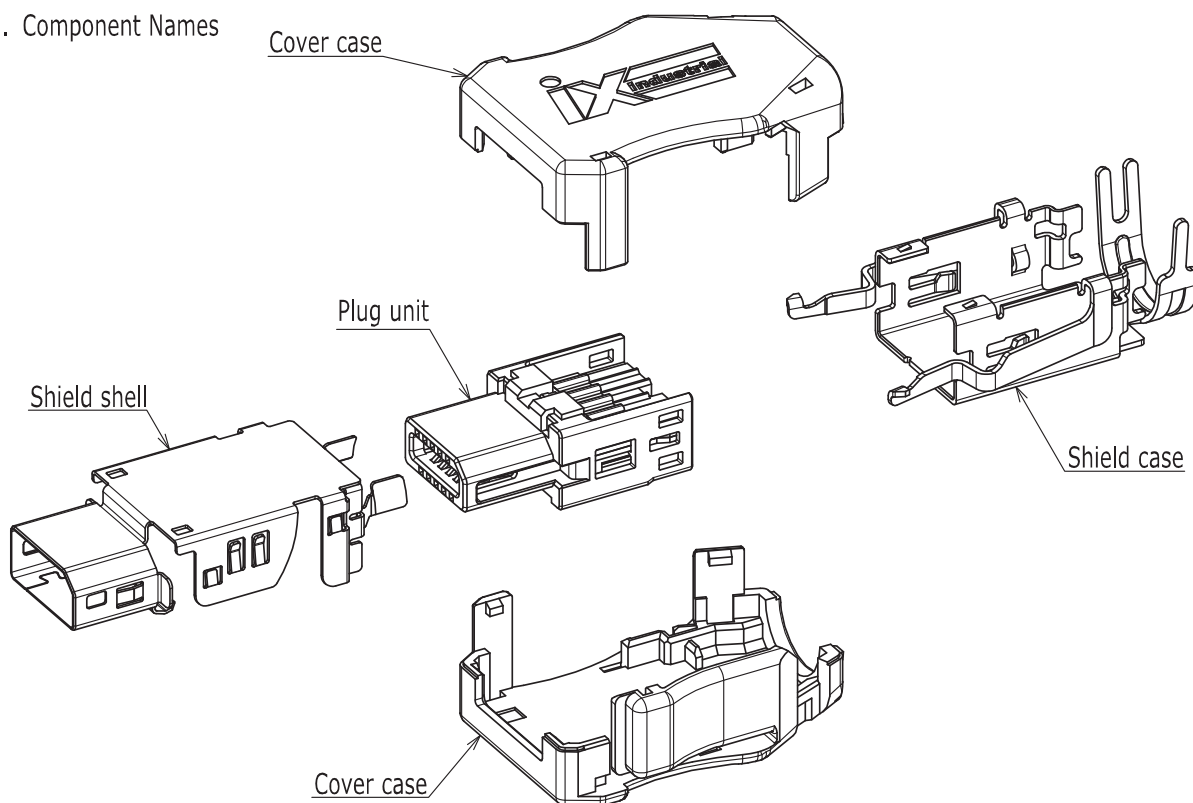
Items	Specifications
Conductors Size	AWG # 28-22
Insulation Outer Diameter	φ 1.55 mm Max
Braided Shield	Tin Plated
Outer Jacket Diameter	φ 6.3 -7.2 mm



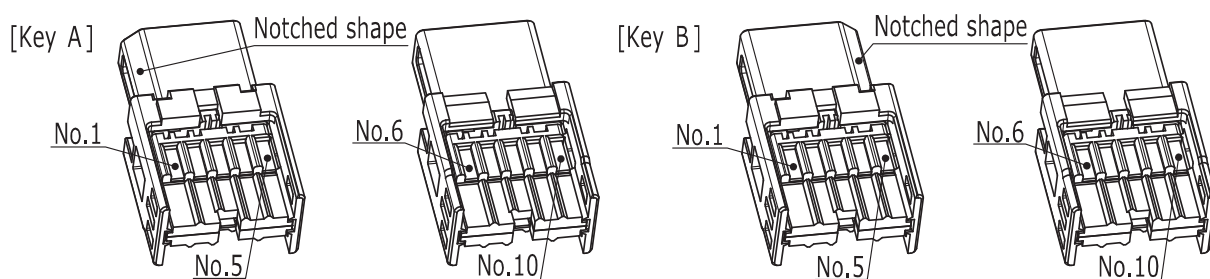
### 3. Operation Procedures

Please refer to next pages.

#### 4. Component Names



#### 5. Contact number assignment of Plug unit



#### 6. Wire arrangement for each contact

[Key A] In case of the Ethernet applications

Conductor number	Signal		Wiring color of the TIA cable	
	10/100 Mbit/s	1/10 Gbit/s	TIA/EIA-568-A	TIA/EIA-568-B
1	TX+	BI_DA+	White/Green	White/Orange
2	TX-	BI_DA-	Green	Orange
3	N.C	N.C	N.C	N.C
4	N.C	BI_DC+	Blue	Blue
5	N.C	BI_DC-	White/Blue	White/Blue
6	RX+	BI_DB+	White/Orange	White/Green
7	RX-	BI_DB-	Orange	Green
8	N.C	N.C	N.C	N.C
9	N.C	BI_DD+	White/Brown	White/Brown
10	N.C	BI_DD-	Brown	Brown

[key B] There is no contact assignment except for the Ethernet applications

## 7. Required components and tools

The required component and tool examples for the cable assembly are given below.

- Cable length (finished length L + 17mm length inside the plug per end)
- Copper tapes (4mm to 5mm width)
- Hand tool for crimping cable clamp **09458000181**
- Calipers or Rulers (For cable termination length measurement)
- Cutters (For stripping cable jacket)
- Cable Scissors (For cutting braided shield) **pn 09458000004**
- Wire stripper (For stripping insulation) **pn 09458000005**

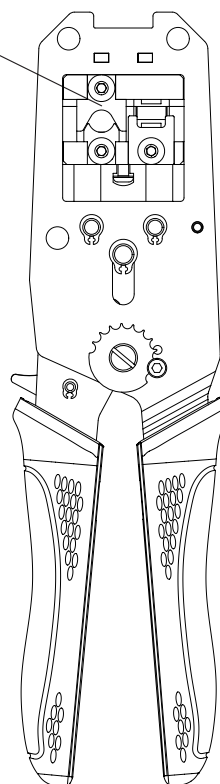
## 8. Hand tools

Crimp cable clamp by using the hand tool as illustrated below.

Tool Name	Tool Code
ix Industrial Tool	09458000181

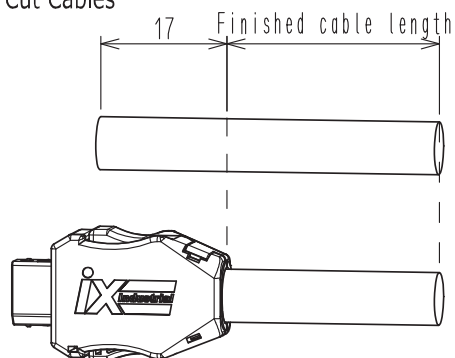
Please refer to instruction manual 0945800018199.xx for tool handling.

Cable clamp crimping part



## 9. Cable termination

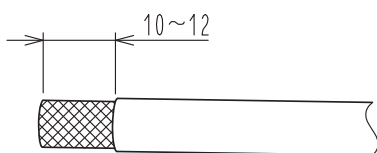
### ① Cut Cables



Cut cables.

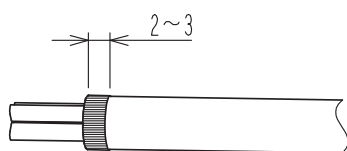
Necessary cable length =  
finished cable length + excess length  
(17mm from the cover case to the cable end)

### ② Strip Jacket

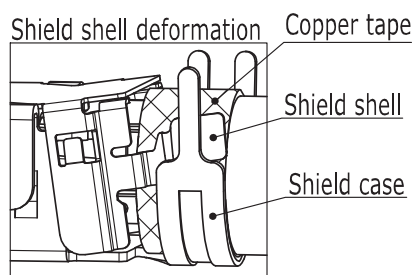


Strip cable jacket to 10mm - 12mm from cable edge.

### ③ Braided Shield Processing

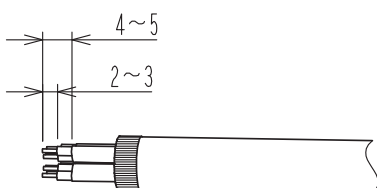


Pull the braided shield back over the Jacket,  
unravel braided shield wires and cut to 2mm - 3mm long.



※Please evenly unravel the braided shield wires.  
It will have variance in cable thickness  
after wrapping the copper tape if the braided  
shield has gathered together.  
And this will cause the shield shell deformation  
by interference with the copper  
tape in the assembly process of the shield  
case and the shield shell described below.

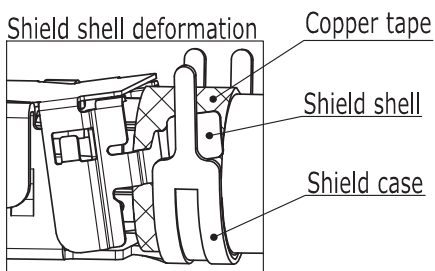
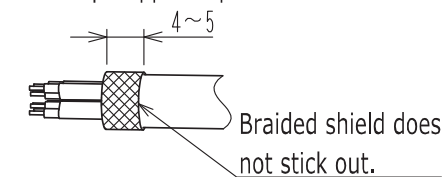
### ④ Cut Tape/Other materials/Individual Shield



If there are tape, other materials inside or individual shield,  
use a nipper to cut them to 4mm-5mm long from the top  
of the conductor, use a wire stripper to strip insulation to  
2mm-3mm long from the top of conductor.

※Be careful not to damage the insulation while cutting.

### ⑤ Wrap Copper Tape



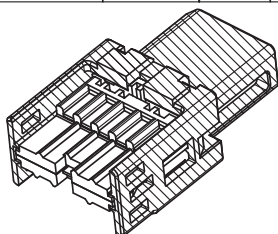
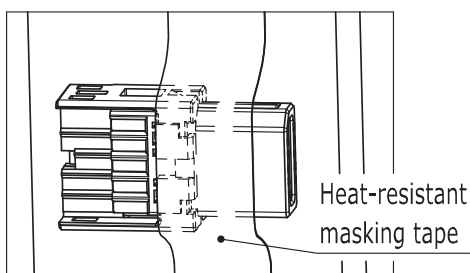
Pull the braided shield back over the jacket and wrap the copper tape free from folds on it.  
Use copper tape with 4mm - 5mm width to prevent the braided shield sticking out.

※The copper tape length shall be approximately 4cm, wrap the tape between 1 and 2 rotations.

※Wrap the tape tightly otherwise it will cause the shield shell deformation by interference in between the assembly process of the shield case and the shield shell described below.

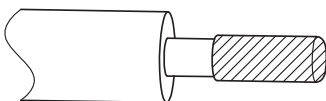
## 10. Solder wire to plug unit

### ① Protect connector while soldering

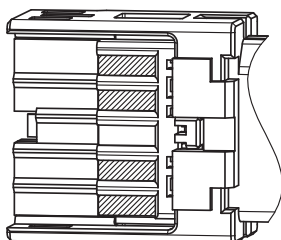
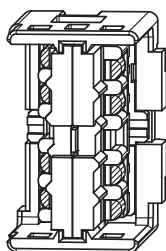
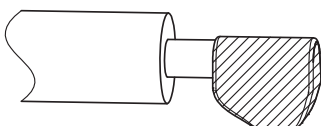


### ② Pre-tin

CORRECT



INCORRECT



Attach heat-resistant masking tape on plug unit where it is easy to be touched by iron tip, to protect plug unit.

It is recommended to perform soldering with the soldering iron in the right hand, and the tape in left hand (for right-handed people).

Work in the direction illustrated on the left.

※Especially for the molding area with hatched lines, be sure it is not deformed by heat, because it is the interference section with other components. This applies for other areas as well, be sure the soldering iron tip does not touch then and cause molding deformation.

Pre-tin wire conductor and plug unit with following conditions.

Soldering iron tip temperature : 360°C Max

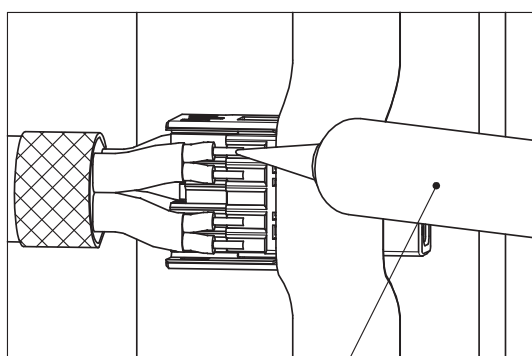
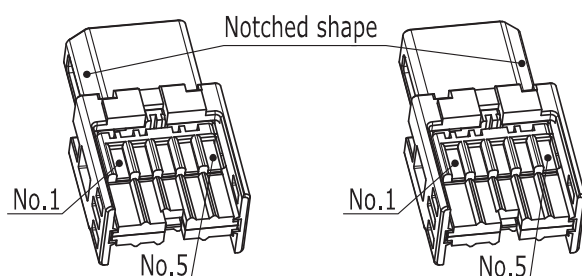
Heating time : 5 seconds Max

※Lightly tin the tip of the wire, do not apply excessive solder on it. Only pre-tin the plug unit for required number of conductors.

### ③ Soldering

[key A]

[key B]



Soldering iron

Terminate pre-tinned wire to plug unit.

※Double check the wire assignment before soldering.

Be sure the soldering tip of iron does not touch the molded parts.

Solder with following conditions.

Soldering iron tip temperature : 360°C Max

Heating time : 5 seconds Max

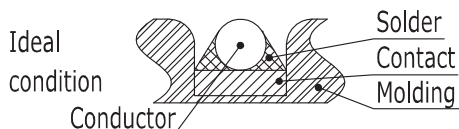
Bridge between contacts might occur in case the soldering amount is excessive. You may want to adjust the soldering amount to enable termination with pre-tinned soldering amount only.

You may lightly tin the tip of the soldering iron before soldering pre-tinned parts, this will make the termination easier.

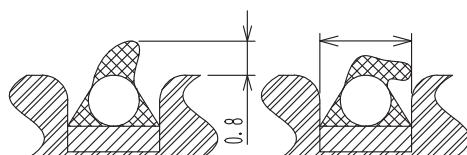
※Please perform the soldering in the shortest possible time, because wire insulation melts easily with heat.

※When finished, check there is no bridge between adjacent contacts. Because rework is not available after assembly with metal shells on it.

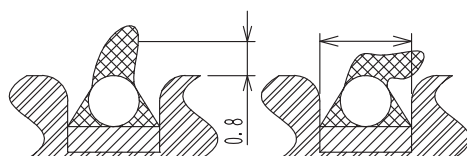
### ③ Soldering range



CORRECT



INCORRECT



When finished, check there is no soldering applied more than necessary.

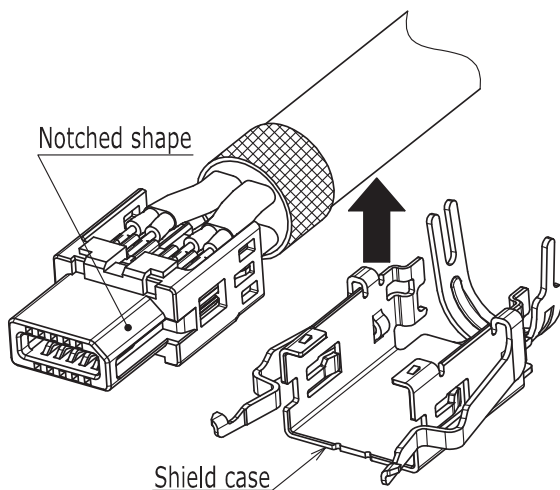
Height: 0.8mm max from molding.

Width : within the range between the inner sidewall of the molding.

## 1 1. Shield case and shield shell assembly

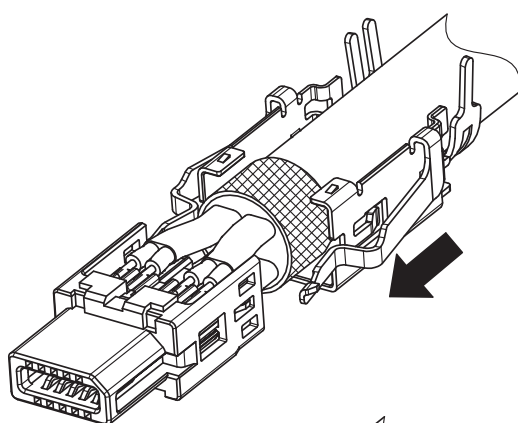
### ① Shield case assembly

Assemble shield case on to plug unit incorporating IDC cable.



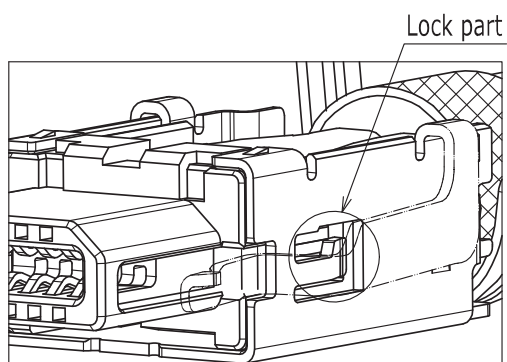
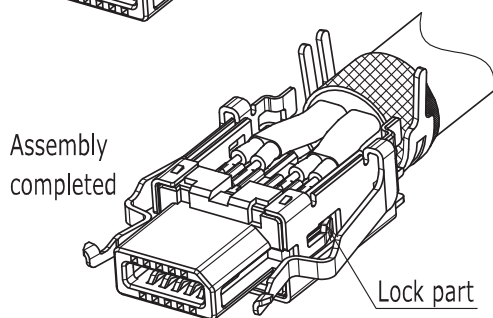
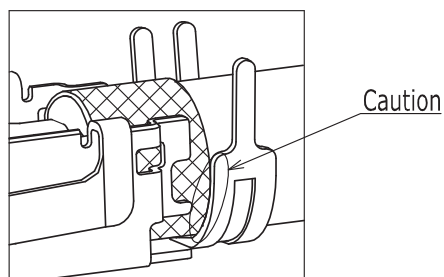
Fit the shield case on to the lower side of the cable.

※The notched shape of the plug unit faces upward against the shield case shown in the figure.



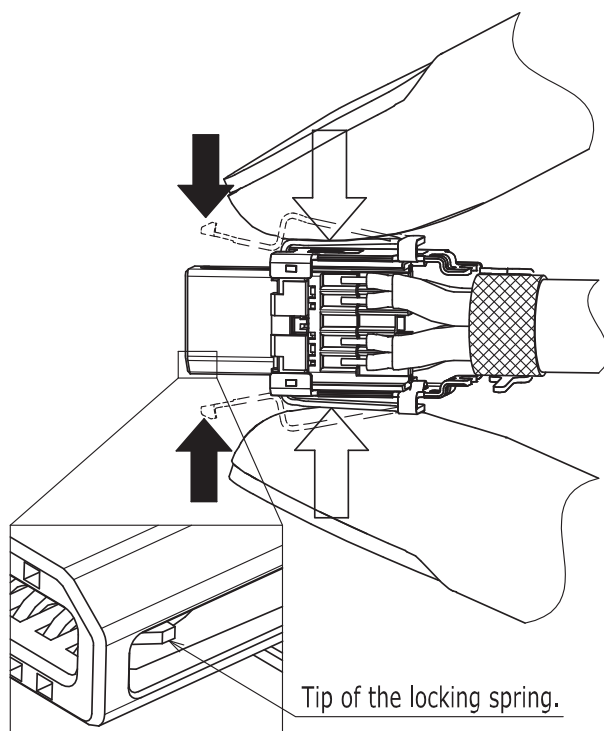
Slide the shield case in place until you hear the plug unit making a click sound.

※Be careful that the copper tape does not get turned up with interference between the clamp portion.



Check to ensure both sides are locked after assembly completion.

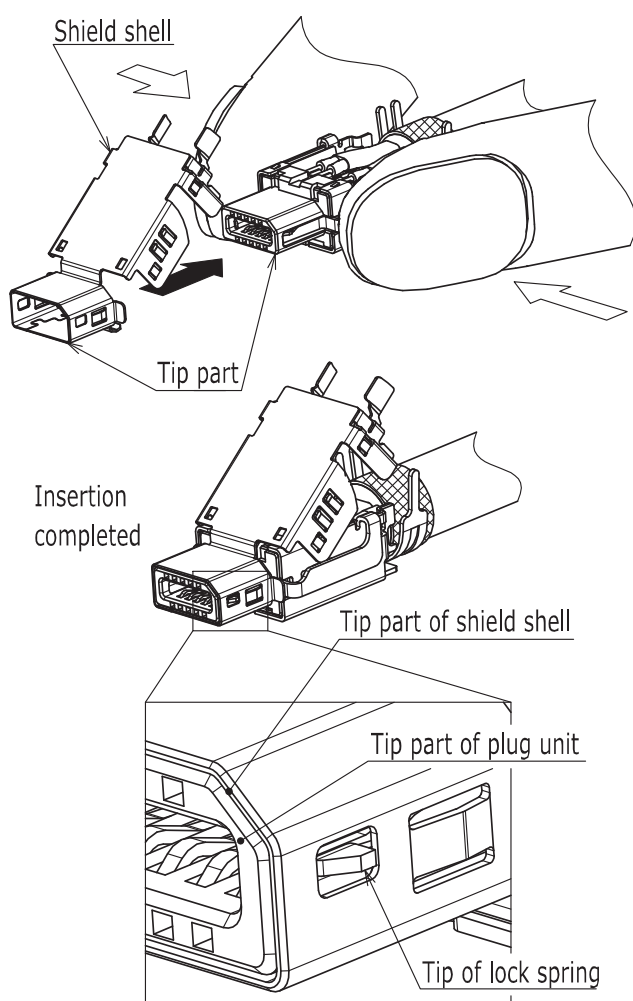
## ② Shield shell assembly



Assemble shield shell

on to the plug unit incorporating the shield case.

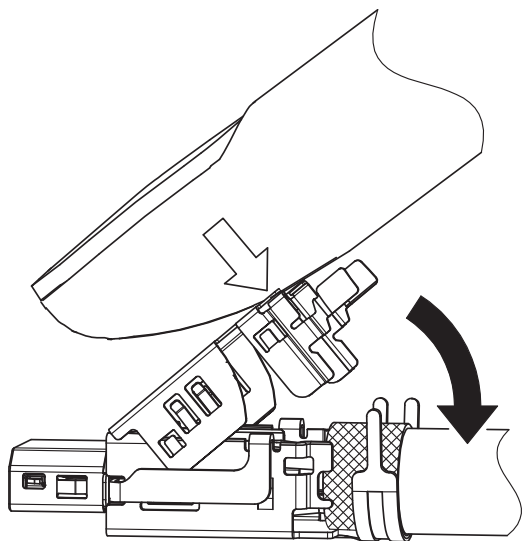
While assembling shield shell,  
push the spring in place to keep the tip of the spring  
inside the plug unit as shown in the figure.



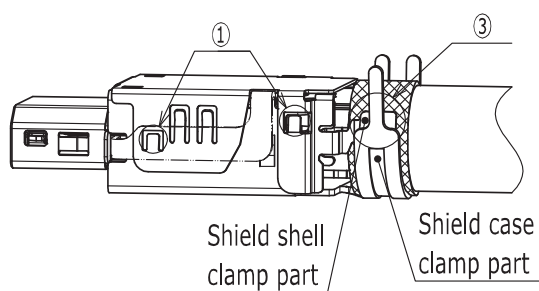
Insert the shield shell in the direction of the arrow  
while pushing in the spring.

Release pushing-in of the locking spring  
after tip parts of the plug unit  
and the shield shell are aligned.

※After insertion completion,  
confirm the tip of locking spring is projecting  
from the shield shell opening,  
and tip parts of the plug unit and shield  
shell are aligned.

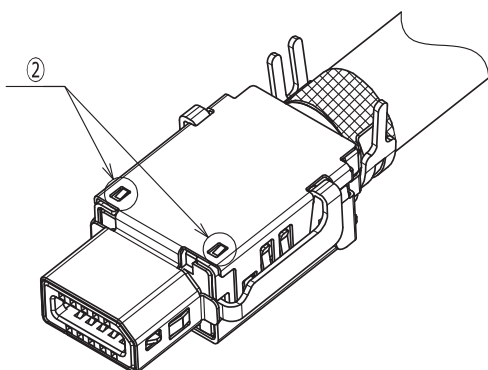


Push down shield shell in direction shown in the figure, and fit the shield shell clamp in the shield case in place.

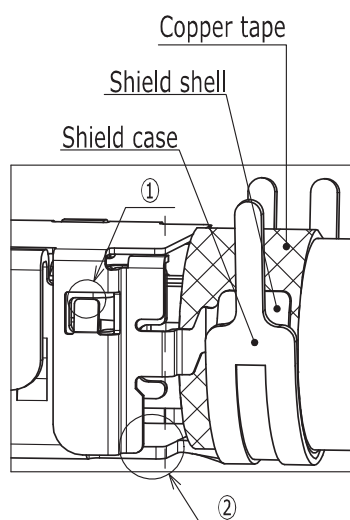


Please check the 3 points below after assembly completion.

- ①The engaged parts of the shield shell and the shield case are engaged with each other.
- ②The projection of the shield case is caught in the opening of the shield shell.
- ③The clamp of the shield shell is placed behind the clamp of the shield case.



CORRECT

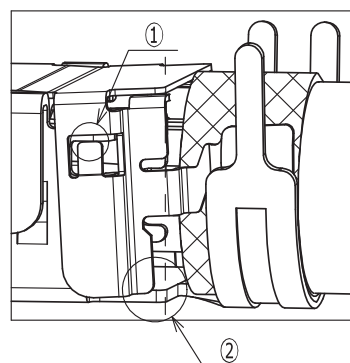


While inserting the shield shell, it may deform depending on the condition of cable and copper tape if they are hitting each other.

① Locked

② Shield shell does not jump out from shield case.

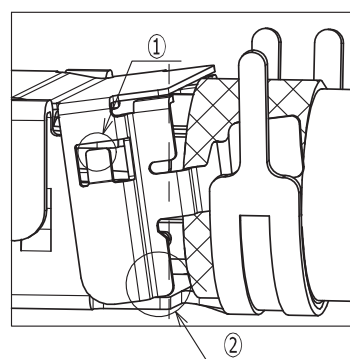
CORRECT



① Locked

② Shield shell does not jump out from shield case.

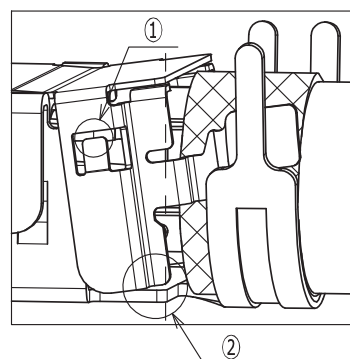
INCORRECT



① Unlocked

② Shield shell jumps out from shield case.

INCORRECT

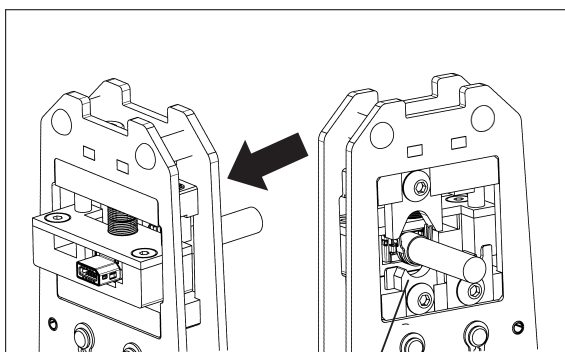


① Unlocked

② Shield shell jumps out from shield case.

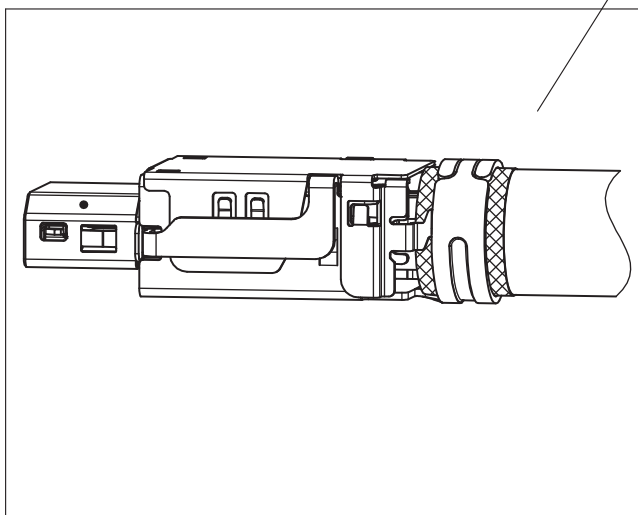
※ It is applicable to use by pushing back the shield case ensuring shield shell does not jump out from shield case.

## 1 2. Crimp Cable Clamp



Shield case clamp is available different sizes for variant cable diameters.

Inner unit touches the crimping die of the tool.



Crimp the cable with shield case clamp.

Insert inner unit (the plug unit incorporating shield case and shield shell) diagonally while locating the inner unit, touches the crimping guide of the tool.

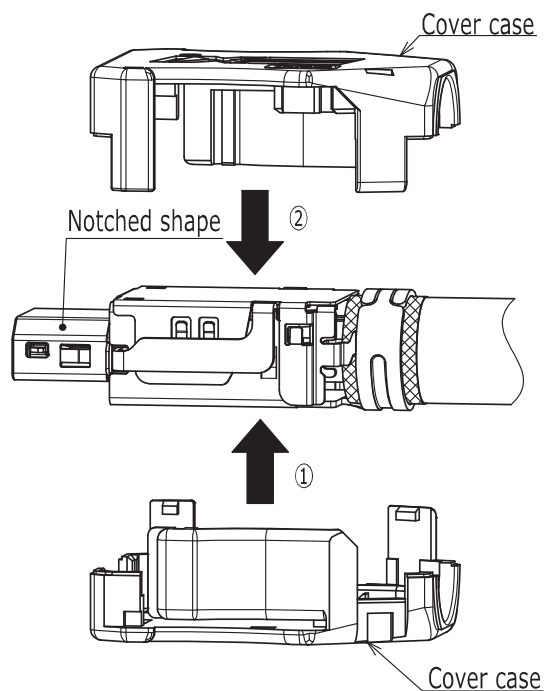
Be careful not to damage the connector while taking out.

※After setting is completed, check the inner unit touches the crimping die of the tool, and the shield case is caught in the hand tool when the cable is pulled.

After correct setting is confirmed, squeeze handles while pushing the cable in insertion direction.

Recommended crimp strength in cable axial direction : 60N or above

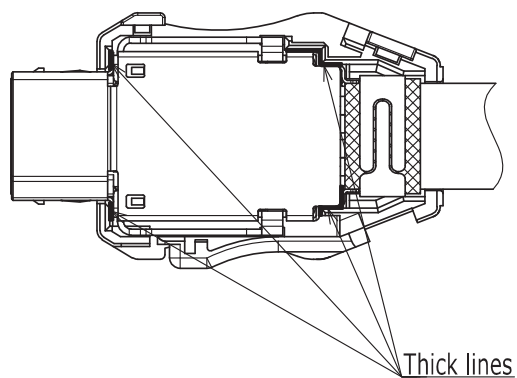
### 1 3. Cover case assembly



To fit cover case.

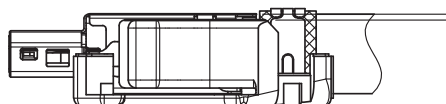
Fit the cover case in the order shown in the left figure.

Fit the lower side first then the upper side.



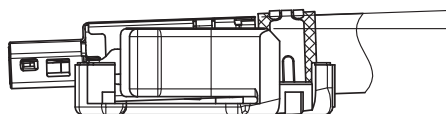
Fit the case by aligning thick lines as shown in the left figure.

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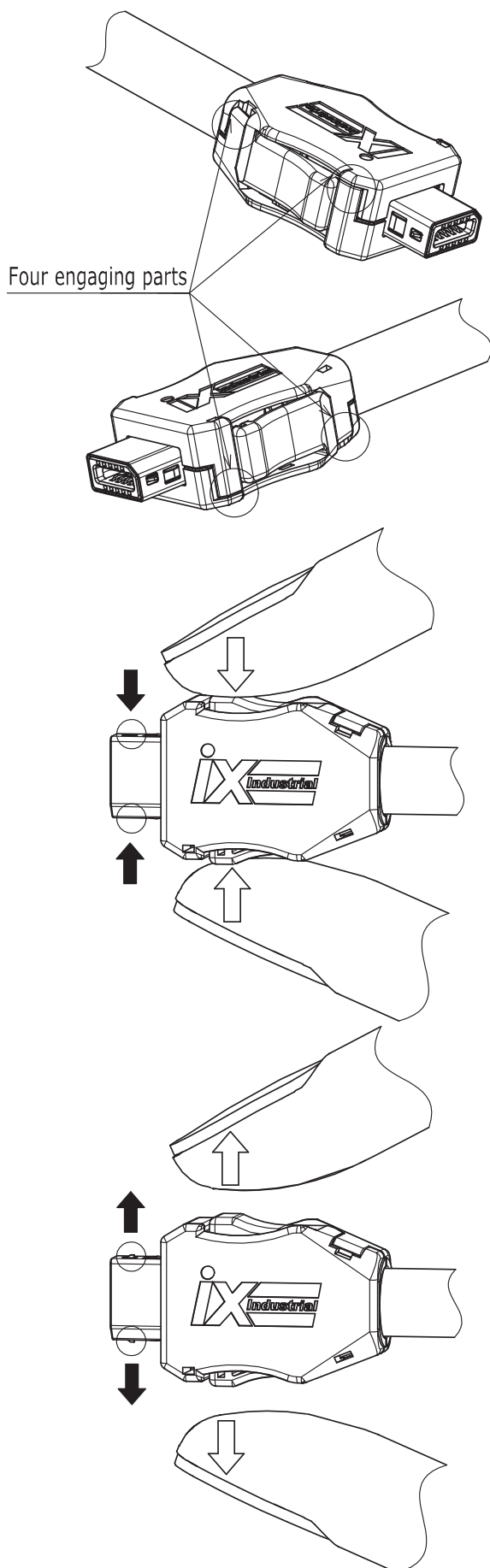
Confirm to ensure the cover case and the inner unit are assembled in parallel after one side is completed.

INCORRECT



The shield shell may not be properly assembled if one side is lifted up.

※Push back shield shell if it jumps out from shield case.



There are four engaging parts on the cover case.  
Ensure all the engaging parts are completely engaged.

※Confirm to ensure outlines of cover case are  
aligned in place.

After cover case assembly completion,  
confirm the top of the lock disappears  
when pushed down into the locking spring, and the  
top of the lock returns back after finger is released.

Concluded