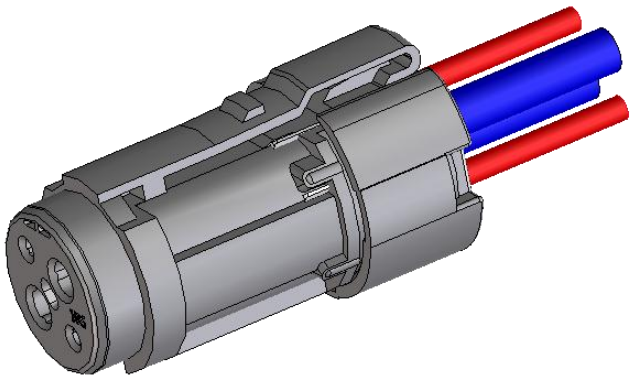
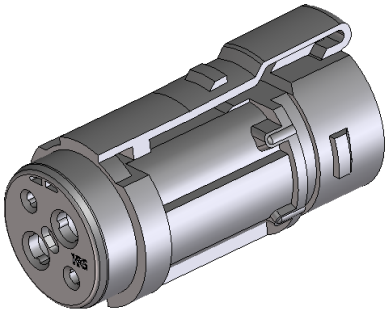
Plug side assembly procedure

■Finished state

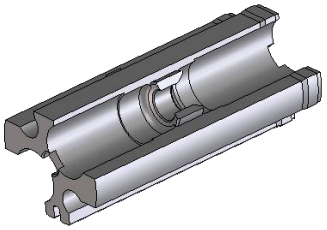


■Name of each part

Insulation case



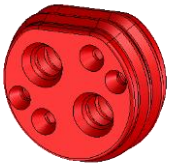
Terminal case



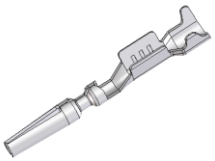
Holder (4-Core Type)

Holder (3-Core Type)

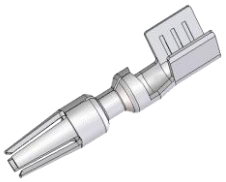
Wire seal



Signal female terminal



Power female terminal



	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
⚠2	3	DIS-C-00007911	SH.KOYAMA	EJ.KUNII	20210816

名　称　TITLE	HIROSE ELECTRIC CO.,LTD.	
BH12 SERIES ASSEMBLY PROCEDURE	APPROVED	YH.YAMADA 20200918
	CHECKED	HY.KOBAYASHI 20200918
	DESIGNED	SH.KOYAMA 20200918
	WRITTEN	KR.SUZUKI 20200918
技術指定書　TECHICAL SPECIFICATION	ETAD-C0454-00 ⚠2	1/14

FORM HC0011-9-1

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1. Pass the componests through the wire.

Pay attention to the following 2 points, and pass the holder and wire seal in this order from the terminal side of the wire.
(For captire cables, strip 40 mm or more of the cable sheath before passing it through.)

① Align the wire seal with the straight part of the holder. (Figure 1)
② For the wire seal, align the holes for the power wire and the signal wire with the holder. (front and back confirmation)

Attention!: ・When the cable sheath is dirty, remove the dirt and pass the componests through the wire.
・Route the power wire and signal wire through the specified holes shown below.
⚠・Be careful not to cross wiring between the holder and the wire seal.(In the holder)

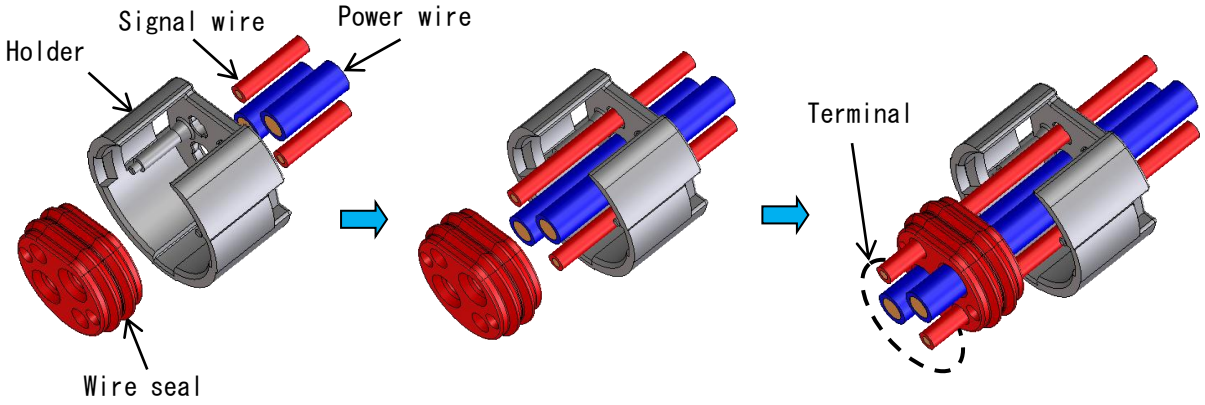
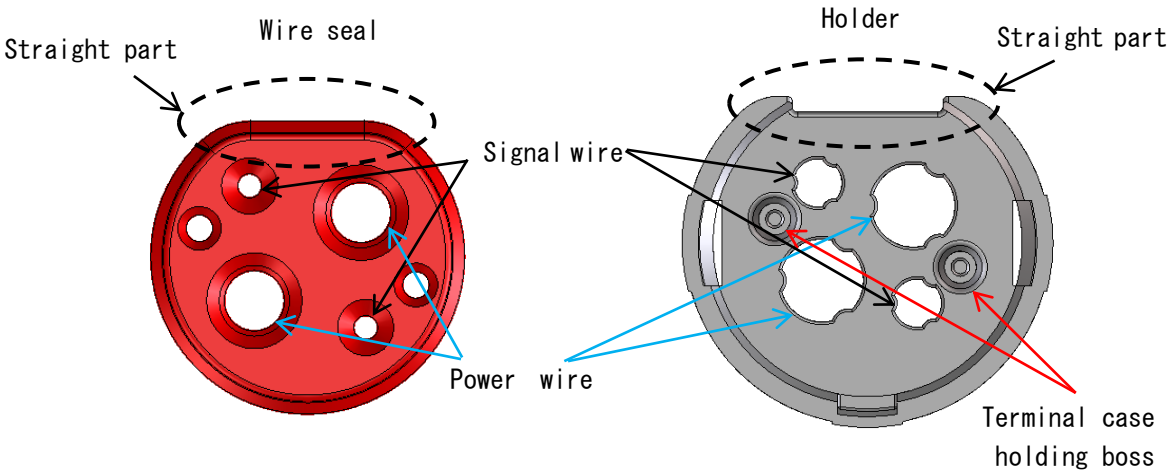
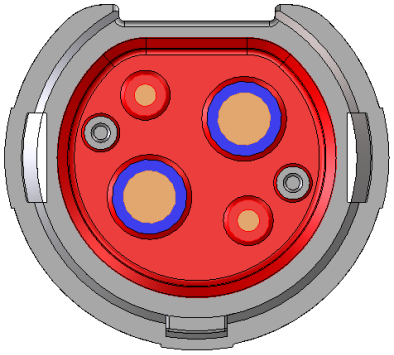


Figure 1. Orientation of the componests as seen from the terminal side of the wire



Condition viewed from the side of the terminal of wire after the wires are assembled

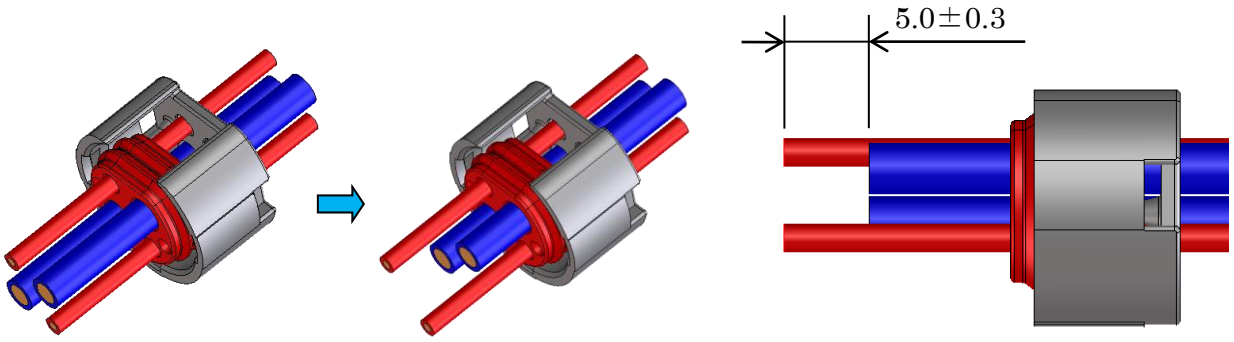


2. Terminal processing is performed.

In order to align the tip during assembly, cut the power wire with the dimensions shown in Figure 2.

Start from the state of being cut all together.

Figure 2. Cut Length



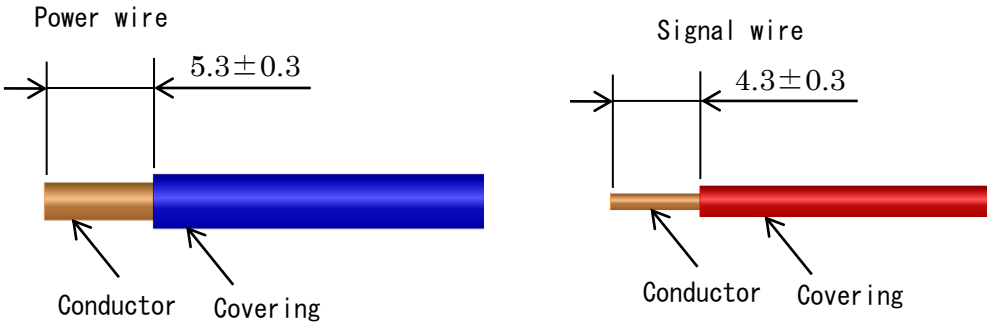
Attention!:Check the orientation of the wire seal and holder in Figure 1.
In case of miswiring, the wire is cut off after this process.

3. Terminal processing is performed.

Strip according to the dimensions shown in Figure 3.

Attention!:
- Be careful not to damage the covering of the wire or the conductor when processing the terminal.
- Scratches can cause defects of insulation, electrical continuity, and crimped terminal retention force.
- The characteristic of the product varies depending on the configuration of the wire.
- Be sure that the holder and wire seal are already pulled on the wires.

Figure 3. Strip Length



	Product Name
Power terminal	BH12-SC-213
Signal terminal	BH12-SC1-213

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4.Crimp connection (female terminal).

As shown in Fig. 4, the power terminal is crimped to the conductor, and the signal terminal is crimped to the conductor and the insulator.

⚠For crimping, refer to the crimping quality standard(ATAD-C0460-00, ATAD-C0461-00).

Crimping conditions such as crimp height differ depending on the cable, so please contact our sales department.

After crimping, blow off with air blow to prevent from adhering of contaminations.

⚠2 Use the applicable tool shown in the table or an equivalent product for crimping.

Figure 4. Crimping Condition

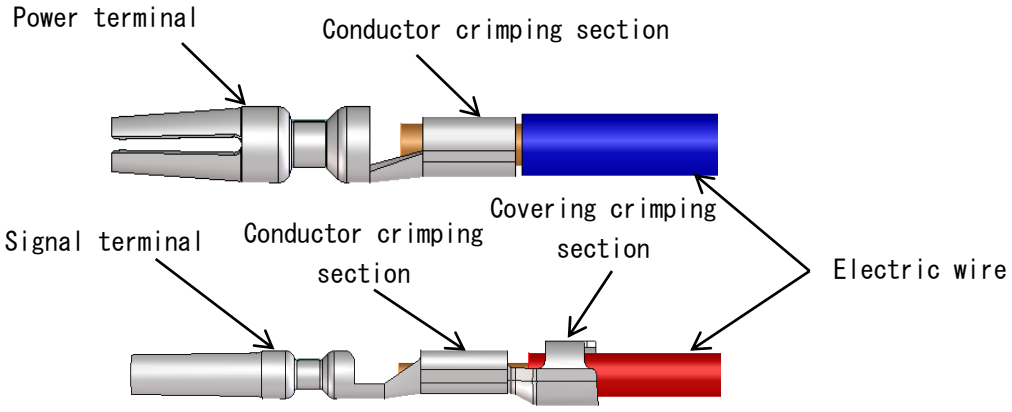
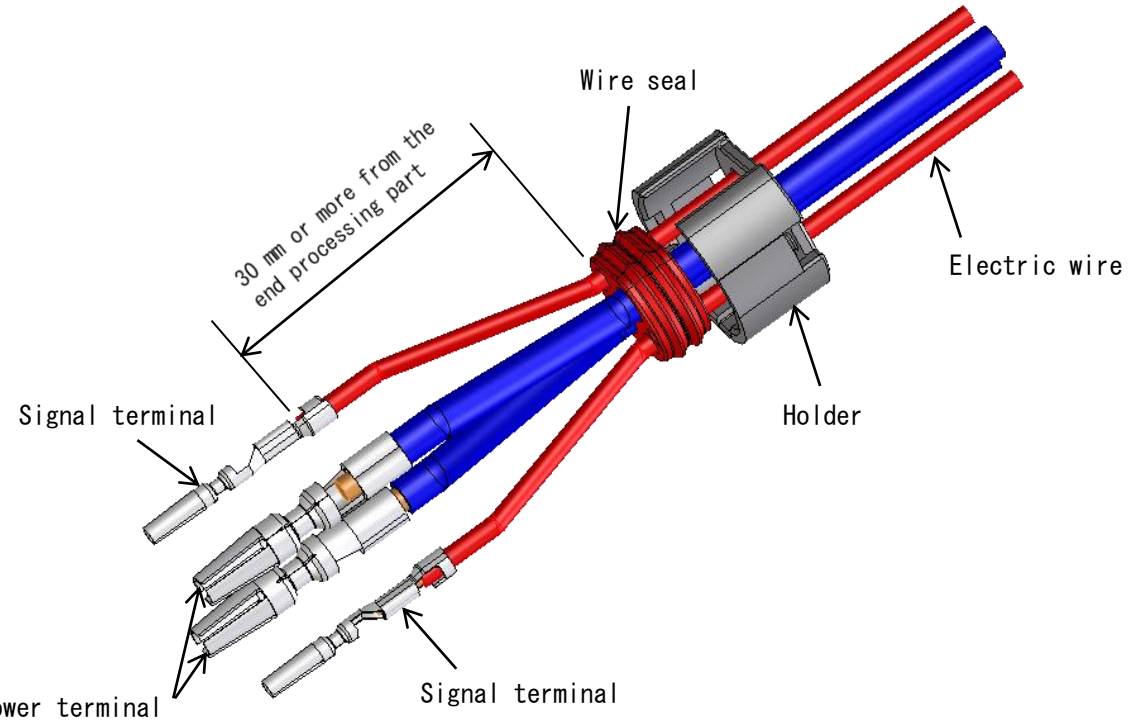


Table. Applicable Tool

Type	Tool Name	Appricable terminal	Product Number
Auto	Applicator	BH12-SC-213	AP105-BH12-SC-1
		BH12-SC1-213	AP105-BH12-SC1-1

■Image after crimping



Attention! ・There is no directionality when crimping the terminal

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5. Attach the crimped terminal to the terminal case.

Pay attention to the following 3 points, and click the crimped terminal into the terminal case with a click feeling from the side. **(Do not damage the spring part of the terminal, otherwise the electrical and mechanical performance can no longer be guaranteed.)** ⚠2

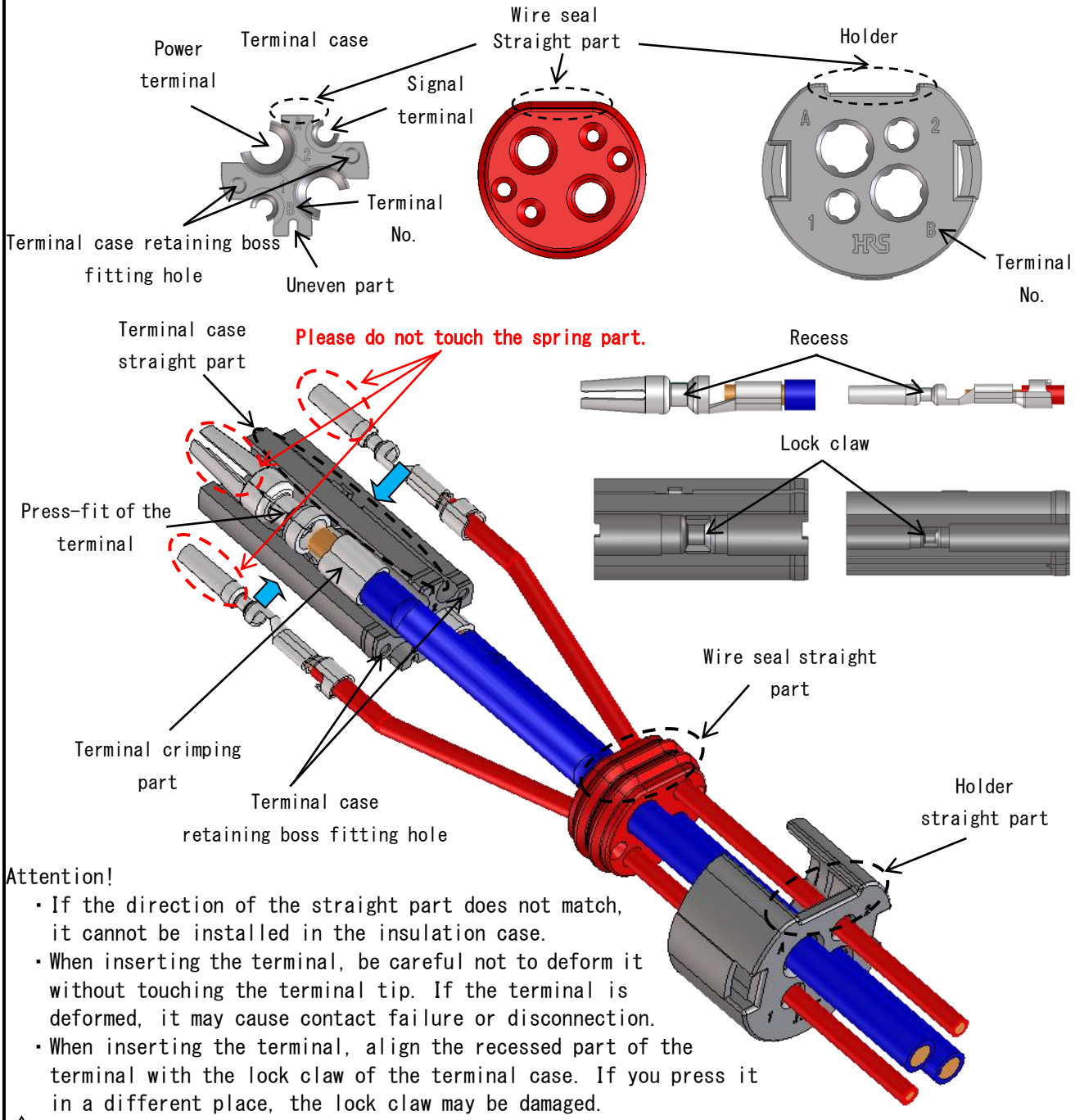
① Aligh the straight part of the terminal case (opposite side of the concavo-convex portion) with the wire seal and the straight part of the holder. (see Figure 5)

② Align the terminal case so that the two terminal case holding boss fitting holes shown in Figure 5 face the wire end.

⚠1③ There is a possibility that a terminal will become difficult to get clicked into the contact holder. If that is the case, point the press-fit of the terminal face down or up vertically to the terminal case slot, and try again.

Check the wiring after assembling the terminal. If incorrect wiring occurs, remove it straight and correct it. In this case, please use after confirming that there is no break or scratch.
Do not remove the terminals from the terminal case more than twice.

Figure 5. Orientation of the parts viewed from the opposite side of the end processing portion



Attention!

- If the direction of the straight part does not match, it cannot be installed in the insulation case.
- When inserting the terminal, be careful not to deform it without touching the terminal tip. If the terminal is deformed, it may cause contact failure or disconnection.
- When inserting the terminal, align the recessed part of the terminal with the lock claw of the terminal case. If you press it in a different place, the lock claw may be damaged.

⚠1- Be careful not to cross wiring between the wire seal and the terminal case. (In the holder)

6. Assemble the connector.

Pay attention to the following two points, push the terminal case incorporating the terminal into the insulation case, and fit the wire seal and the holder. ⚠2

(Do not damage the wire seal, otherwise the waterproof performance can no longer be guaranteed.)

① The lever lock of the insulation case and the straight part of the terminal case, the wire seal and the holder are aligned. (see Figure 6)

② When the holder is assembled, push it in until it makes a crick sound.

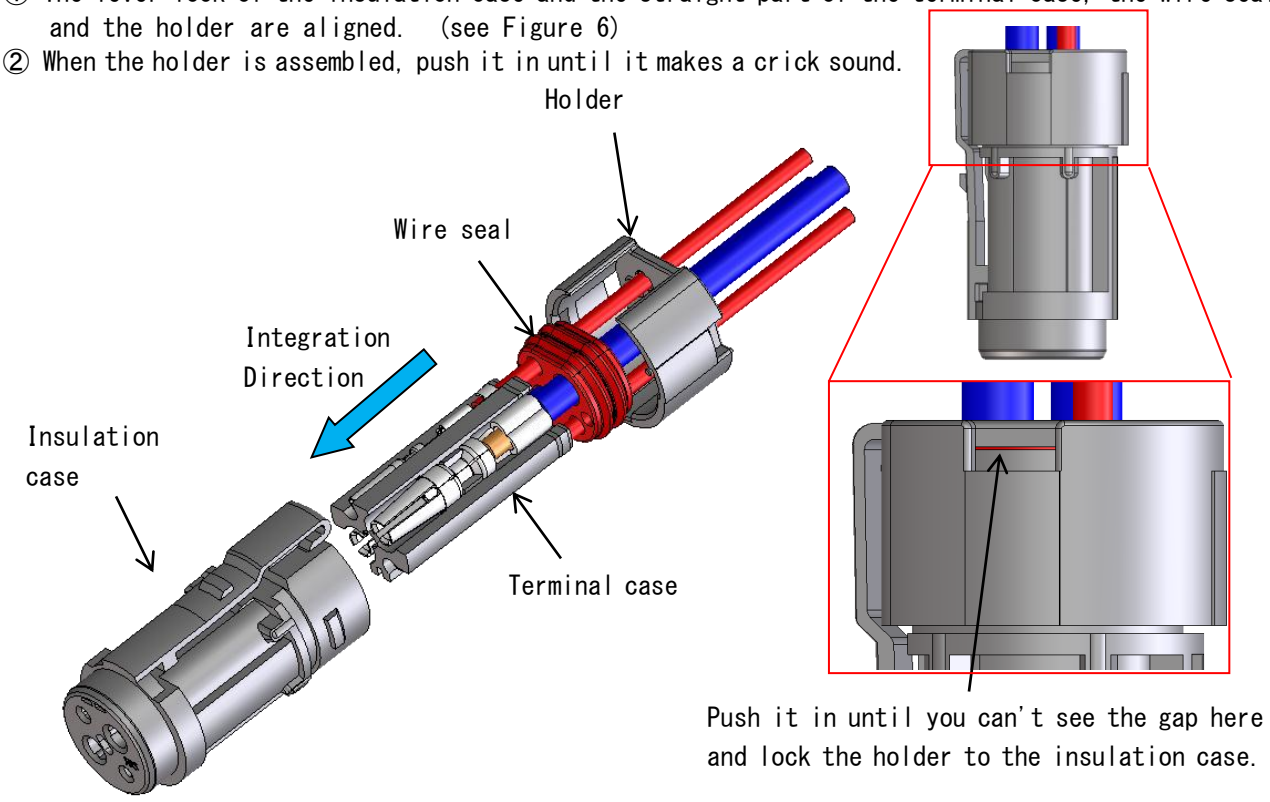
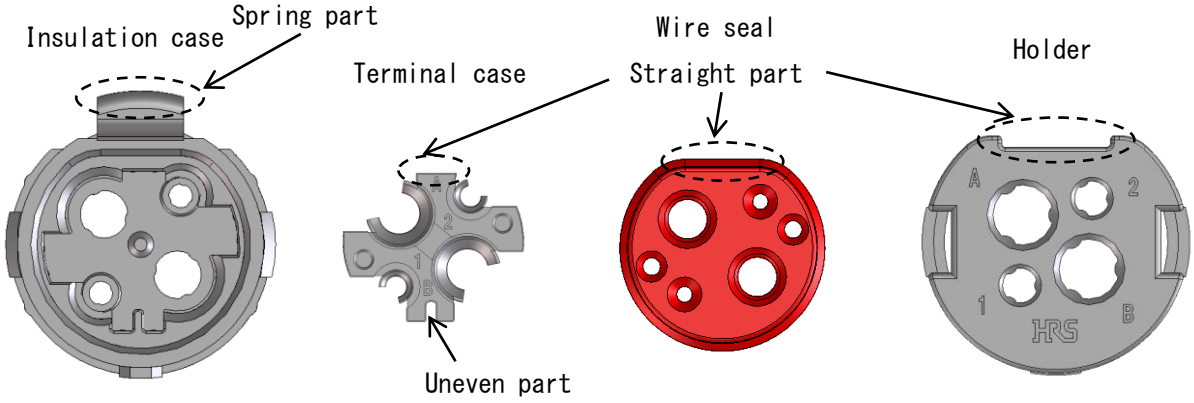
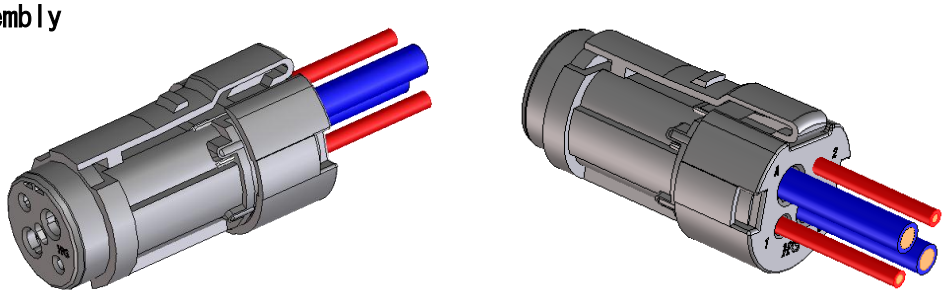


Figure 6. Orientation of the parts viewed from the opposite side of the end processing portion



Attention! Do not press the spring strongly when pressing the terminal case.
The lock may not function due to deformation.

■After assembly



Attention! : When repairing after crimping the terminal, cut off the wire and reprocess the terminal.
Repair is not possible after the holder is installed.

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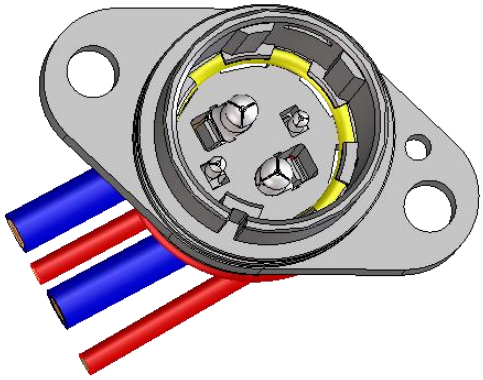
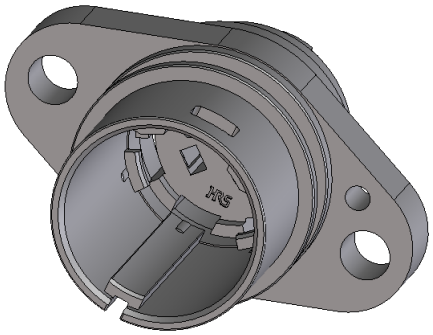
Receptacle side assembly procedure

■Finished state

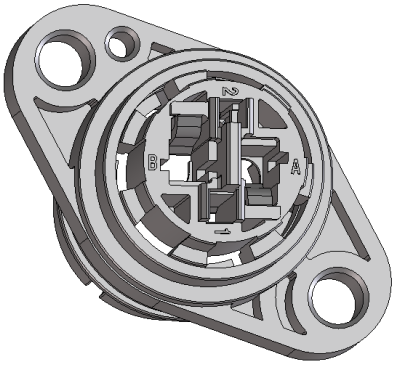


■Name of each part

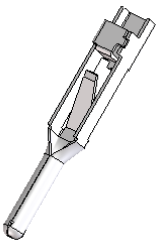
Insulated housing (mating side)



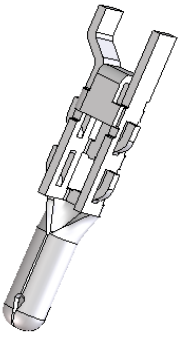
Insulated housing (connection side)



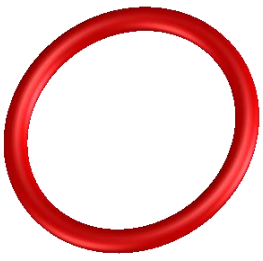
Signal male terminal



Power male terminal



O-Ring B



O-Ring A

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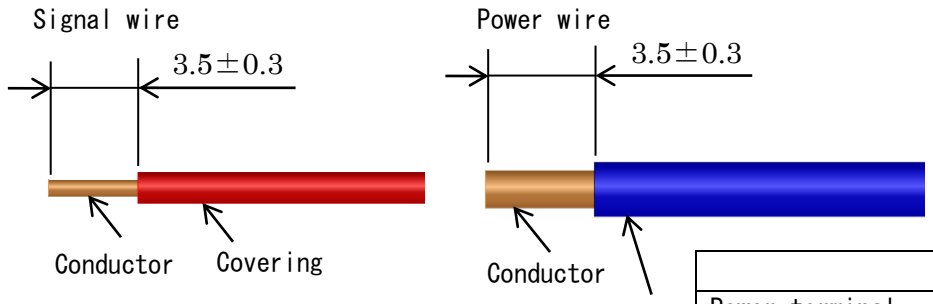
1. Terminal processing is performed.

Strip with dimensions shown in Figure 7.

Attention!: ・Be careful not to damage the covering of the wire or the conductor when processing the terminal.
・Scratches can cause defects of insulation, electrical continuity, and crimped terminal strength.
・The characteristic of the product varies depending on the configuration of the wire.

Figure 7. Strip Length



	Product Name
Power terminal	BH12-P-213
Signal terminal	BH12-P1-213

2. Wire (male terminal) by soldering.

Because it is a reel terminal, use it after separating the terminal from the carrier by bending it up and down. Be careful not to let the flux to the terminal tip (contact part). (Doing so may result in poor electrical continuity.)

■Signal terminal

Recommended soldering conditions

Soldering iron temperature	350±10℃
Soldering Iron Tip	T12-B3 Equivalent to Hakko (Co., Ltd.)
Recommended Power	70 W or more
Soldering time	2 to 3s
Soldering point	See Figure 8
Solder prohibited area	See Figure 8

Soldering base

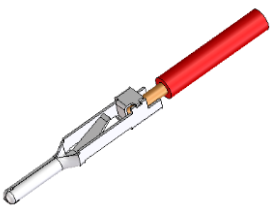
CL Code	CL902-1526-0
Product Name	BH12-P1-213/SO/MD

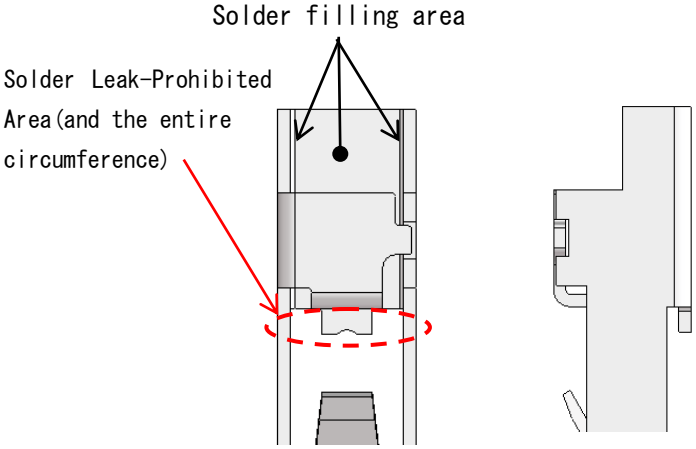
*It is recommended to use it when soldering.

Solder the signal wires to the signal terminals, paying attention to the following three points.
① Press the wire against the contact surface (inner wall) inside the terminal and solder.
② Check that the three inside surfaces of the soldered portion are filled with solder. (see Figure 8)
③ If solder leaks into the area where solder leakage is prohibited, the solder cannot be incorporated into the insulation housing. (see Figure 8)

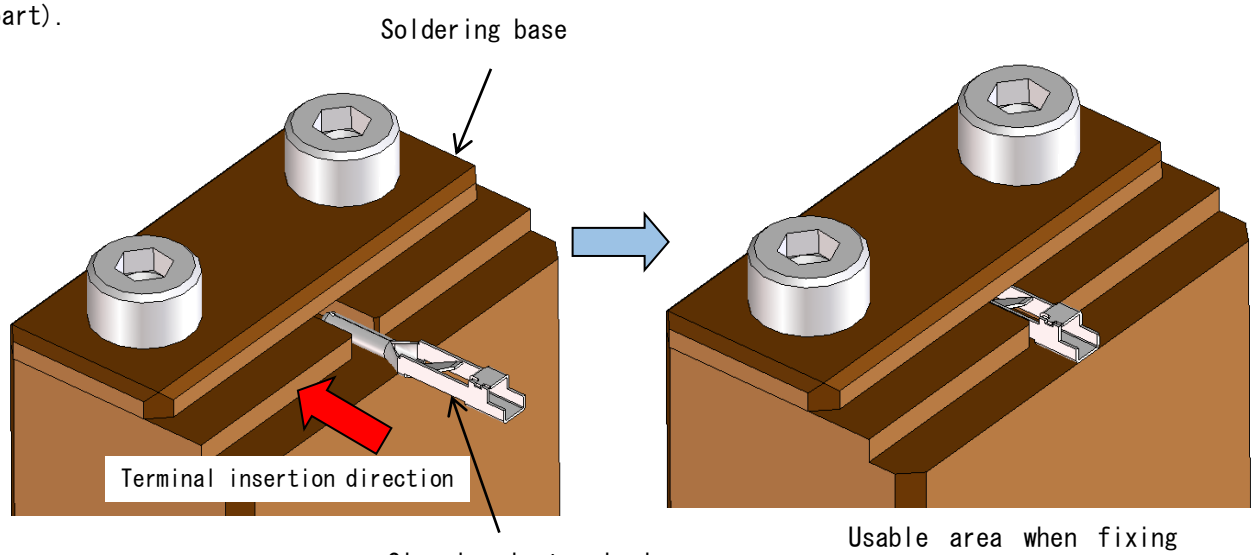
Figure 8 Solder Filling Area and Wettability Prohibited Area

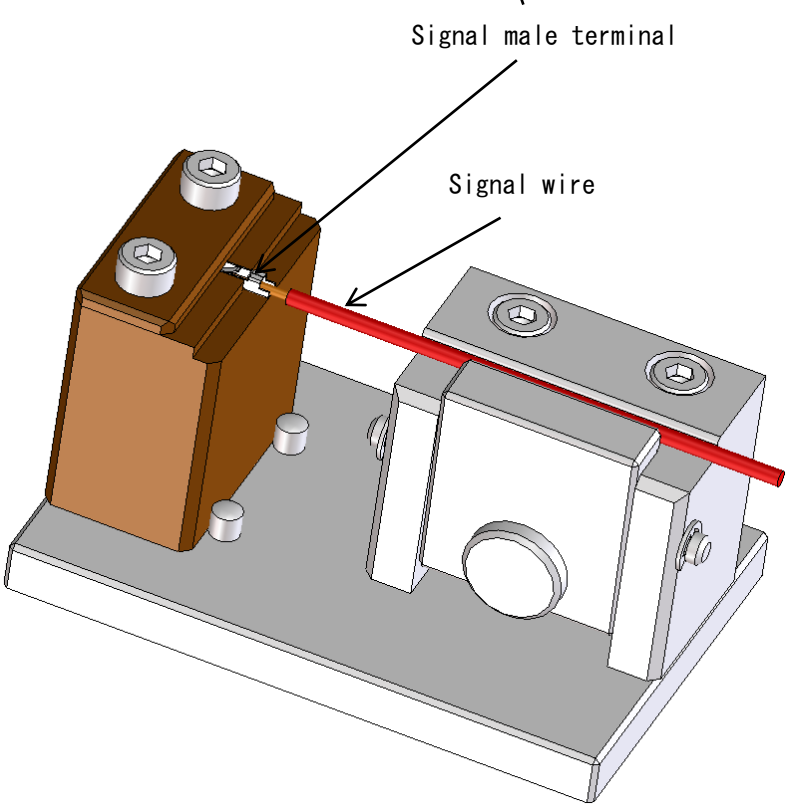
State after connection

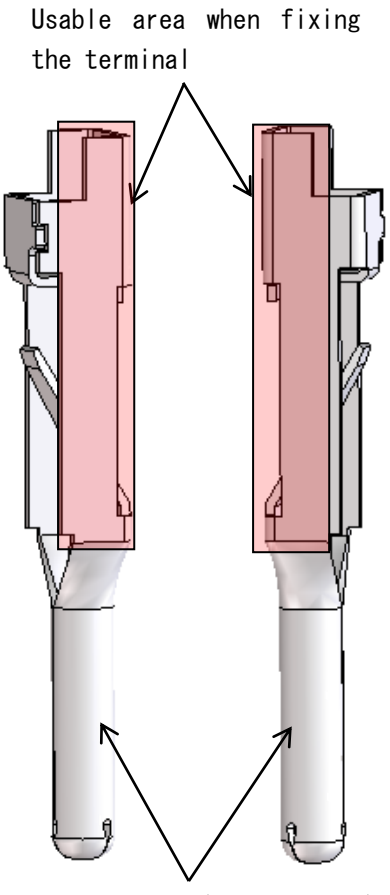




When soldering by fixing the terminal using the soldering cradle during soldering, follow the steps below. When the soldering cradle is not used, fix the terminals within the range shown below to prevent deformation. When fixing the terminal, be careful not to damage it by pinching the terminal tip (contact part).







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■Power terminal

Recommended soldering conditions

Soldering iron temperature	350±10℃
Soldering Iron Tip	T12-BC3 Equivalent to Hakko (Co., Ltd.)
Recommended Power	70 W or more
Soldering time	7 to 9s
Soldering point	See Figure 10
Solder prohibited area	See Figure 10

Soldering base

CL Code	CL902-1525-0
Product Name	BH12-P-213/SO/MD

*It is recommended to use it when soldering.

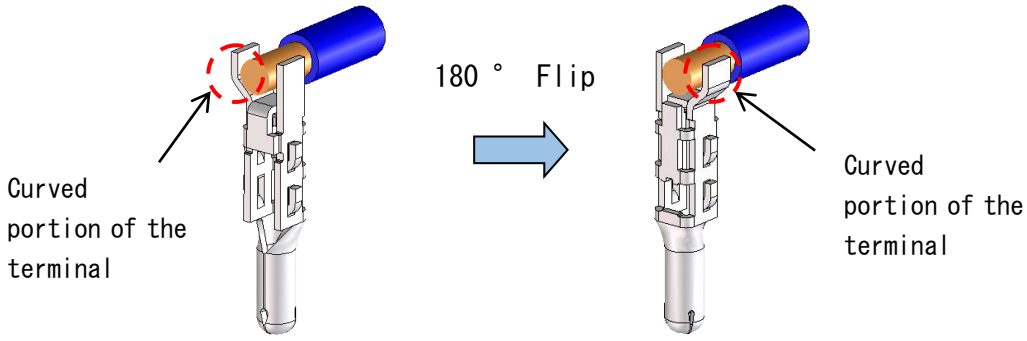
Solder the power wire to the power terminal, paying attention to the following three points.

① If the wires are to be pulled out in the same direction in the case, as shown in Figure 9, one of the terminals must be reversed by 180 ° .

② Check that the four inner surfaces of the soldered portion are filled with solder. (see Figure 10)

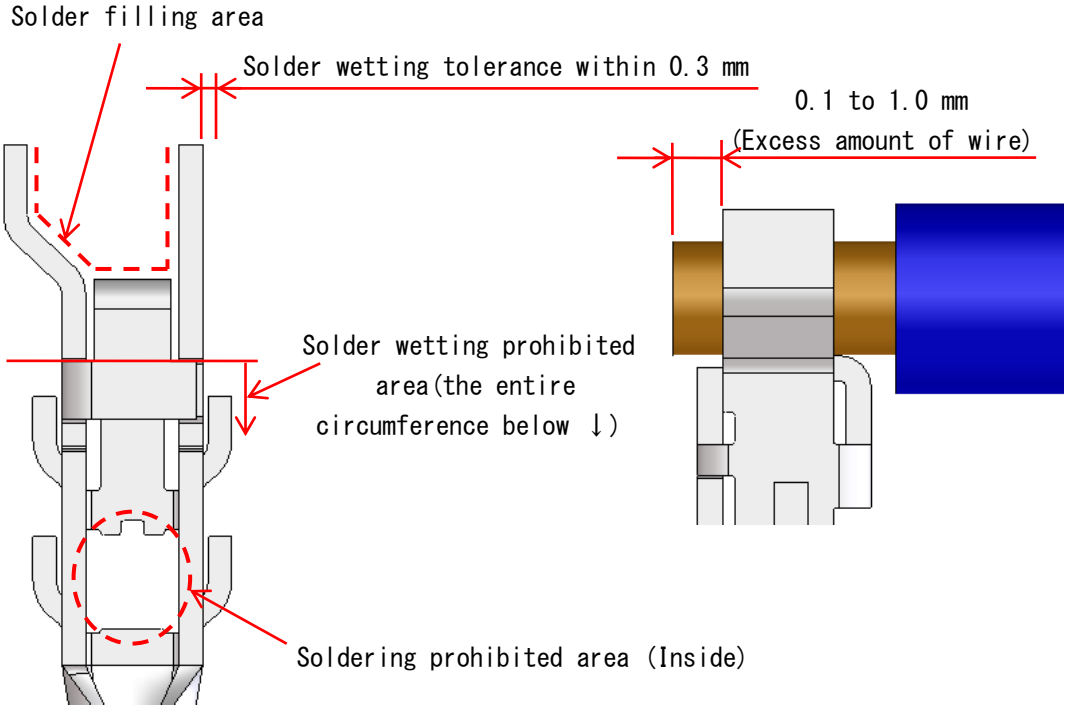
③ If solder leaks into the solder leakage preventing part, it cannot be incorporated into the insulation housing. (see Figure 10)

Figure 9. Pulling Direction of the Power



Attention! If the wires are not covered with solder, it is recommended to increase the amount of solder by applying twice.

Figure 10. Solder Filling Area and Wettability Prohibited Area



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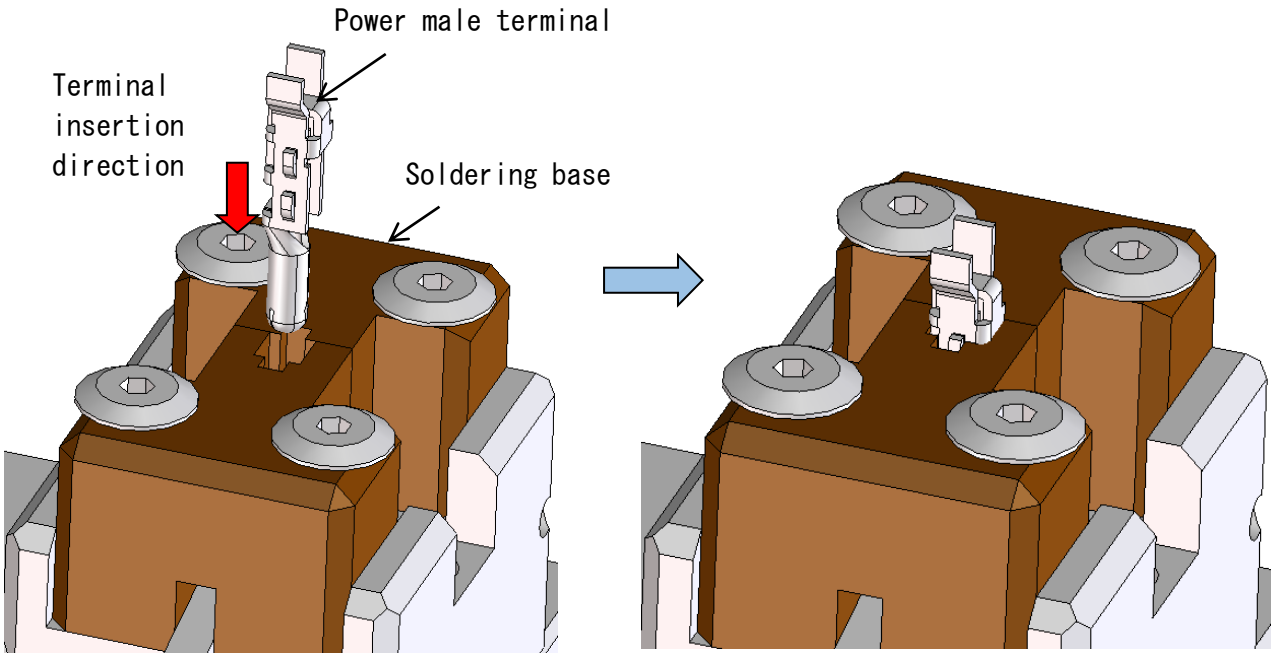
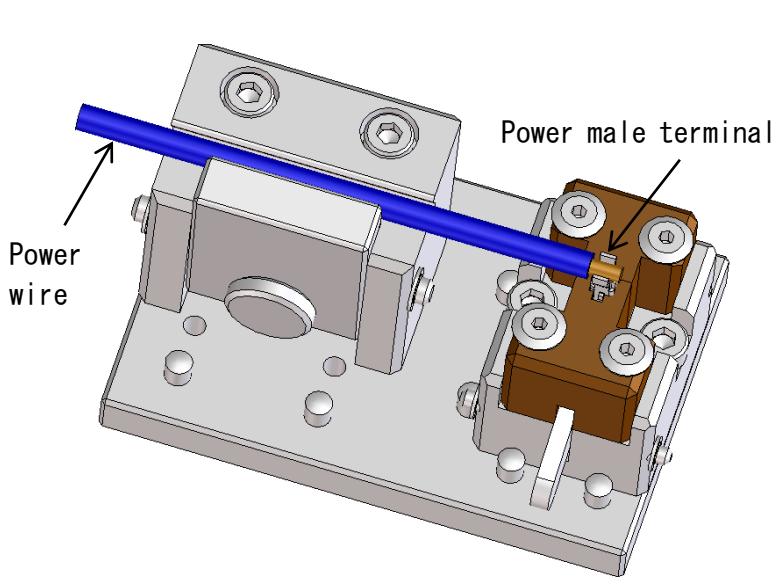
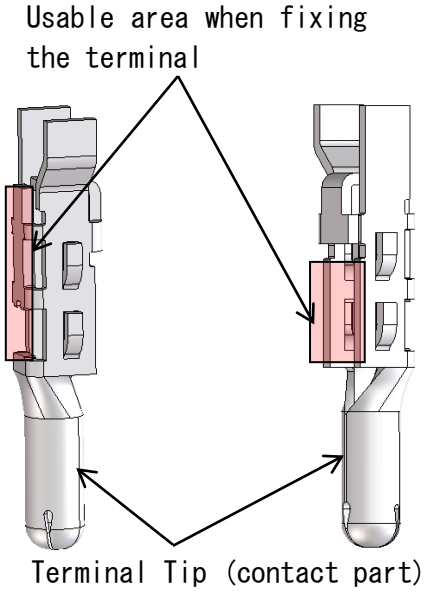
When soldering by fixing the terminal using the soldering cradle during soldering, follow the steps below. When the soldering cradle is not used, fix the terminals within the range shown below to prevent deformation. When fixing the terminal, be careful not to damage it by pinching the terminal tip (contact part).







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3. Assemble soldered terminals.

Insert the soldered terminal into the insulation housing.
When inserting, adjust the direction as shown below, and insert with a click sound as a guide.
After insertion, pull the lead wire lightly (About 2 to 3 N) to confirm that the terminal is secured.
(Make sure the lance is stuck.)

It is recommended to insert the terminal from the signal terminal.
When the signal terminal is inserted after the power terminal is inserted, the wire of the power terminal comes close to the signal terminal insertion part, so that the insertion performance becomes poor.

■Signal Terminal:
Insert the signal terminal into terminals No. 1 and 2 of the insulation housing , paying attention to the following 3 points.

① The direction of the retainer part of the insulating housing and the lance part of the terminal are aligned. (see Figure 11)
② In the case of 3-core specification (Fitting partner is BH12WP-3SC), the terminal is inserted only in terminal No. 1.
③ Since the positional relationship between terminal No. 1 and terminal No. 2 is symmetrical in the axial direction, insert the terminal with the lance reversed 180 ° . (see Figure 12)

Figure 11. Lance Direction of Signal Terminal

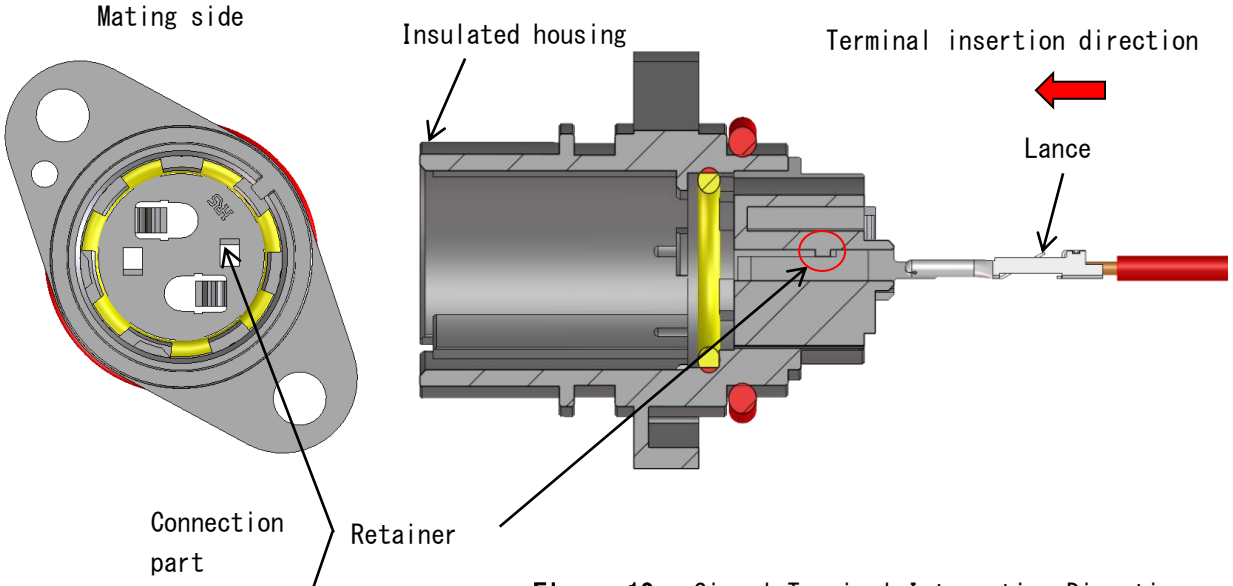
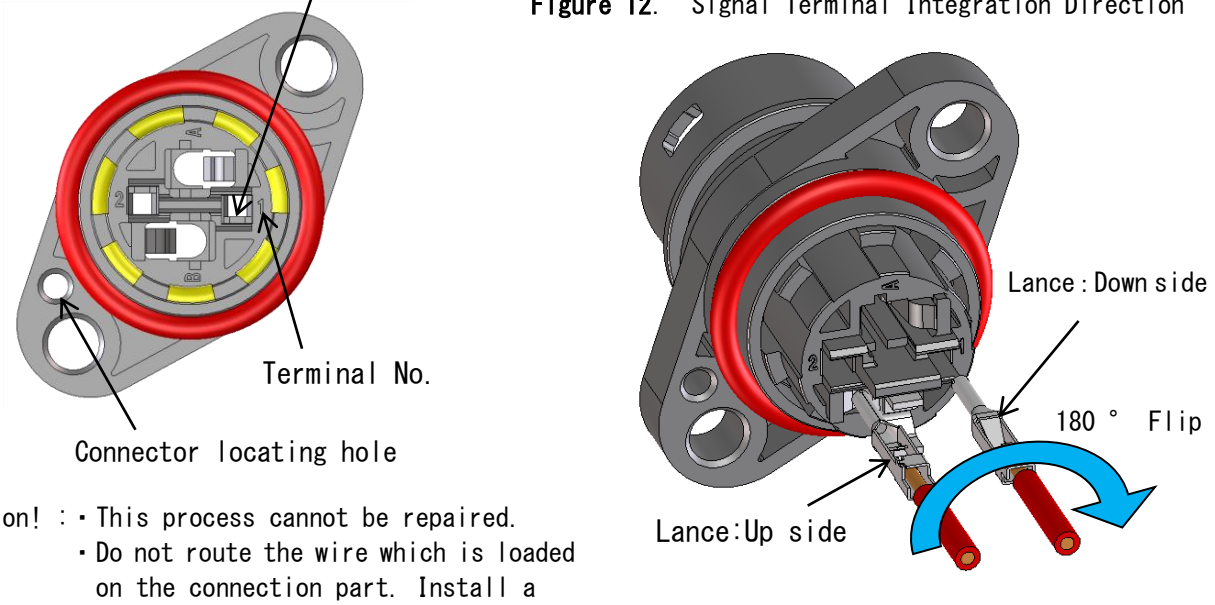


Figure 12. Signal Terminal Integration Direction



Attention! : ・This process cannot be repaired.
・Do not route the wire which is loaded on the connection part. Install a straight portion several mm from the connecting portion before wire forming.

■Power terminals:

Insert the power terminals into terminals No. A and B of the insulation housing, paying attention to the following two points.

① Orient the lance part of the insulating housing and the lock window of the terminal. (see Figure 13)

② To make a curved part of a terminal come to the outer side of an insulating housing. (see Figure 14)

Figure 13. Power Terminal Lance Direction

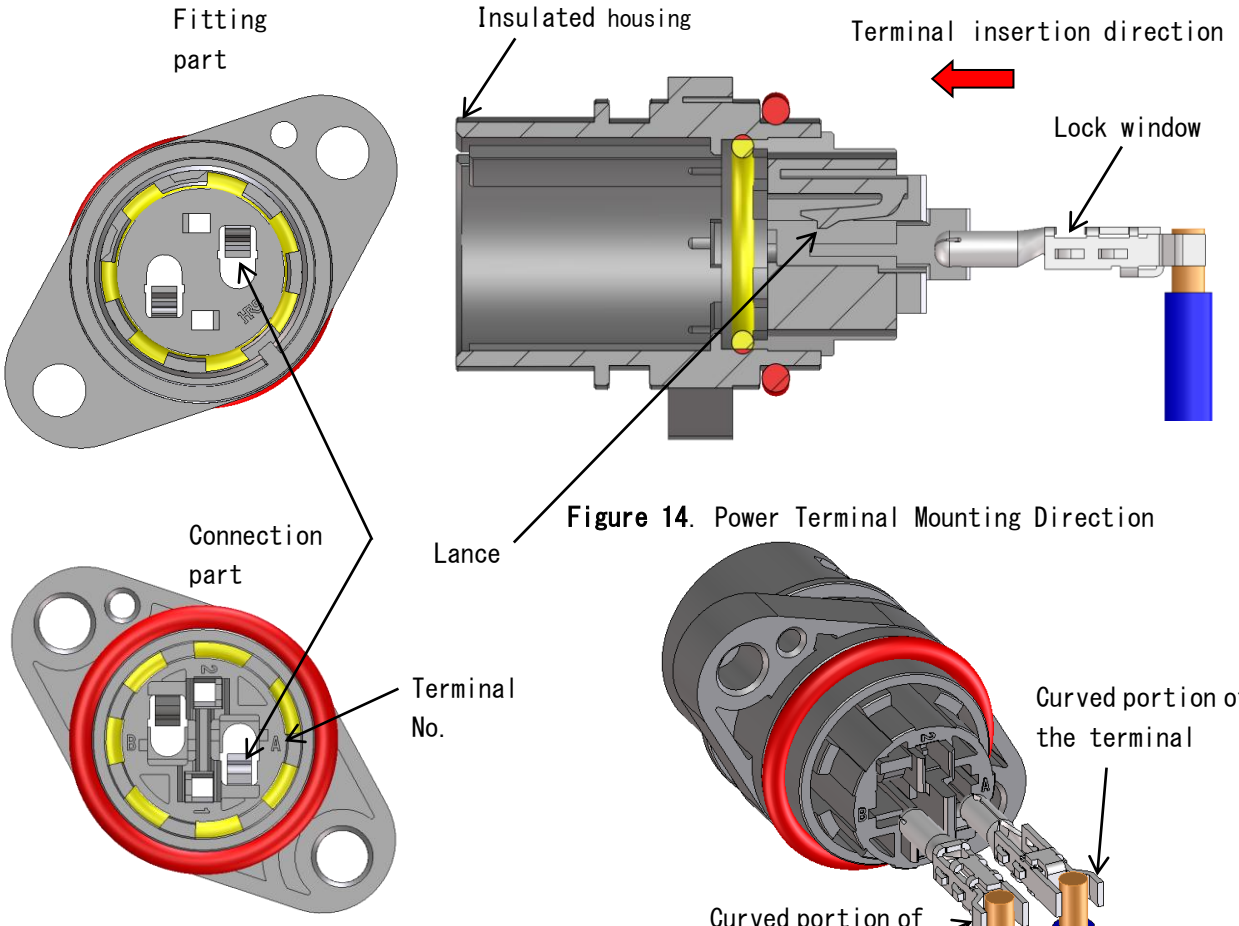
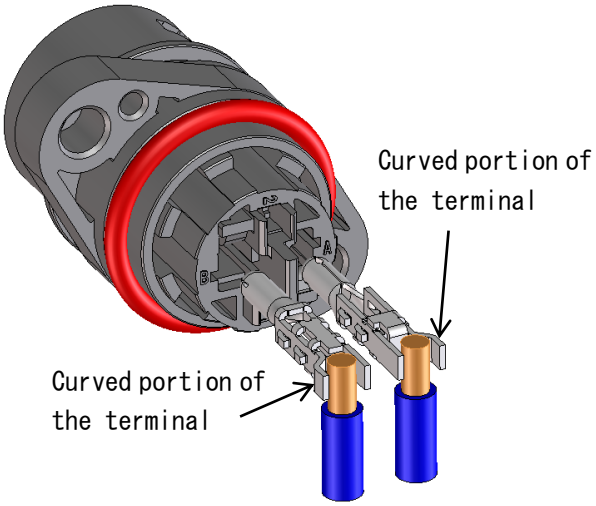
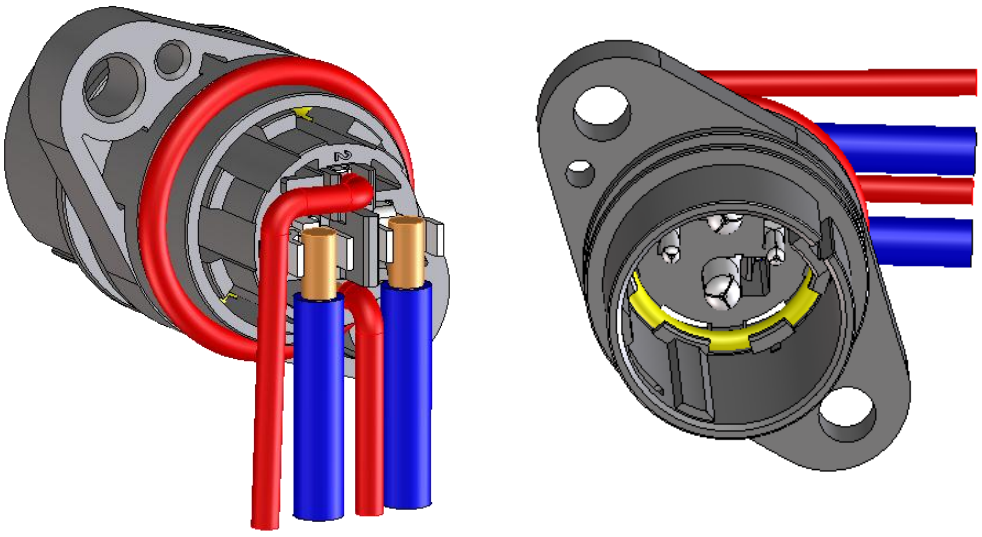


Figure 14. Power Terminal Mounting Direction



Attention!:This process cannot be repaired.

■After assembly



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Notes

*Packaging and Storage
When packing and storing the assembly, take care not to place an excessive load on the spring portion of the plug insulation case due to overlapping of the connectors.
If the product is left for a long period of time at high temperature and high humidity with load applied to the lock part, the lock part may deform and cause improper mating.

*If excessive external force is applied to the connector, it may cause poor continuity or poor waterproofing due to deformation or damage.
Please be careful not to force insertion and removal, impact, pulling, pulling or twisting of the wire.
Also, when routing the wire in the equipment, consider measures such as giving sufficient length to the wire, and take care not to apply load to the direct connector such as extreme bending or straining of the wire.

*If the waterproof seal or waterproof surface is damaged, the waterproof performance may be damaged, so please do not use the damaged product.

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