

1. Scope

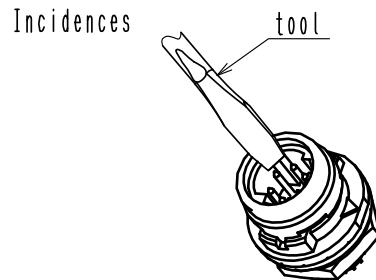
This specification document described the harnessing procedure for the HR30 receptacle.

2. ⚠ Caution

(1) Do not scratch or deform the contact.

If scratches and deformations occur,

- Contact resistance deteriorates
- Engagement failure
- In case of board mounting type, mounting failure on board may occur.



Inserting a tool into the connector engagement surface may bend or damage the terminals.

(2) Make sure to avoid creating cold solder joints or solder joints with air holes.

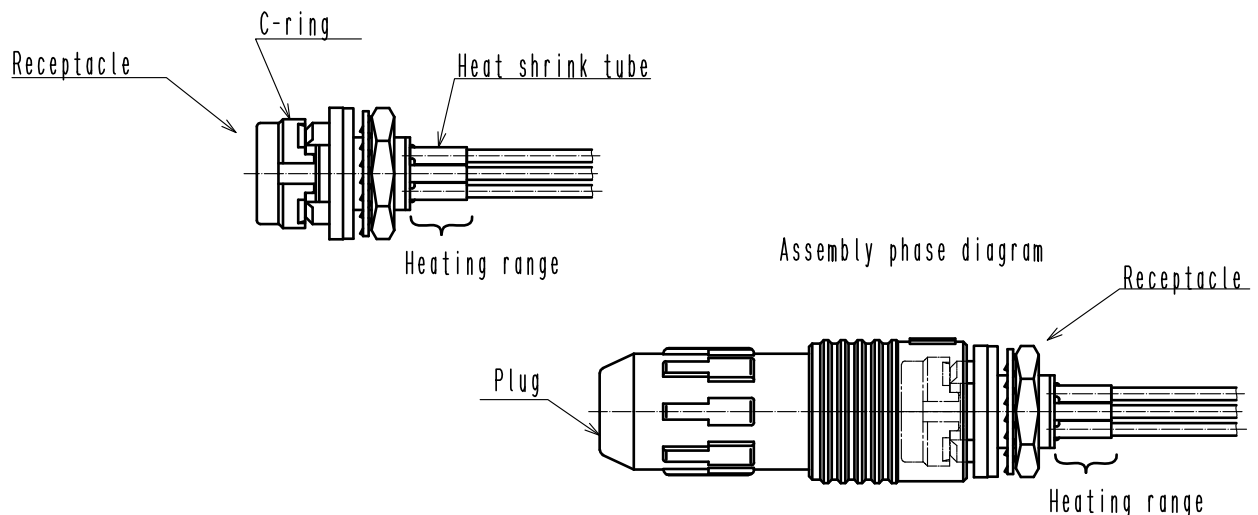
Also check to make sure the solder joint is adequately fused between the lead wires and solder cup.

The heating range when processing the shrink tube at the connection portion after soldering is shown in the figure. Please note that the following may occur if the product is heated beyond the heating range.

a. The C-ring deforms and does not lock when mated.

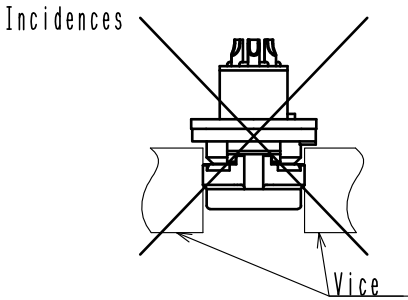
b. The product melts.

In order to prevent deformation of the C-ring as described in a, please heat after mating the compatible plug and receptacle.



	COUNT	DESCRIPTION OF REVISIONS	DESIGNED	CHECKED	DATE
⚠	6	DIS-C-00014735	HY. KISHI	HY. KOBAYASHI	20230314
TITLE HR30 Receptacle Connector Harness Assembly Instructions			HR HIROSE ELECTRIC CO., LTD.		
			APPROVED	TP. KOMATSU	20210618
			CHECKED	HY. KOBAYASHI	20210618
			CHARGED	HT. ZENBA	20210617
			WRITTEN	HT. ZENBA	20210617
TECHNICAL SPECIFICATION			ETAD-C0302-00		⚠ 1/8

③ Do not apply too much force to the receptacle engagement.
The receptacle engagement and the C-ring may deform and fail to engage.

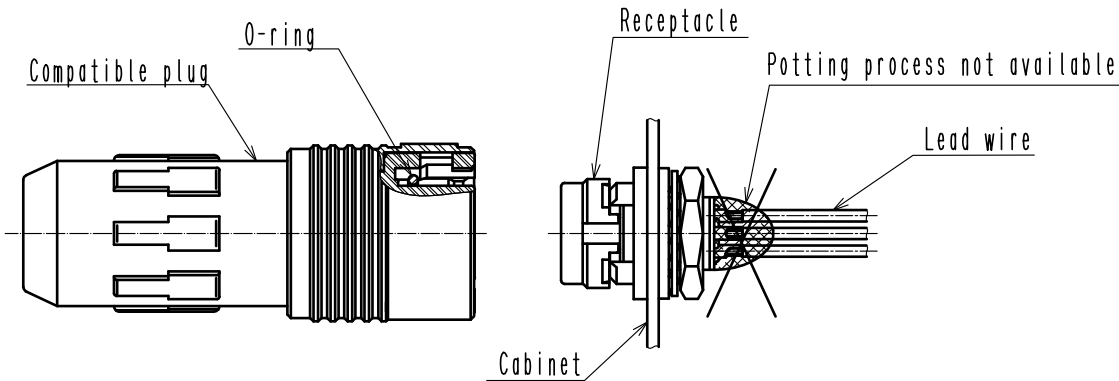


Do not secure the receptacle engagement during wiring.

④ Do not potting receptacle connections.

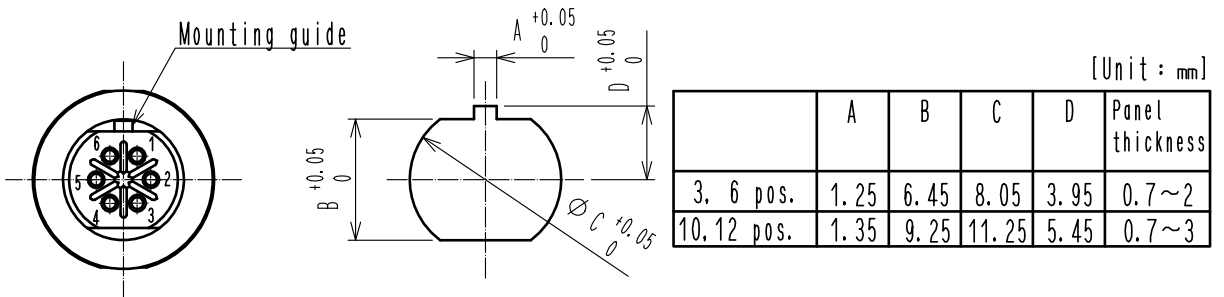
 Caution

Precautions after wiring (Solder type and Crimp type)
After wiring, do not seal the connected portion with potting, etc.
Potting may cause the O-ring to come off when the applicable plug is removed.
If the connector is used with the O-ring removed, the waterproof performance will not be satisfied.

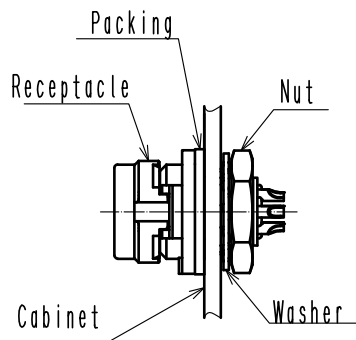


 3. Housing mounting method

Receptacle connection side



Install the receptacle so that its mounting guide fits into the A portion of the mounting hole.



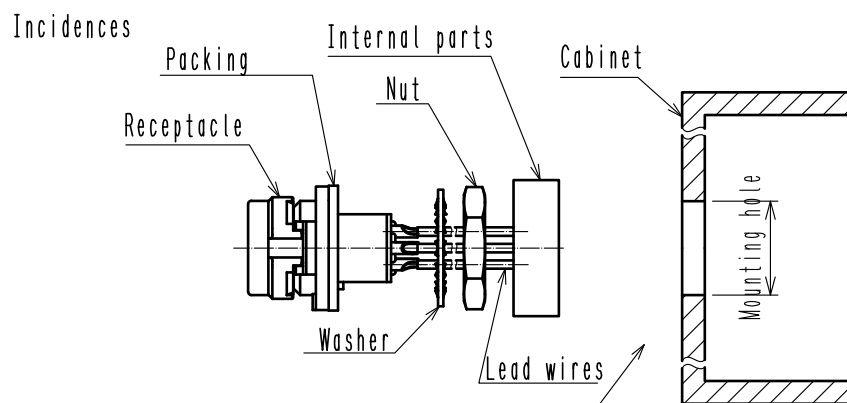
Recommended tightening torque

3, 6 pos.	0.5N · m
10, 12 pos.	0.8N · m

Install the packing from the connection side of the receptacle, insert it into the housing mounting hole, install the washer, and tighten the nut. To prevent loosening, apply Loctite 263 and Locking Primer 7649 from Henkel Japan.

Caution

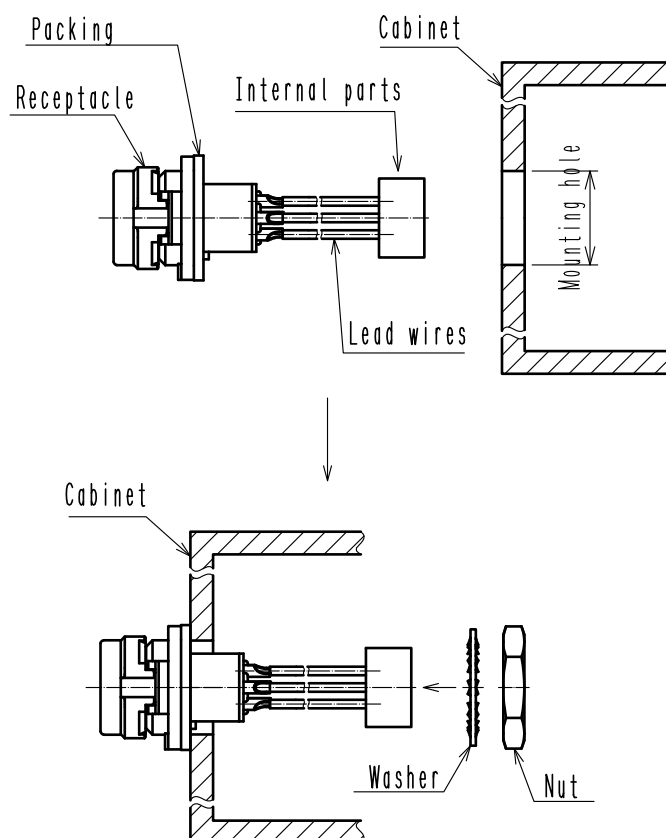
This product is designed to attach the connector from the outside of the cabinet. Therefore, if you connect the connector to the internal parts first, the installation may not be possible.



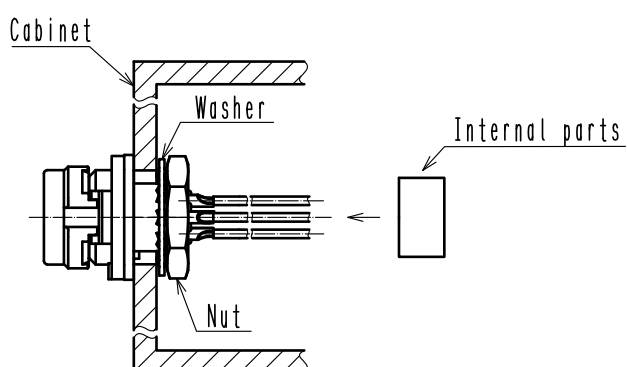
If the connected parts are larger than the panel holes, the panel holes can not be passed through.

If the connected internal components are larger than the panel holes, they will not pass through the panel holes and can not be mounted on the cabinet. When mounting a double-ended harness to the cabinet, use internal parts that are sized to pass through the mounting holes and washer and nut. (Figure-a) Alternatively, solder only the wires and make connections with internal parts after the connectors are installed in the cabinet. (Figure-b)

(Figure-a)



(Figure-b)



4. Assembly procedure

Procedure

1

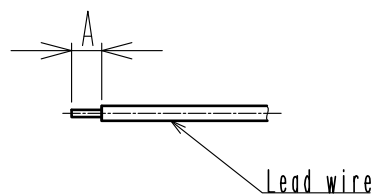


Table 1.

	Δ
3 pos. solder type	3.5 $^{0}_{-0.5}$ mm
6 pos. solder type	2 $^{0}_{-0.5}$ mm
12 pos. solder type	
10 & 12 pos. crimp type	

Strip the lead wire based on the dimensions shown in table 1.

Note: When processing the end, be careful not to damage the insulation or conductor.

2

(Solder type)

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.

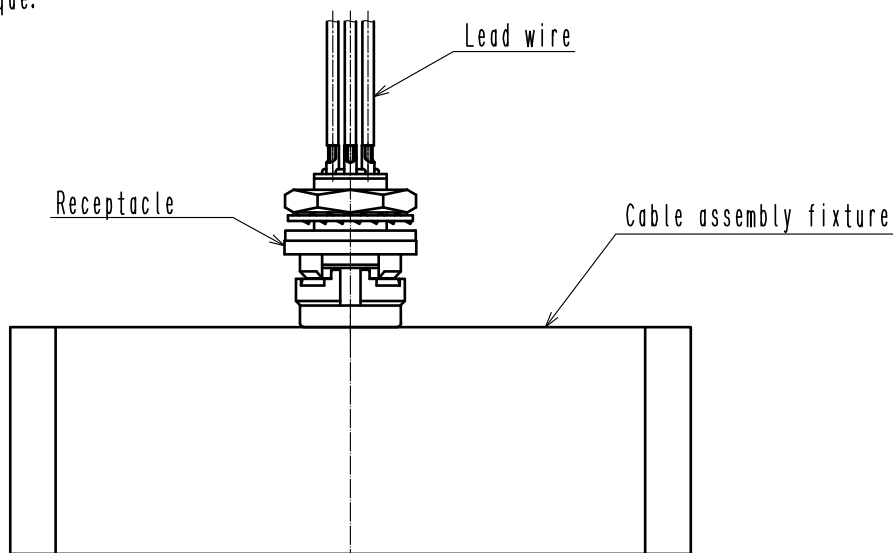


Table-2

	Part No.	Cable assembly tools
For 3 pos. soldering	HR30-6P-3P(71)	HR30-6R-3P-T01
For 6 pos. soldering	HR30-6R-6P(71)	HR30-6R-6P-T01
	HR30-6R-6S(71)	HR30-6R-6S-T01
For 12 pos. soldering	HR30-7R-12P(31)	HR30-7J-12PC-T01
	HR30-8R-12S(31)	HR30-8J-12SC-T01

After attaching the receptacle to the cable assembly fixture, perform soldering for 3 to 4 seconds with the soldering iron tip at a temperature of $350 \pm 10^{\circ}\text{C}$.

(Note 1) When soldering wires, make sure that there is cold solder joint, over heat solder, etc. Also, make sure that the solder is fully fused at the solder joint between the wire and the contact.

Caution

Please strictly observe the soldering conditions.

Otherwise, the insulator may melt or the contacts may come off.

(Crimp type)

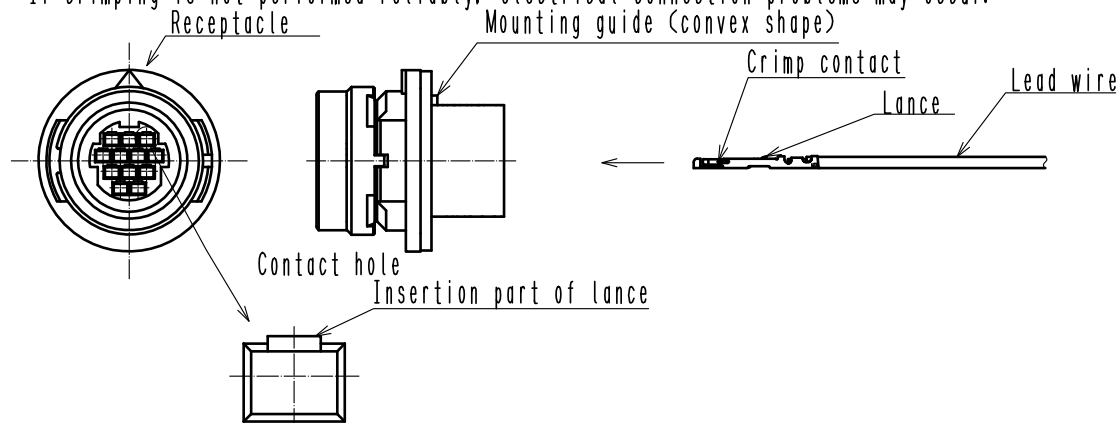
Crimp the crimping terminal to the lead wire.
The crimping quality standard such as C/H depends on the crimping condition.
For C/H, please refer to Table-4.

Table-3 Applicable tools

Type	Description	Part No.
Manual	manual crimping tools	HT-102/HR30-1
Automatic	Automatic crimping machine	CM-105C
	Applicator	AP105-HR30-1

 Caution

When crimping with a manual tool, the caulking may be hard or difficult to perform.
If crimping is not performed reliably, electrical connection problems may occur.



After crimping the lead wire with a tool crimped contacts, insert the crimped contacts into the contact hole of the receptacle in the position.

Use the mounting guide (convex shape) as a guide to align the lance and insert the crimped contact.

After insertion, gently pull the lead wire (2~3 N) to make sure the contact is secured.

 Caution

- Be careful not to deform the contacts when inserting.
If the contacts are deformed, poor contact or disconnection of the contacts may occur.
- During insertion, if the housing contact hole is not oriented with the contact, the contact will be destroyed.
- When inserting, if the contact is pushed too far, the housing will be destroyed and the contact may jump out to the engaged surface. Therefore, please be careful.
- If the cable is soft, the contact may be difficult to insert.
In this case, hold the cable close to the contact when inserting the contact.
- If you pull the lead wire hard after insertion, it will damage the contact and housing.
Please be careful.

Table-4

Wire AWG SIZE	For wire core C/H(mm)	For insulation C/H(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

Procedure

(Crimp type)

How to use the contact extraction tool

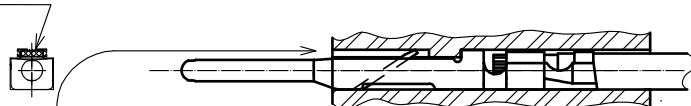
If you have inserted a crimped contact into the wrong contact hole, use the contact extraction tool to remove the contact from the connector.

How to use

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

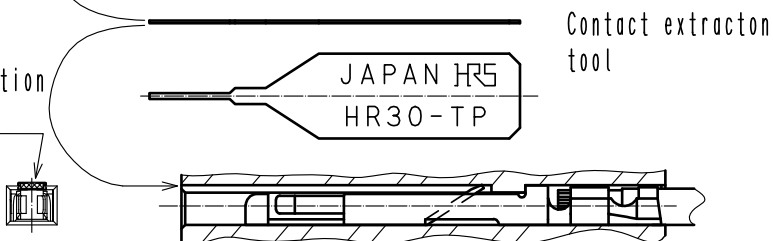
- HR30-PC-111+HR30-TP
- HR30-PC-211

Tool insertion point



- HR30-SC-111+HR30-TP
- HR30-SC-211

Tool insertion point

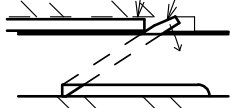
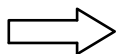


Contact extraction tool

(2) Insert the tool and push down the lance.

Tip of the contact extraction tool

Lance



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

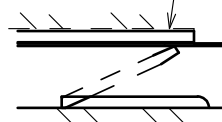
If the lance is not lowered and you try to remove the contact, the lance may deform.

(3) While pressing down on the lance, pull out the contacts.

Tip of the contact extraction tool



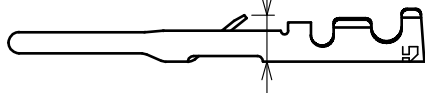
Contact pull direction



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

 $1.15^{+0.2}_0$


HR30-SC-111
HR30-SC-211

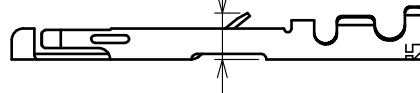
 $1.15^{+0.2}_0$


Table-5 Applicable tools

Contact extraction tool	Applicable contact
HR30-TP	HR30-SC-111 HR30-SC-211 HR30-PC-111 HR30-PC-211



Caution

Caution after connection (Common soldering and crimping types)

Loosen the lead wire connected to the connector.

If the lead wire is fixed in a strongly pulled state,

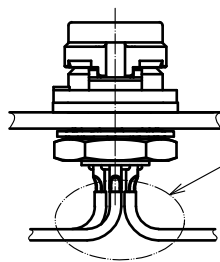
there is a risk of solder cracking and damage due to load on the connector.

Also, do not secure the entire wire with heat shrink tubing.

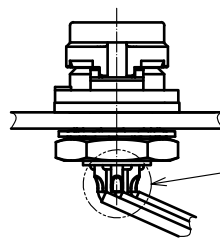
It may apply more tension than expected and damage the connector.

Similarly, when bundling wires with cable ties, secure the wires

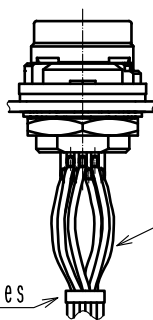
with a sufficient distance to prevent the wires from being loaded.



Loosen the connection
so as not to put a load
on it.



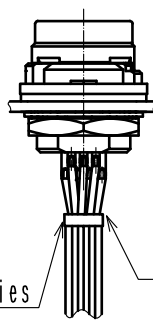
If the cable is pulled strongly,
there is a risk of solder
cracking or damage due to load
on the connector.



Loosen the connection
so as not to put a load
on it.

Cable ties

When using a bundling band,
bundle the cable in a well-spaced
place to avoid overloading it.

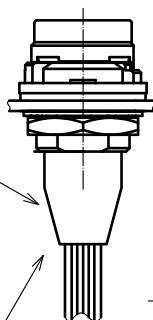


By bundling the cables with
cable ties, etc., the cables
may be pulled and load the
connectors.

Cable ties

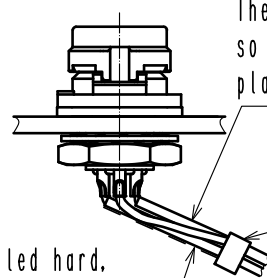
Heat shrinking tube

As with cable ties, this
may result in wires that
are pulled strongly and
may be damaged.



The cable length is generous,
so no significant load is
placed on the connector.

Cable is pulled hard,
causing load on connector.



Cable ties

Bending wires bundled with
cable ties, etc., may cause
the force to concentrate on
some of the wires and damage them.