

1. Scope

This specification document describes the harness procedure of HR30 Plug connector.

2. Operating procedure

(1) Wire connection preparation and Cable end processing

Route the cable in the order of Hood, Cable clamp, Gasket, Spring and Coupling ring in advance, and perform cable end processing according to the dimensions in Table 1.

(Note) When performing cable end processing, be careful not to damage the covering and core of the lead wire.

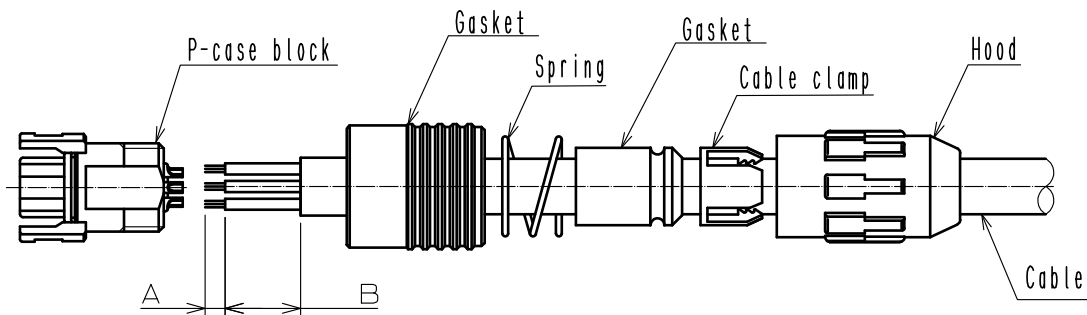


Table 1.

	A	B
3 position solder type	About 3.5 $\begin{smallmatrix} 0 \\ -0.5 \end{smallmatrix}$ mm	5.5mm Max
6 position solder type	About 2 $\begin{smallmatrix} 0 \\ -0.5 \end{smallmatrix}$ mm	10mm Max
12 position solder type		15~20mm
10 & 12 position crimp type		

COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
△ 1	DIS-C-00017110	HT. ZENBA	EJ. KUNII	20240219
名 称 T I T L E HR30 Plug Connector Harness Assembly Instructions			HRS ヒロセ電機株式会社 HIROSE ELECTRIC CO., LTD.	
			APPROVED	HY. KOBAYASHI 20230414
			CHECKED	HY. KOBAYASHI 20230414
			CHARGED	HY. KISHI 20230414
			WRITTEN	HY. KISHI 20230414
技 術 指 定 書 TECHNICAL SPECIFICATION			ETAD-C0509-00	△ 1 / 8

(2)Wiring

◆Solder type

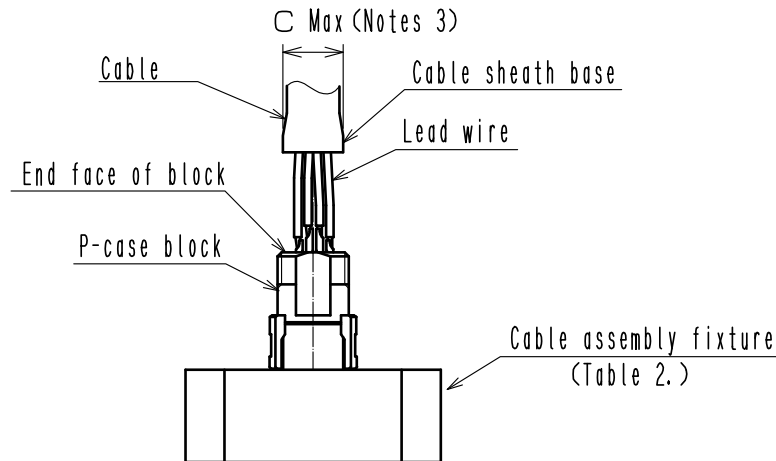


Table 2.

	Part No.	Cable assembly fixture
3 position solder type	HR30-6P-3S(31)	HR30-6P-3S-T01
	HR30-6PA-3S(71)	
6 position solder type	HR30-6P-6S(31)	HR30-6P-6S-T01
	HR30-6PA-6S(71)	
	HR30-6P-6P(31)	HR30-6P-6P-T01
	HR30-6PA-6P(71)	
12 position solder type	HR30-7P-12S(71)	HR30-7P-12SC-T01
	HR30-8P-12P(71)	HR30-8P-12PC-T01

Table 3.

	C
3 and 6 position solder type	φ5
12 position solder type	φ7

After attaching the P-case block to the cable assembly fixture, perform soldering for 3 to 4 seconds with the soldering iron tip at a temperature of $350\pm10^{\circ}\text{C}$.

- Notes 1 Solder should be done without cold solder joint or air bubbles in the solder.
- 2 The end faces of the P-case block is waterproof.
Please note that if the waterproof surface is damaged by a soldering iron during soldering, the waterproof property may be impaired.
- 3 When soldering, make sure that the based of the outer jacket of the sheath is within the dimensions shown in Table 3.
Please note that if the gasket is tightened when inflated, friction with the hood will increase and the hood will not be tightened to the proper position, which may impair waterproofing performance.

⚠Caution

Make sure to secure the cable assembly fixture so that it will not move even due to the torque for assembling the connector. If not properly secured, the connector may tilt during assembly, resulting in damage to the connector or inability to tighten with the specified torque.

⚠Caution

Please strictly observe the soldering conditions.
Otherwise, the insulator may melt or the contacts may come off.

◆Crimp type

Crimp the crimp contacts to the lead wire.

C/H and other crimping quality standards are in accordance with the technical specification ATAD-C0365-00.

For C/H, please refer to Table 6.

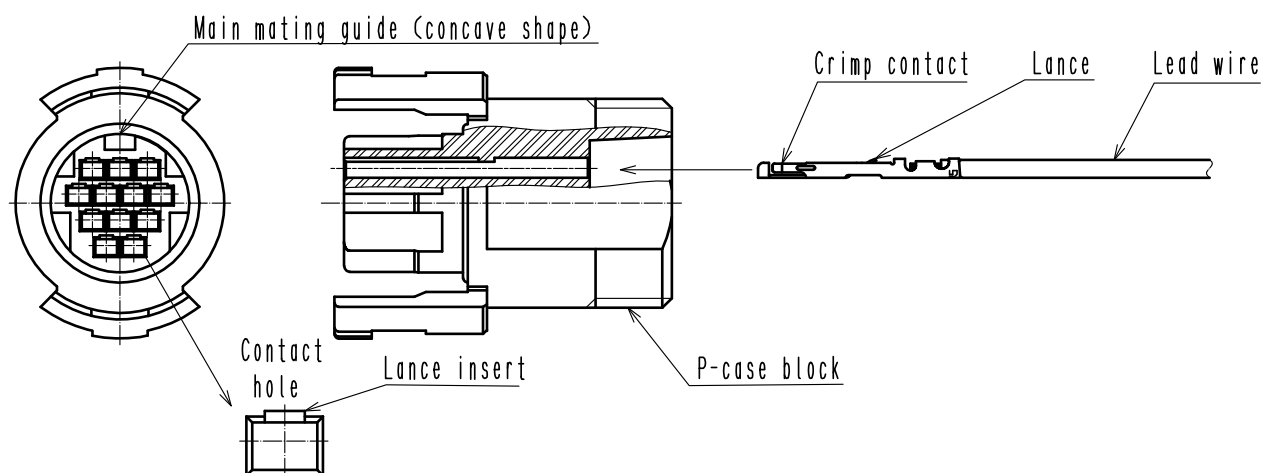
Table 4. Applicable Tools

Type	Discription	Patr No.
Manual	Manual crimping tool	HT-102/HR30-1
Auto	Automatic crimping machine	CM-105C
	Applicator	AP105-HR30-1

⚠Caution

When crimping with a manual tool, the caulking may be hard or the work may be difficult, but be sure to perform crimping.

If crimping is not performed reliably, electrical connection problems may occur.



Apply crimping contact to the lead wire After crimping using a tool, insert the crimping contact in the position where the lance of the crimping contact comes to the lance insertion part of the contact hole of the P-case block.

Insert the crimping contact by aligning the lance with the main mating guide (concave shape) as a mark. After insertion, gently pull the lead wire (about 2 to 3 N) and make sure the contact is secured.

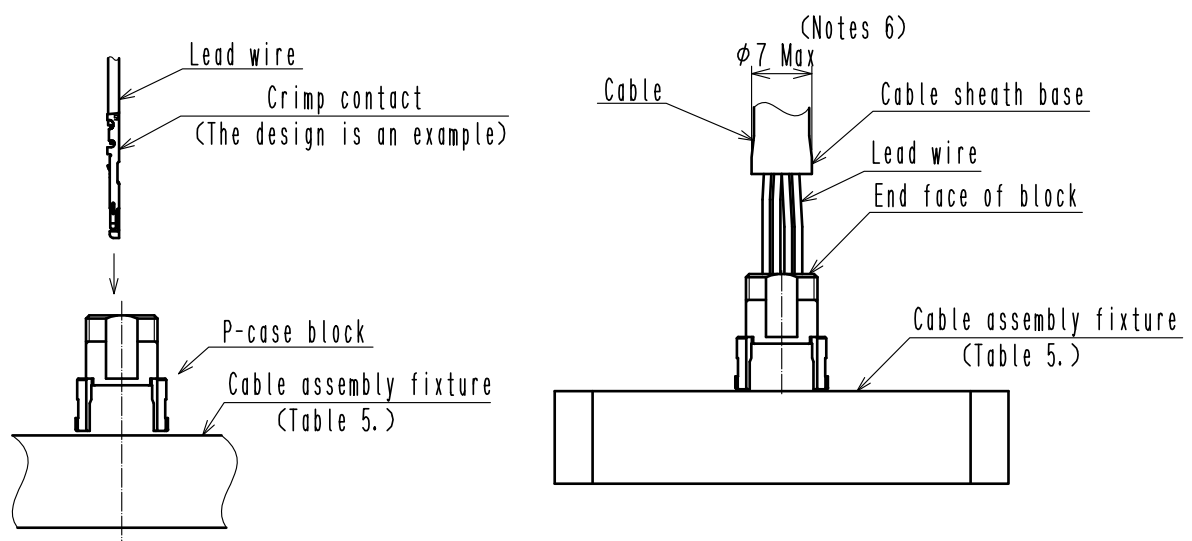


Table 5.

	Part No.	Cable assembly fixture
10 position crimp type	HR30-7P-10SC(71)	HR30-7P-10SC-T01
12 position crimp type	HR30-7P-12SC(71)	HR30-7P-12SC-T01
	HR30-8P-12PC(71)	HR30-8P-12PC-T01

Table 6.

Applicable wire AWG SIZE	Wire barrel Crimp height(mm)	Insulation barrel Crimp height(mm)
UL1571 Stranded wire AWG 26	0.52 ~ 0.58	0.85 ~ 1.00
UL1571 Stranded wire AWG 28	0.48 ~ 0.54	0.85 ~ 1.00
UL1571 Stranded wire AWG 30	0.46 ~ 0.52	0.80 ~ 0.95

After crimping with a tool that applies to compatible contact of the electric wire, insert the crimp contact into the contact hole of the P-case block.

- Notes 4 If the cable is soft, it may be difficult to insert the contacts.
In this case, insert the contacts by holding the cable near the contacts.
- 5 The end face of the P-case block is waterproof.
Please note that if the waterproof surface is damaged during cable assembly, the waterproof property may be impaired.
- 6 When crimping, make sure that base of the outer jacket of the sheath is $\phi 7$ or less.
Please note that if the gasket is tightened when inflated, friction with the hood will increase and the hood will not be tightened to the proper position, which may impair waterproofing performance.



Caution Make sure to secure the cable assembly fixture so that it will not move even due to the torque for assembling the connector. If not properly secured, the connector may tilt during assembly, resulting in damage to the connector or inability to tighten with the specified torque.



Caution When inserting the terminals make sure not to deform them.
Deformed terminals may cause poor contact or disconnection.

(3) Crimp contact pull-out

How to use contact extraction tool

If you insert a crimped contact into the wrong contact hole, use a contact extraction tool to remove the contact from the connector.

Table 7.

Contact extraction tool	Crimp Contacts
HR30-TP	HR30-SC-111
	HR30-SC-211
	HR30-PC-111
	HR30-PC-211

How to use it

① Insert the tip of the contact extraction tool into the tool insertion point of the contact hole.

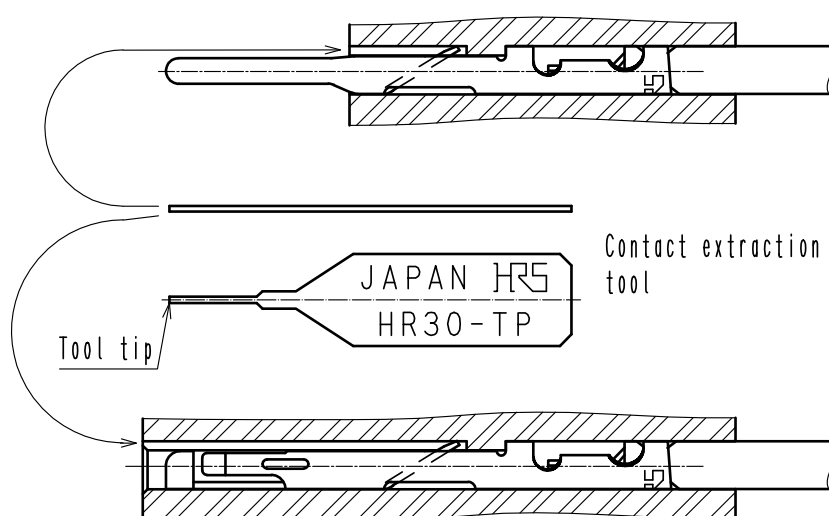
• HR30-PC-111, HR30-SC-211

Tool tip insertion point



• HR30-SC-111, HR30-SC-211

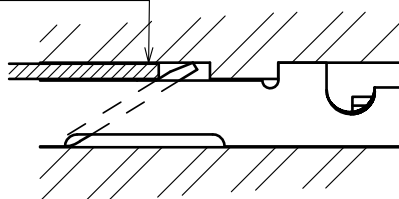
Tool tip insertion point



② Insert the jig and push down the lance.

Contact extraction tool tip

Contact extraction tool tip



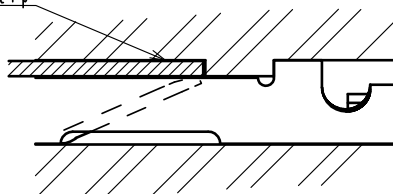
If the contact is pulled toward the cable side, the lance may not be pushed down.
If the lance is difficult to push down, push the extraction tool while the contact is pushed toward the connector side.



Caution If you try to remove the terminal with the lance not lowered, the lance may change.

③ Pull out the terminal with the lance depressed.

Contact extraction tool tip



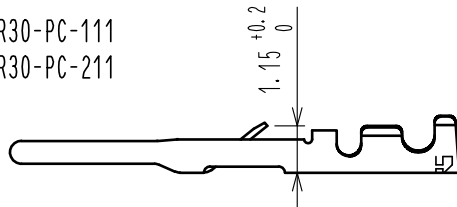


Caution

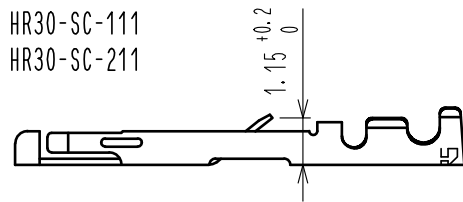
Reinsert the contact and housing only once.

When reinserting the contact removed from the housing, correct the height of the lance as shown below.

HR30-PC-111
HR30-PC-211



HR30-SC-111
HR30-SC-211



(4) Assembly

Assemble the coupling guides together into the connected P-case block.
Then assemble the Spring, Gasket, Cable clamp, and Hood in that order.

As for the positional relation between the end face of the cable sheath and the gasket recess, assemble the cable in the order of cable clamp and hood, keeping the condition shown in D.
Note that if the end face of the cable sheath is above the gasket recess, the waterproof function is not satisfactory. (Figure E)

(Note)

Apply a lubricant (dry) to the outer periphery of the gasket to reduce friction during tightening.

Tighten the cord tube to the specified tightening torque using the hood tightening jig shown in Table 8.

To prevent loosening, apply Loctite 263 and Locking Primer 7649 made by Henkel Japan. Loctite should be applied in accordance with PROCEDURES OF APPLYING LOCTITE TO HR30 (ETAD-C-0151).

If Loctite is not applied, the cord tube may loosen during use, resulting in wire breakage and poor water resistance.

Also, when the hood is screwed in, the cable may rotate with it and add a load to the soldered portion. Secure the cable with your fingers to prevent it from rotating.

However, the cable will twist slightly (slightly less than one turn), so it is recommended to add a twist in the opposite direction.



Caution

Secure the connection jig so that it does not move even with the torque used to assemble the connector.

If the connection jig is not secured sufficiently, it may tilt during assembly and damage the connector or fail to tighten with the specified torque.

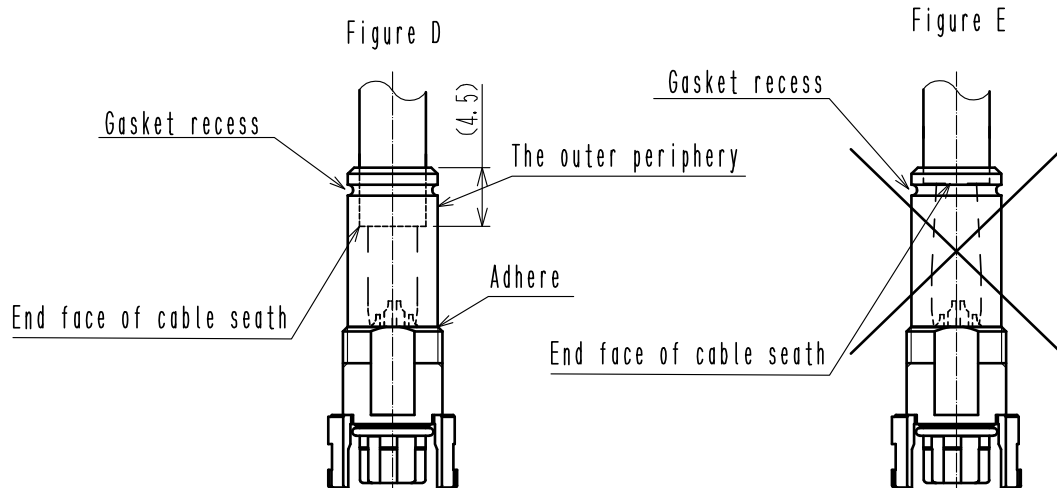
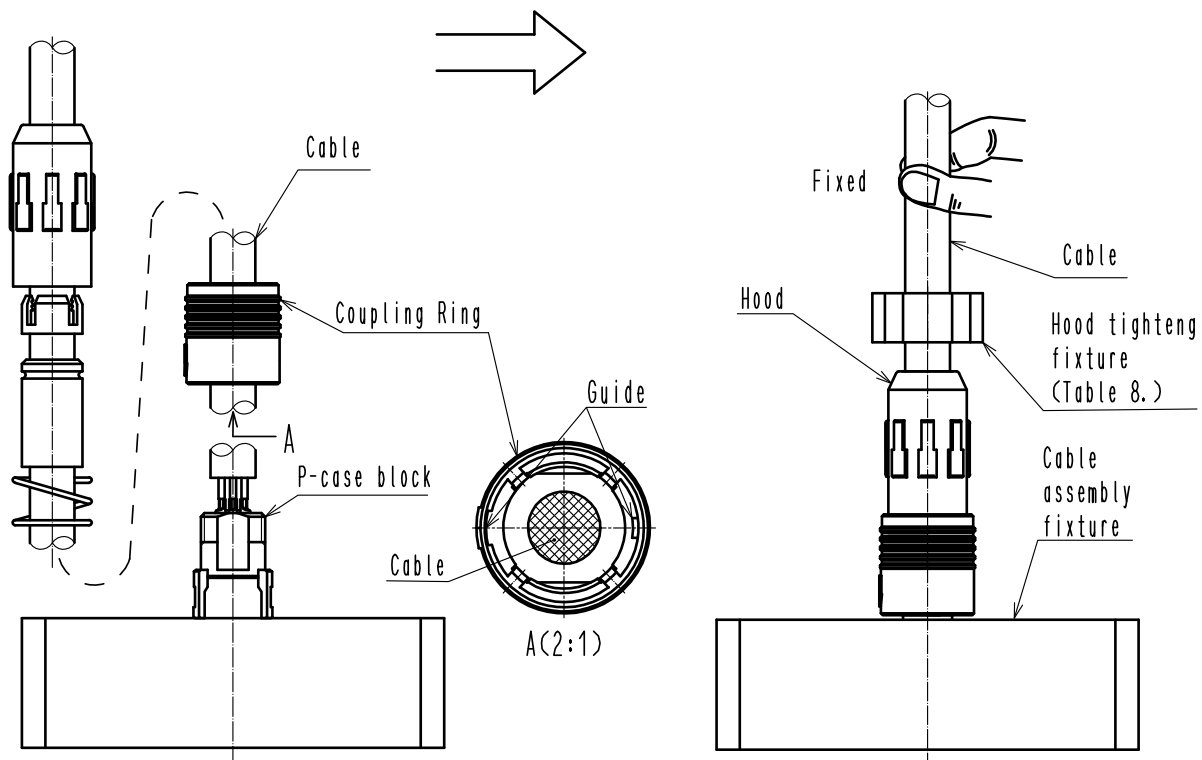
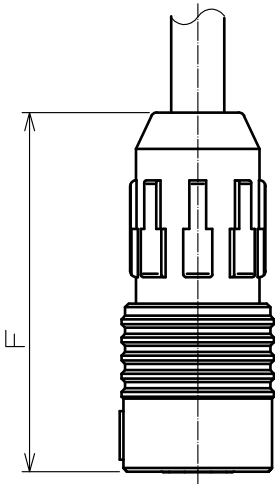


Table 8.

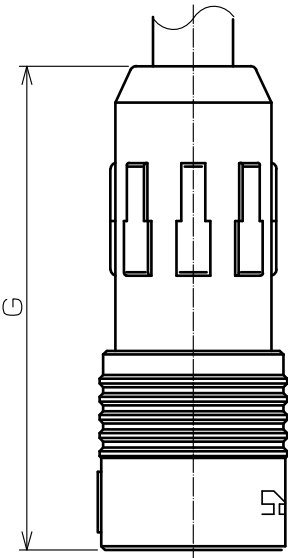
	Hood tightening fixture	jig HEX	Tightening torque
3,6 position	HR30-6P-T02	16mm	0.5 N · m
10,12 position	HR30-8P-T02	18mm	

3,6 position



Part No.	F(mm)
HR30-6P-3S(31)	29.8
HR30-6PA-3S(71)	
HR30-6P-6S(31)	
HR30-6PA-6S(71)	
HR30-6P-6P(31)	30.3
HR30-6PA-6P(71)	

10,12 position



Part No.	G(mm)
HR30-7P-10SC(71)	39.8
HR30-7P-12S(71)	
HR30-7P-12SC(71)	
HR30-8P-12P(71)	
HR30-8P-12PC(71)	

After completion of assembly, conduct continuity, breakdown voltage and insulation resistance tests to make sure there are no abnormalities in the wiring.
The test should be conducted while the product is engaged with the mating partner.
Do not apply the blow part directly to the male or female terminal. The terminal will be deformed resulting in poor contact. Also, please check that there is no problem with the waterproof performance.