

CM10-SPXXS-X(D6) Plug Connector  
Cable Assembly Manual  
(Weight saving type・Crimp type contact)  
(Standard type tool)

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## 1. Outline

This Cable Assembly Manual explains how to assemble the wire to the CM10 plug connector.  
(Crimp type)

## 2. Specifications

### 2-1. Applicable connectors

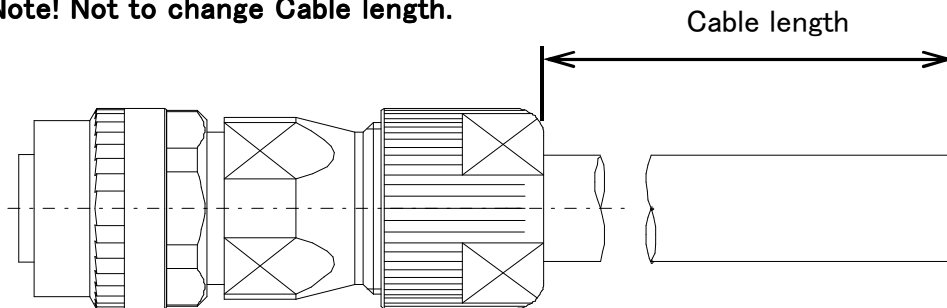
Connector name	Drawing No.
CM10-SP2S-S(D6)	115J-AP12161-1
CM10-SP2S-M(D6)	115J-AP12161-2
CM10-SP2S-L(D6)	115J-AP12161-3
CM10-SP10S-S(D6)	115J-AP12159-1
CM10-SP10S-M(D6)	115J-AP12159-2
CM10-SP10S-L(D6)	115J-AP12159-3

## 3. Cable Assembly Process

### 3-1. Cutting a cable

Cut the cable to the following dimensions.

**Note! Not to change Cable length.**



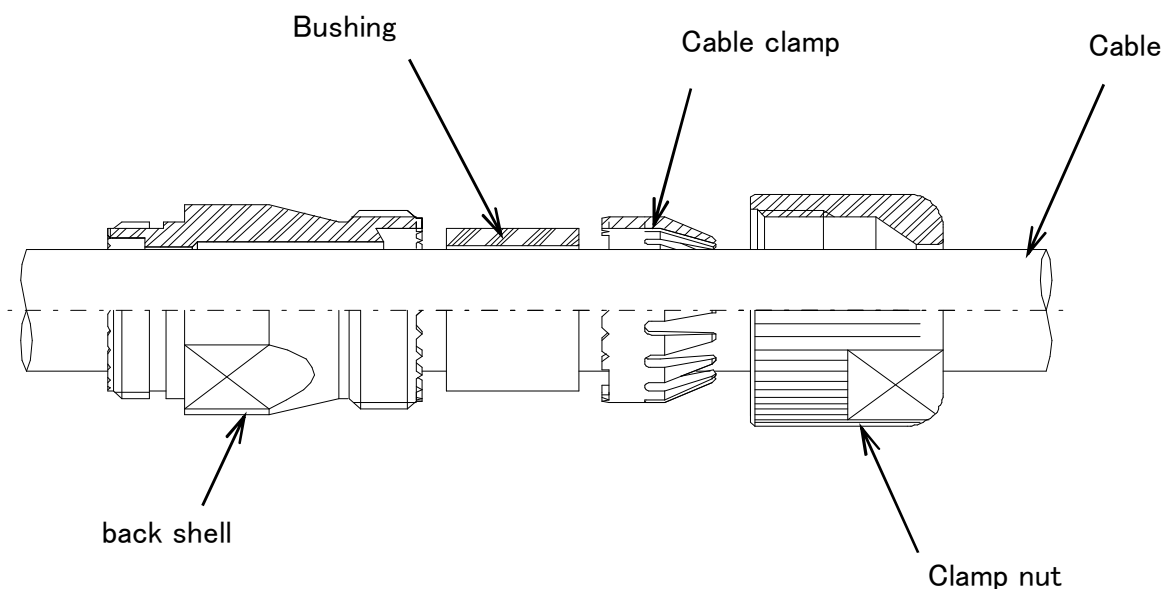
**\*Cable length after cutting =  $35 \pm 0.5\text{mm}$  for CM10-SPXXS(D6) + cable length**  
**=  $35 \pm 0.5\text{mm}$  + cable length**

### 3-2. Inserting parts

Insert the clamp nut, cable clamp, bushing and back shell into the cable stripped.

**Note! Take care not to insert them upside down.**

Take care to insert all of the parts.



### 3-3. Stripping a cable

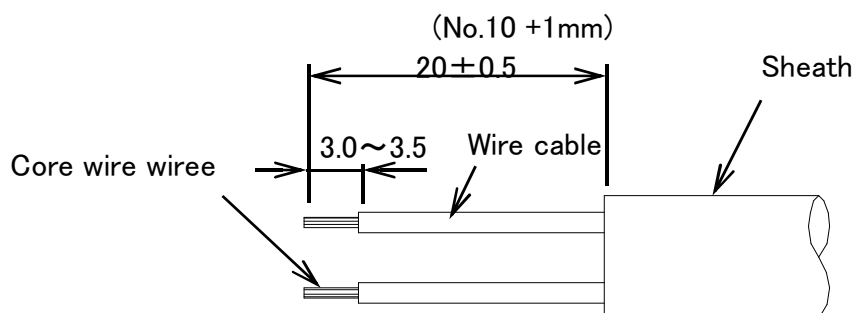
Strip the cable to a length of  $20 \pm 0.5\text{mm}$  and also strip the core wire to a length of  $3 \sim 3.5\text{mm}$ .

**Note! Take care the cable peel length.**

Take care not to damage anything.

※For CM10-SP10S-X(D6) strip 1mm longer than others.

(avoiding the cable tension in the process of contact insert to the housing.)



### 3-4. Crimping a contact

With the crimping tool, crimp each contact on each cable.

Connector name	Applicable contact	Contact crimping tool	Crimping machine	Applicable cable	Crimp height $\pm 0.05$ (wire section)
CM10-SP10S-X (D6)	CM10-#22SC(C1)(D8)	357J-50446T	AP-A50539T	AWG20	1.05
				AWG22	0.94
	CM10-#22SC(C2)(D8)	357J-50447T	AP-A50540T	AWG23-24	0.71
				AWG26	0.67
				AWG28	0.64
CM10-SP2S-X (D6)	CM10-#22SC(C3)(D8)	357J-50448T	AP-A50541T	AWG16	1.25
				AWG18	1.15
				AWG20	1.05

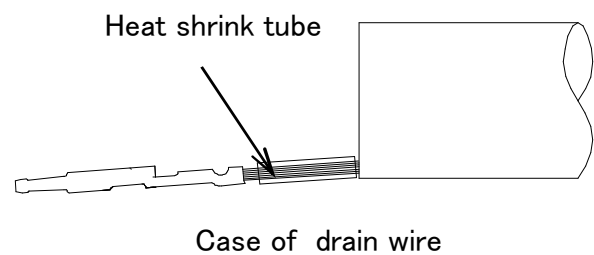
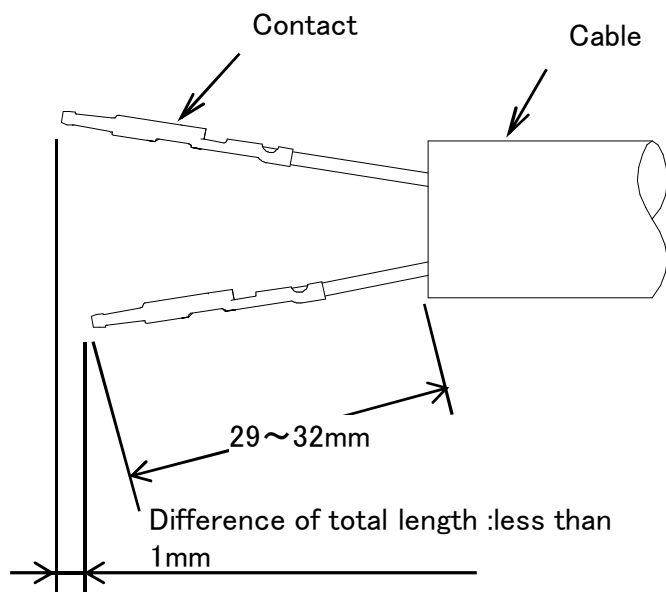
**Note!** Refer to the instruction manual in case of using contact crimp tool or crimp machine.

Take care not to stick out the wire from the contact.

When using a drain wire, attach a heat shrink tube on it after crimping.

\* Make the cable 1mm longer in case of using No.10 for CM10-SP10S-X(D6).  
(for avoiding the cable tension in the next procedure)

\* Less than 1mm of the difference of length between two contacts  
except for No.10.



### 3-5. Inserting a contact

Insert the contact into the specified terminal number point in the housing.

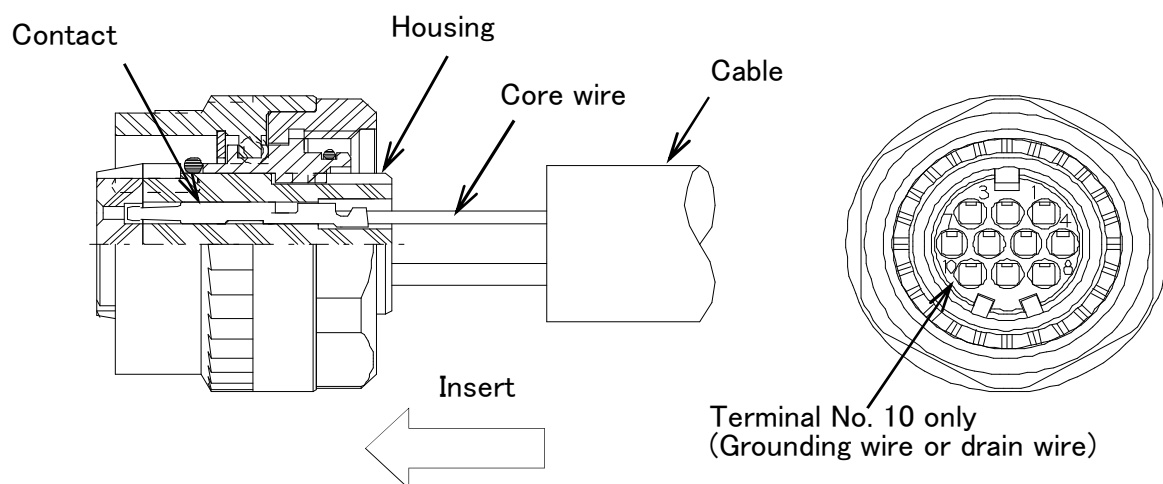
(Insert grounding wire or drain wire into terminal No. 10)

\* When the contact catches the housing, you will hear a snap.

\* Pulling the wire for confirming the correct position.

**Caution! Before inserting the contact, check that the clamp nut, cable clamp, bushing and angle back shell is inserted.**

**Take care not to insert the contact upside down as shown below.**



\* Insert the contact so that the lance and the terminal number face the same direction.

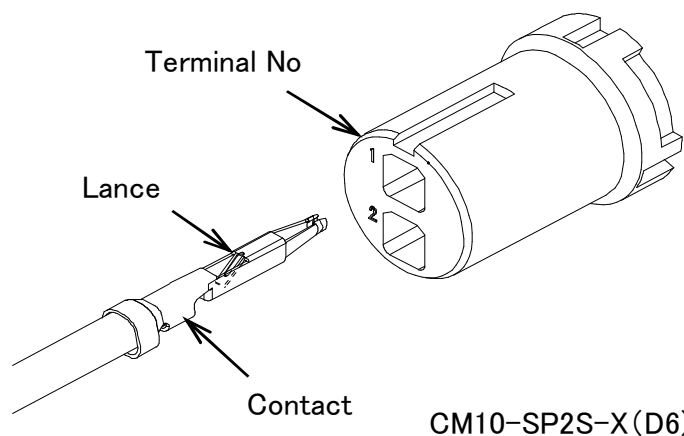
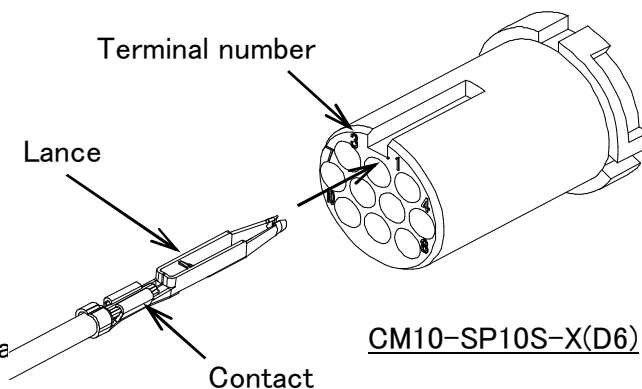
However, in case of CM10-SP2S-X(D6), insert the contact so that the lance and the terminal number face the opposite direction.

\* Using a pull out tool for pulling up inserted contact.

● Jig/Tool Used : Contact removing jig (357J-50548T)

\* Refer to the instruction manual in case of using pull up tool.

\* As Lance falls down easily after pulling up, set up to original position before re-insert.



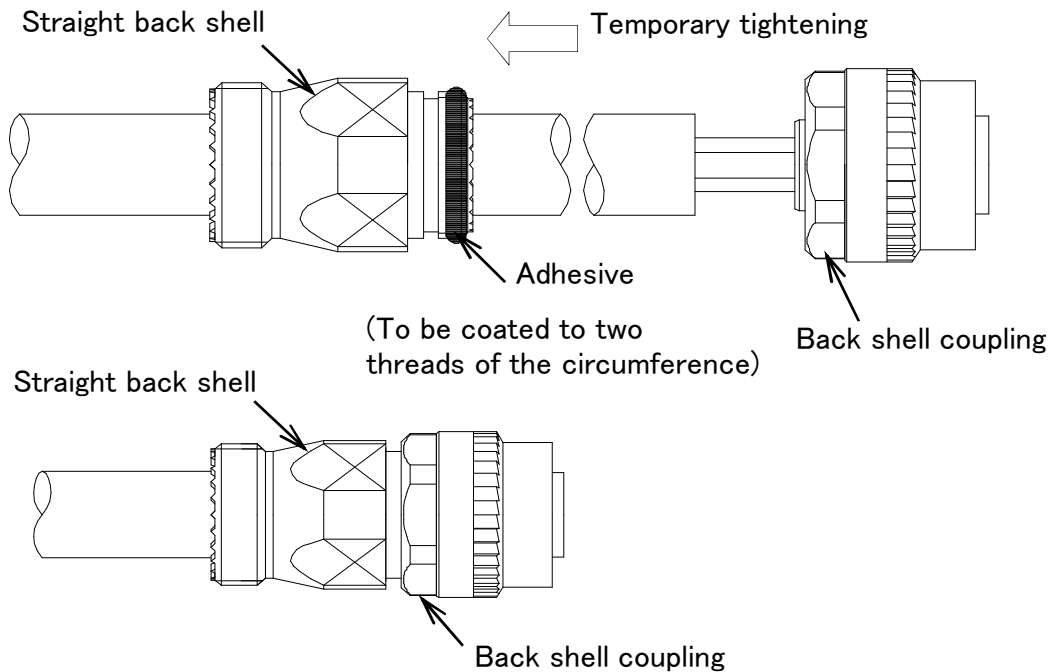
### 3-6. Tightening a back shell

- ① The adhesive should be applied to the straight back shell by two threads around the circumference.

\*To prevent loosening, the adhesive should be applied to the straight back shell.

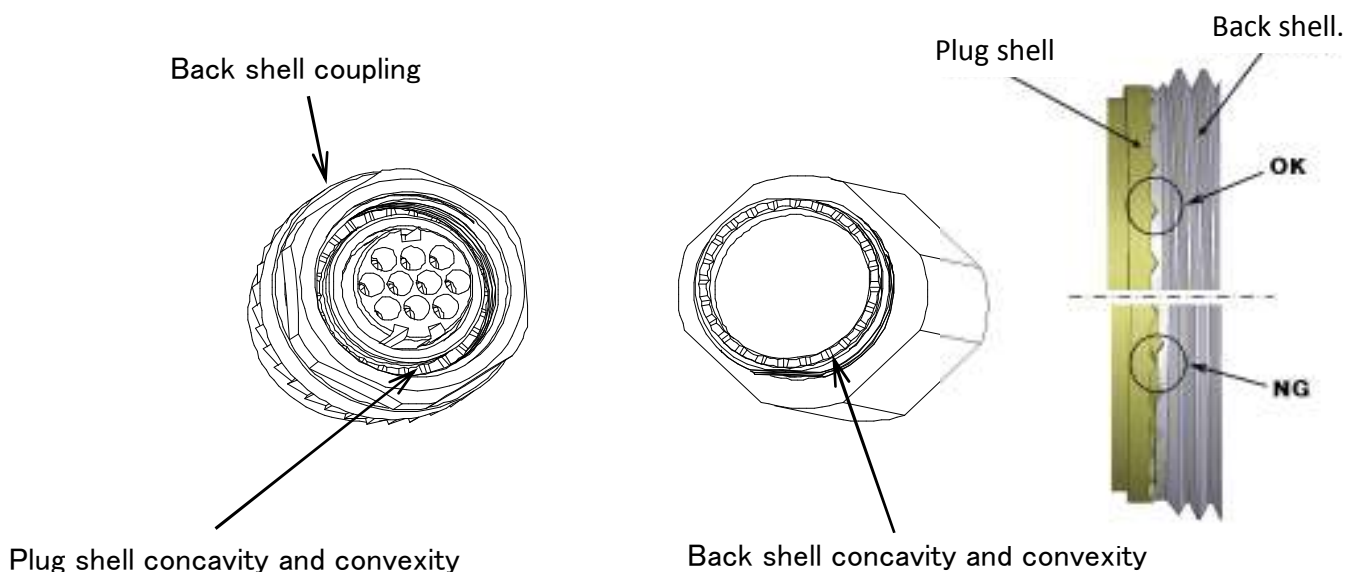
● Recommended adhesive : 1401B (Three bond Co., Ltd.)

- ② Temporarily tighten the back shell coupling on the straight back shell.



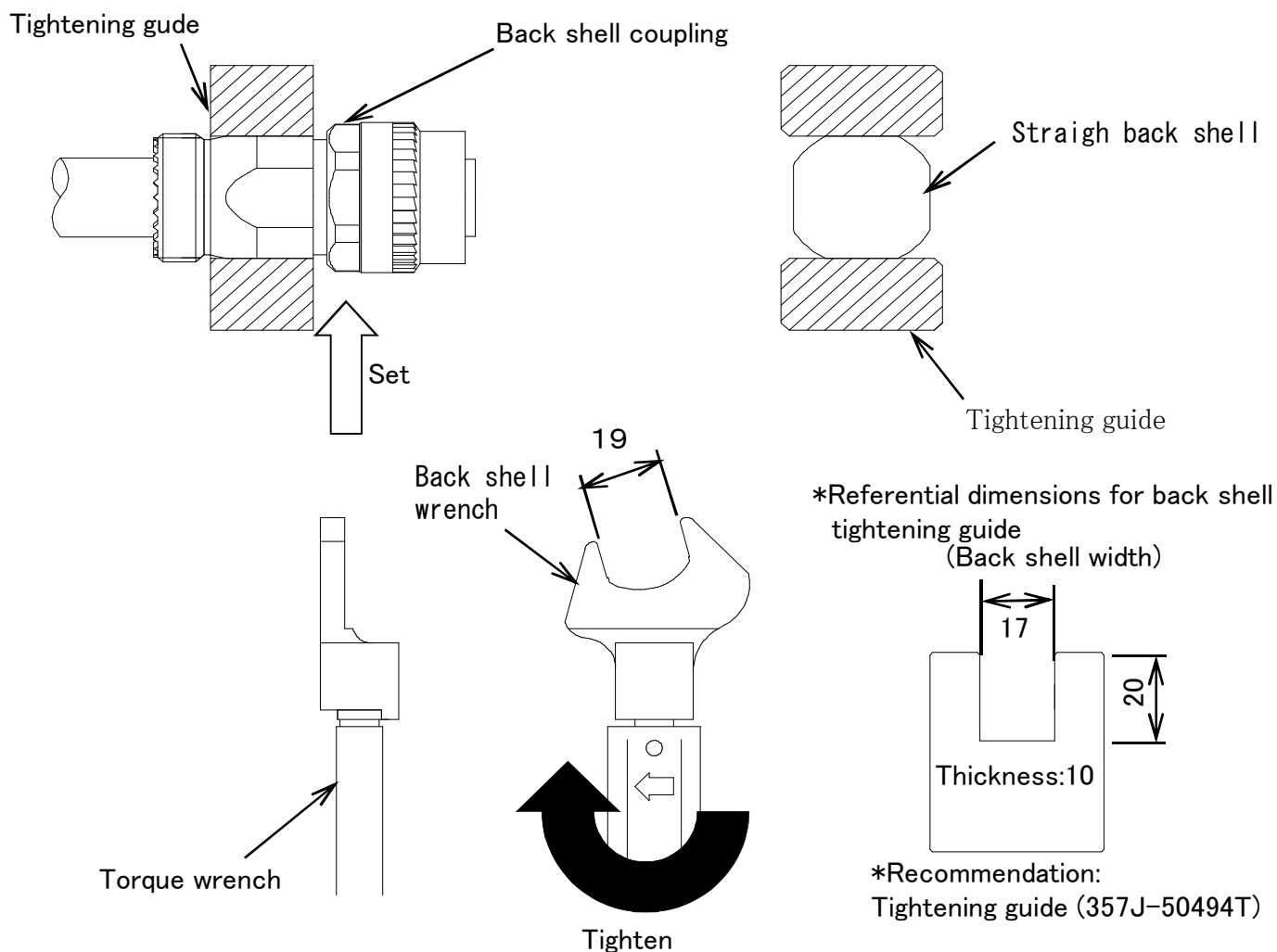
\* When tightening temporarily, match the concavity and convexity of the plug shell with those shell of the straight back shell.

(You can confirm the correct connection of concavity and convexity waving lightly back shell just before inserting to BS coupling.)



- ③ Fix the two surface width of straight back shell on the tightening guide.
- ④ Set the back shell wrench on the back shell coupling.
- ⑤ With the wrench, tighten the back shell coupling on the straight back shell.  
Recommended tightening torque: 4to5 N·m

**Note! When setting the work to the wrench, adjust it to the two surface width.  
To remove, take the reverse steps.**



**Note! To change the straight back shell, do it by changing the engaging position of the concavity and convexity of the plug shell and the back shell.**

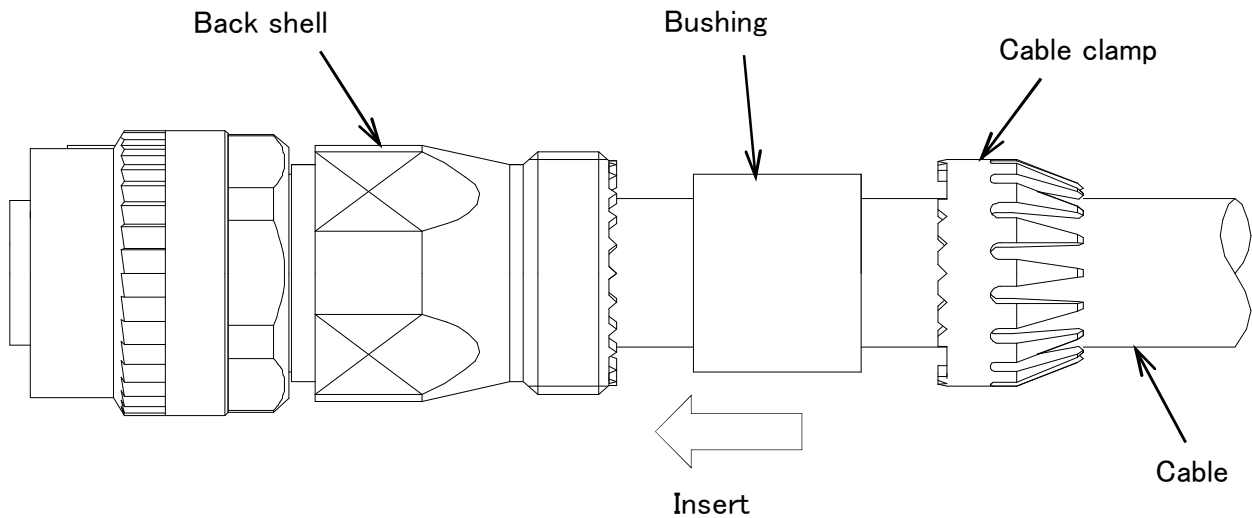
● Jig/Tool Used : Back shell wrench (357J-51333T)

( Bit(357J-51344T)  
Torque wrench (CL10N×8D-MH:Tohnichi Mfg. )  
※Recommended tightening guide (357J-50494T) )



### 3-8. Inserting a bushing and a cable clamp

Insert the bushing and the cable clamp into the back shell.



**Note!** After the Bushing insert, confirm that cable position should be inside of Bushing.

### 3-9. Tightening a clamp nut

① Temporarily tighten the clamp nut on the straight back shell.

\*To prevent loosening, the adhesive should be applied to the straight back shell.

● Recommended adhesive : 1401B (Three bond Co., Ltd.)

② Fix the two surface width of the straight back shell on the tightening guide.

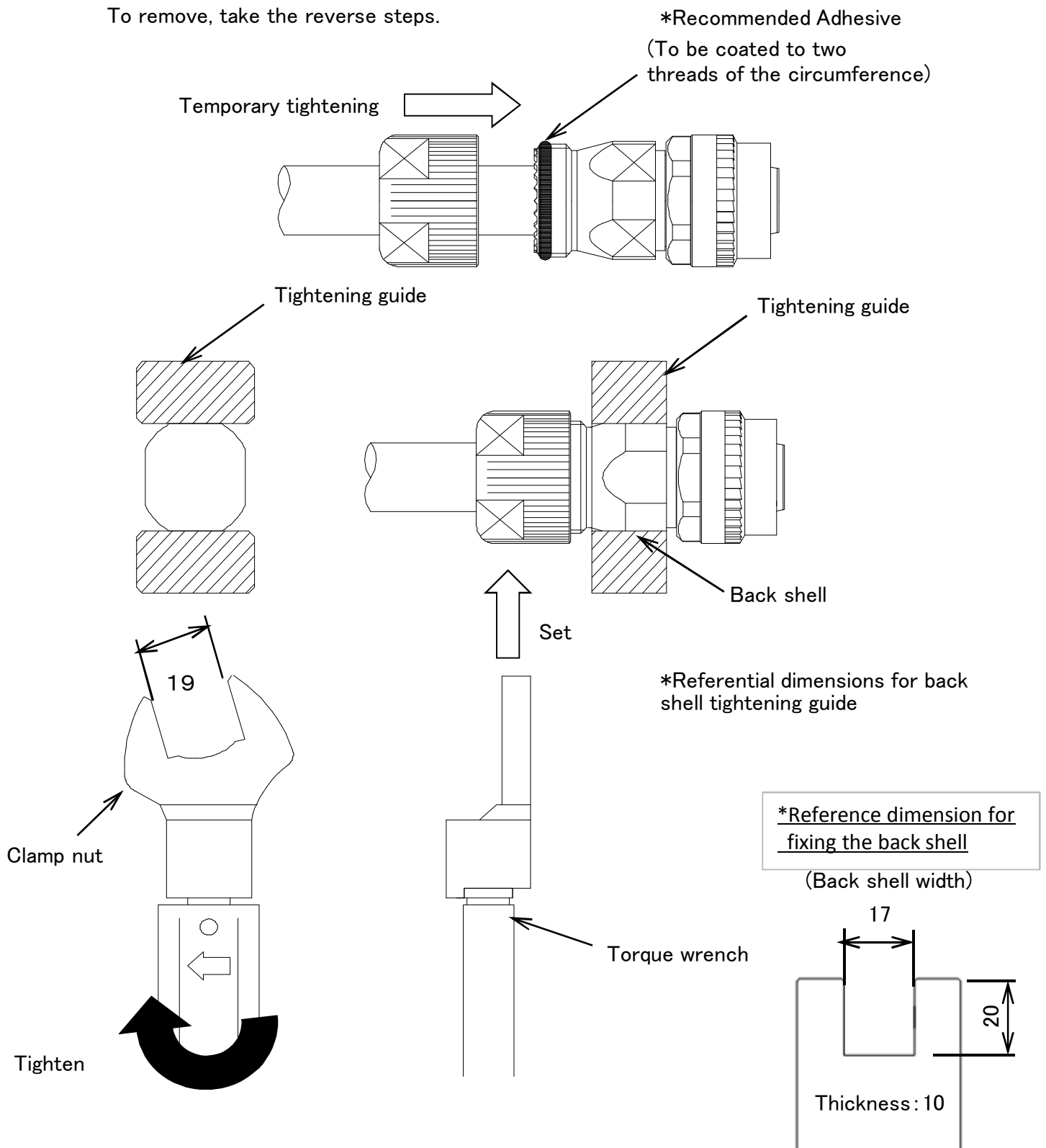
③ Set the clamp nut wrench on the clamp nut.

④ Hold a cable by hand and tighten the clamp nut with the clamp nut wrench to the angle back shell.  
Recommended tightening torque: 4to5 N·m

**Note!** To set the work to the wrench, adjust the two surface width.

In case of squeezing the clamp nut with excesses torque provided as above, the clamp nut may be broken. Please use the torque wrench.

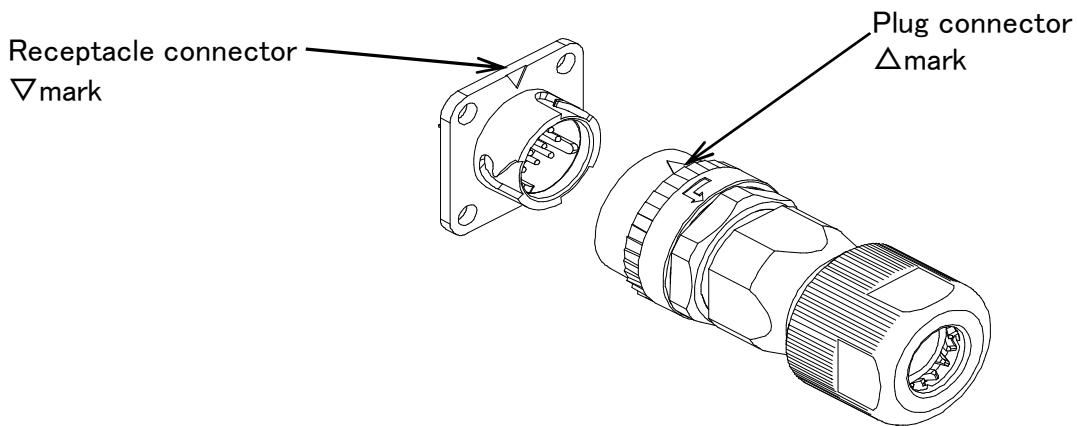
To remove, take the reverse steps.



- Jig/Tool Used : Clamp nut wrench (357J-51334T)
- Bit (357J-51345T)
- Torque wrench (CL10NX8D-MH, Tonichi Mfg)
- \*Recommended tightening guide: (357J-50494T)

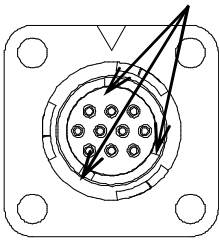
※In the case of Connection with a partner connector.

①Set the  $\Delta$  mark of each other's connectors.

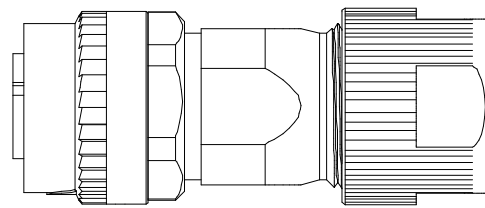
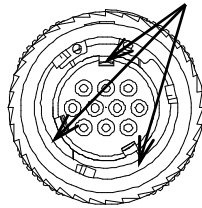


②Each other's key (concavity and convexity) are fit in.  
Push it straight, take care not to tilt.

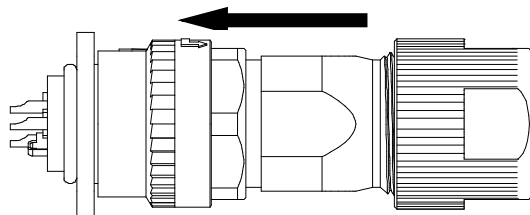
Receptacle connector key



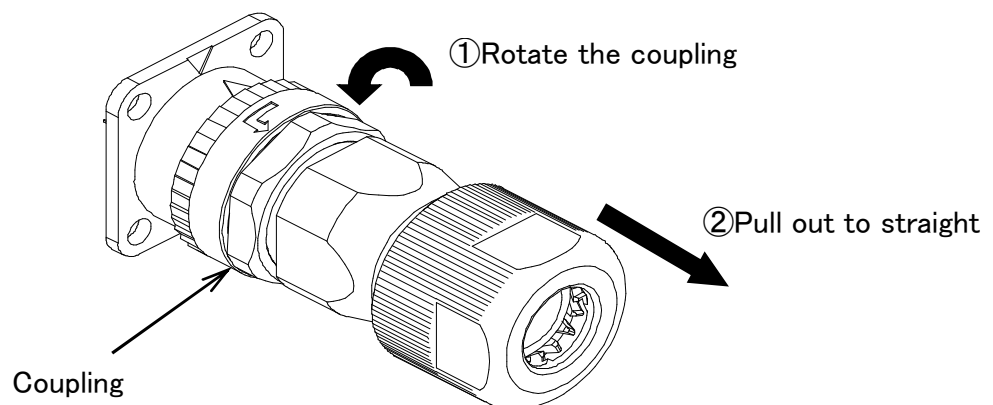
Plug connector key (Concavity)



Push it straight



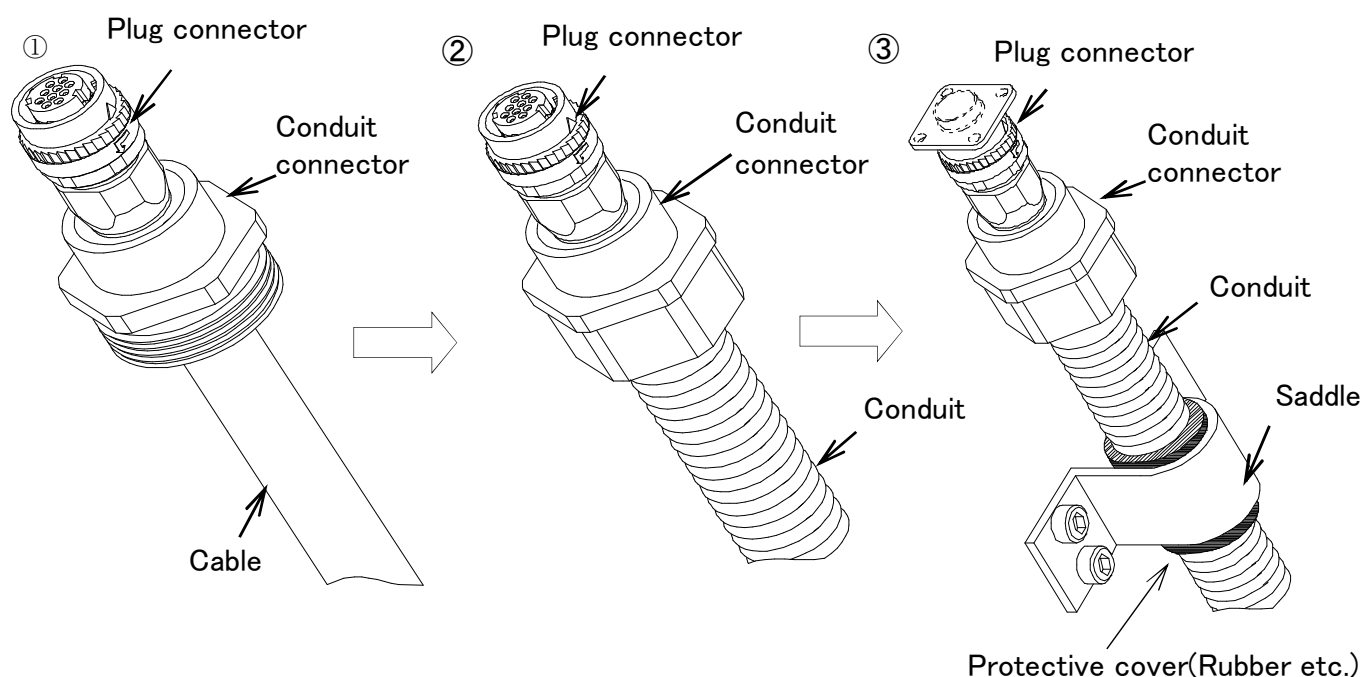
\*To remove, rotate the coupling and pull out to straight.



\*When using a conduit

- ① Tighten the nipple of conduit connector on the plug connector.
- ② Set the conduit on the nipple of conduit connector.
- ③ When using by moving part, fix the conduit on the saddle etc., take care not to damage for plug connector and conduit connector.

Set the protective cover (rubber etc.,) on the conduit for takes care not to cable damage.



● Recommended conduit & connector: NIPPON FLEX CO.LTD

Conduit  
 Type : VF, SR, FBN, EM, VFS, SRK etc  
 Connector  
 Type : RCM

\*NIPPON FLEX CO., LTD home page → <http://www.nipolex.co.jp>