

#### EMBOSSED CARRIER TAPE DIMENSION (2:1)

TAPE WIDTH : 24mm MAX

A technical drawing showing a vertical assembly. At the top, a horizontal line has a dimension of  $(1.7)$  above it. A horizontal line below it has a dimension of  $(0.3)$  above it. A callout labeled  $5$  points to the left side of the assembly. A callout labeled  $6$  points to the right side. A callout labeled  $8$  points to the bottom right corner of the assembly. The assembly consists of several vertical lines and a small horizontal line near the bottom.

TAPE WIDTH : 32mm MIN

A technical drawing of a vertical pipe assembly. The pipe has a central vertical axis. At the top, there is a horizontal cross-section with a width of (1.7) and a height of (0.3). Two callouts point to the top edge: one on the left labeled '5' and one on the right labeled '6'. At the bottom, there is a horizontal cross-section with a width of (1.7) and a height of (0.3). A callout on the right side points to the bottom edge and is labeled '8'. A dashed horizontal line is drawn across the pipe at approximately the middle height.

Technical drawing of a reel assembly, showing two views of the reel structure and a detailed view of the vacuum pick-up area.

**Dimensions:**

- Width of the reel body:  $4 \pm 0.1$
- Width of the central reel:  $2 \pm 0.15$
- Width of the right reel:  $8 \pm 0.1$
- Radius of the right reel:  $\phi 1.5 \pm 0.1$
- Total height:  $1.75 \pm 0.1$
- Height of the central reel:  $N \pm 0.1$
- Height of the right reel:  $M \pm 0.3$
- Width of the vacuum pick-up area:  $1.75 \pm 0.1$
- Height of the vacuum pick-up area:  $P \pm 0.1$
- Width of the reel body at the bottom:  $1.7 \pm 0.15$

**Labels:**

- DIRECTION OF UNREELING (indicated by an arrow pointing right)
- VACUUM PICK UP AREA (indicated by a callout)

REEL DIMENSION (FREE)

A technical drawing of a circular component. The outer boundary is a circle with a dashed center line. Inside the circle, there are six segments, each containing a small circle with a cross inside. A horizontal line with a circle containing the number 7 (7) points to one of these segments. A diagonal line with a circle containing the text  $(\phi 13)$  (φ13) points to the central hole. The drawing is symmetrical about both horizontal and vertical axes.

A technical drawing of a vertical pipe assembly. The assembly consists of two vertical pipes. The left pipe has a top cap with a rectangular slot. The right pipe has a top cap with a rectangular slot. A horizontal line connects the centers of the two slots. A dimension line with arrows indicates a height of  $(\phi 180)$  from the bottom of the left pipe to the top of the right pipe. Another dimension line with arrows indicates a height of  $(\phi 80)$  from the bottom of the left pipe to the top of the left pipe's slot. A callout line with an arrow points to the left pipe's slot with the label **(R: INSIDE)**. Another callout line with an arrow points to the right pipe's slot with the label **(S: OUTSIDE)**.

NOTE 8 PER REEL : 500 CONNECTORS.

9 COMPLIANT TO JIS C 0806 AND IEC 60286-3 (PACKAGING OF COMPONENTS FOR AUTOMATIC HANDLING.)

<b>HRS</b>	DRAWING NO.	EDC-156169-99-00
	PART NO.	FH33-**S-0.5SH(99)
	CODE NO.	CL580

DIMENSION TABLE OF CONNECTOR, FPC, FFC, LAND PATTERN AND METAL MASK

PART No.	CODE No.	*	A	B	C	D	J	K	L
FH33- 6S-0.5SH(99)	CL580-1301-1-99	6	5	2.5	3.57	4.35	3.8	4.9	3.5
FH33- 9S-0.5SH(99)	CL580-1303-7-99	9	6.5	4	5.07	5.85	5.3	6.4	5
FH33-10S-0.5SH(99)	CL580-1304-0-99	10	7	4.5	5.57	6.35	5.8	6.9	5.5
FH33-12S-0.5SH(99)	CL580-1302-4-99	12	8	5.5	6.57	7.35	6.8	7.9	6.5
FH33-14S-0.5SH(99)	CL580-1305-2-99	14	9	6.5	7.57	8.35	7.8	8.9	7.5
FH33-19S-0.5SH(99)	CL580-1307-8-99	19	11.5	9	10.07	10.85	10.3	11.4	10
FH33-20S-0.5SH(99)	CL580-1317-1-99	20	12	9.5	10.57	11.35	10.8	11.9	10.5
FH33-26S-0.5SH(99)	CL580-1306-5-99	26	15	12.5	13.57	14.35	13.8	14.9	13.5
FH33-28S-0.5SH(99)	CL580-1300-9-99	28	16	13.5	14.57	15.35	14.8	15.9	14.5
FH33-30S-0.5SH(99)	CL580-1312-8-99	30	17	14.5	15.57	16.35	15.8	16.9	15.5
FH33-32S-0.5SH(99)	CL580-1310-2-99	32	18	15.5	16.57	17.35	16.8	17.9	16.5
FH33-36S-0.5SH(99)	CL580-1311-5-99	36	20	17.5	18.57	19.35	18.8	19.9	18.5
FH33-40S-0.5SH(99)	CL580-1308-0-99	40	22	19.5	20.57	21.35	20.8	21.9	20.5
FH33-45S-0.5SH(99)	CL580-1316-9-99	45	24.5	22	23.07	23.85	23.3	24.4	23

DIMENSION TABLE OF DRAWING FOR PACKING

PART No.	CODE No.	*	M	N	P	Q	R	S
FH33- 6S-0.5SH(99)	CL580-1301-1-99	6	16	7.5	—	5.3	17.4	21.4
FH33- 9S-0.5SH(99)	CL580-1303-7-99	9	16	7.5	—	6.8	17.4	21.4
FH33-10S-0.5SH(99)	CL580-1304-0-99	10	16	7.5	—	7.3	17.4	21.4
FH33-12S-0.5SH(99)	CL580-1302-4-99	12	16	7.5	—	8.3	17.4	21.4
FH33-14S-0.5SH(99)	CL580-1305-2-99	14	16	7.5	—	9.3	17.4	21.4
FH33-19S-0.5SH(99)	CL580-1307-8-99	19	24	11.5	—	11.8	25.4	29.4
FH33-20S-0.5SH(99)	CL580-1317-1-99	20	24	11.5	—	12.3	25.4	29.4
FH33-26S-0.5SH(99)	CL580-1306-5-99	26	24	11.5	—	15.3	25.4	29.4
FH33-28S-0.5SH(99)	CL580-1300-9-99	28	24	11.5	—	16.3	25.4	29.4
FH33-30S-0.5SH(99)	CL580-1312-8-99	30	24	11.5	—	17.3	25.4	29.4
FH33-32S-0.5SH(99)	CL580-1310-2-99	32	32	14.2	28.4	18.3	33.4	37.4
FH33-36S-0.5SH(99)	CL580-1311-5-99	36	32	14.2	28.4	20.3	33.4	37.4
FH33-40S-0.5SH(99)	CL580-1308-0-99	40	44	20.2	40.4	22.3	45.4	49.4
FH33-45S-0.5SH(99)	CL580-1316-9-99	45	44	20.2	40.4	24.8	45.4	49.4

\*: NUMBER OF CONTACTS

This connector is small and thin and requires delicate and careful handling. Read through the instructions shown below and handle the connector properly. Each values indicating here are for reference and may differ from standard value.

**[INSTRUCTIONS FOR MOUNTING ON THE BOARD]**

◆Warp of Board

Minimize warp of the board as much as possible. Lead co-planarity including reinforced metal fittings is 0.1 mm or less. Too much warp of the board may result in a soldering failure.

◆Flexible board design

Please make sure to put a stiffener on the backside of the flexible board. We recommend a glass epoxy material with the thickness of 0.3mm MIN.

◆Load to Connector

Do not add 1N or greater external force when unreel or pick and place the connector etc. or it may get broken.

In addition, do not insert the FPC or operate the connector before mounting it.

**[INSTRUCTIONS FOR PCB HANDLING AFTER MOUNTING THE CONNECTOR]**

◆Load to Board

•Splitting a large board into several pieces

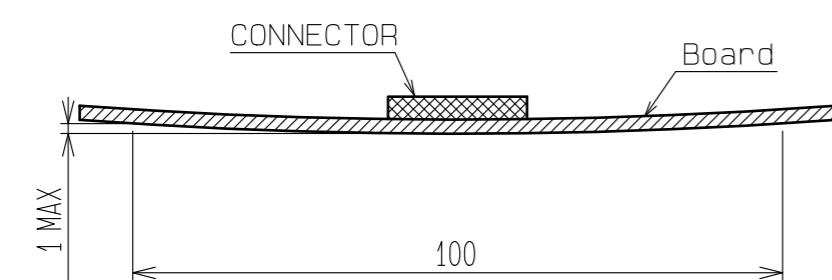
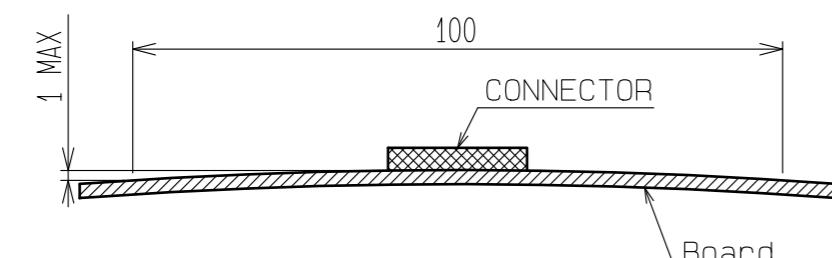
•Screwing the board

Avoid the handling described above so that no force is exerted on the board during the assembly process. Otherwise, the connector may become defective.

◆Amount of Warp

The warp of a 100-mm wide board should be 1 mm or less.

The warp of board suffers stress on connector and the connector may become defective.

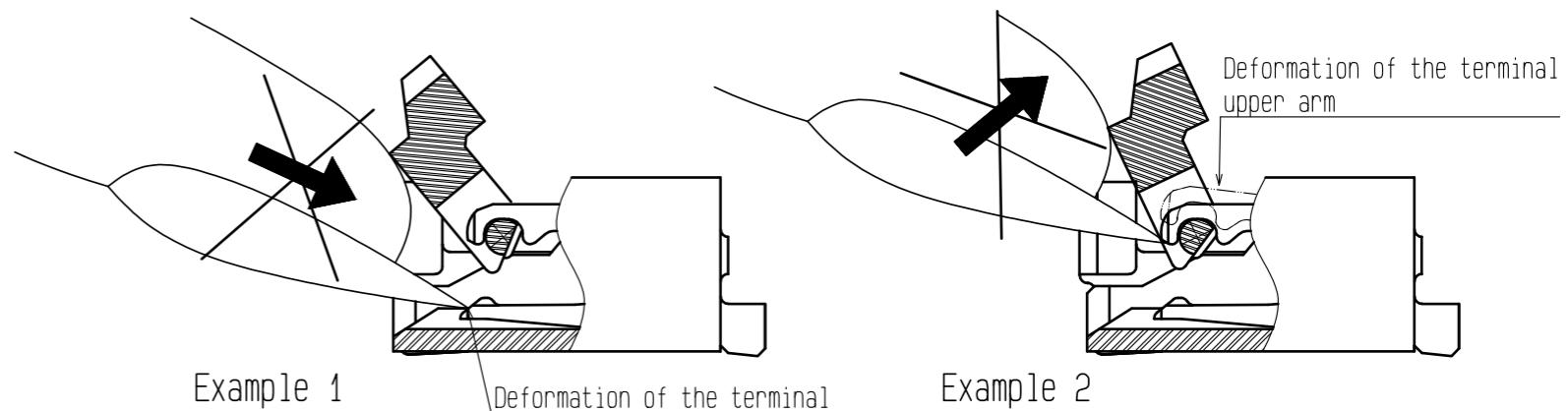


**[INSTRUCTIONS ON INSERTING FPC AND CONNECTION]**

◆Use of the Actuator

1. Be very careful not to apply excessive force when releasing the actuator in the initial position (with no FPC inserted).

If you use your nail or finger as shown below, the terminals may be deformed.

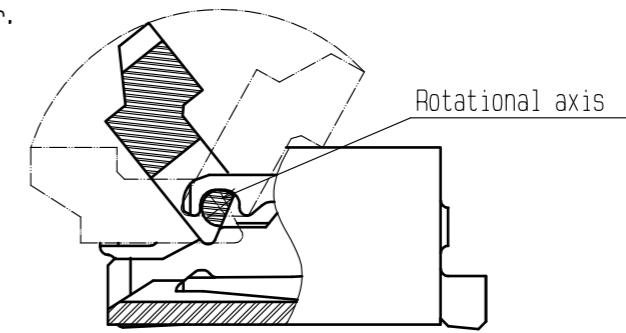


Example 1

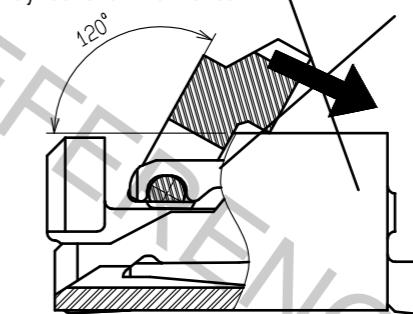
Deformation of the terminal

Example 2

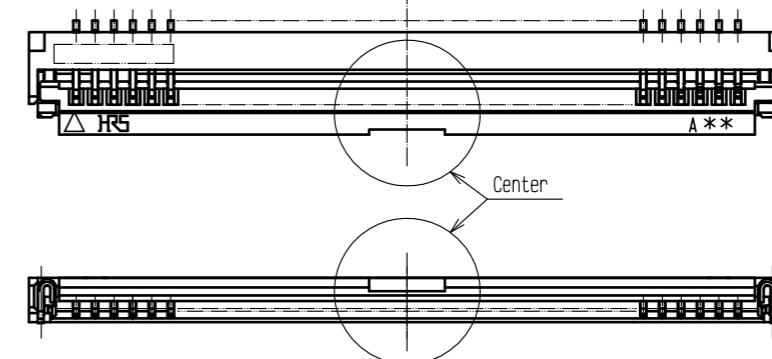
2. The actuator rotates around the rotational axis as shown below. Rotate the actuator.



3. The actuator will not open more than 120°. Do not apply any force backward beyond this point. Otherwise, the actuator may come off or break.

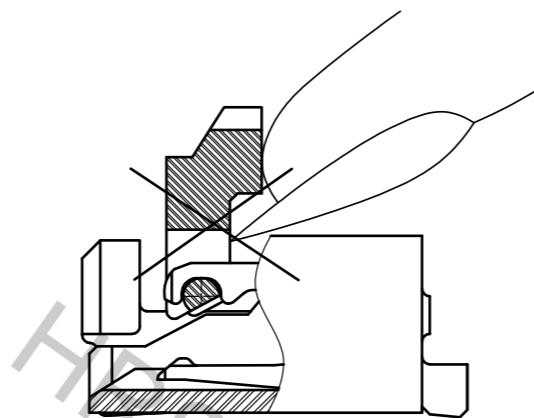
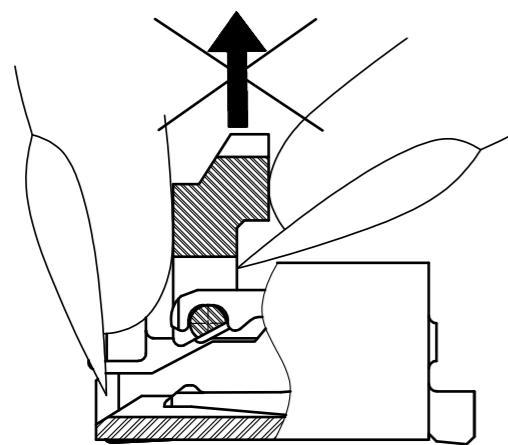


4. Move the actuator at approximately the center. Do not operate the edge of actuator. Otherwise, the actuator may come off or break.



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5. Do not pinch or pick the actuator to lift it as shown below. Otherwise, it may break.  
(Do not carry out any operation other than rotating the actuator as shown in 2 above.)



◆Direction of Contacts

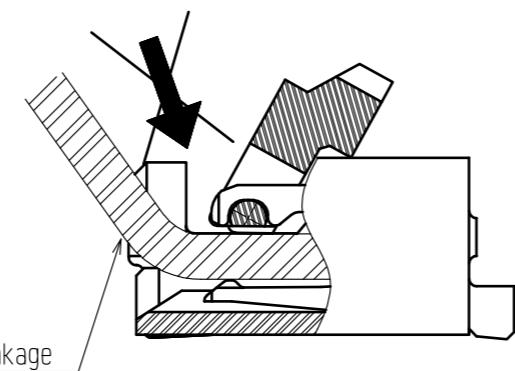
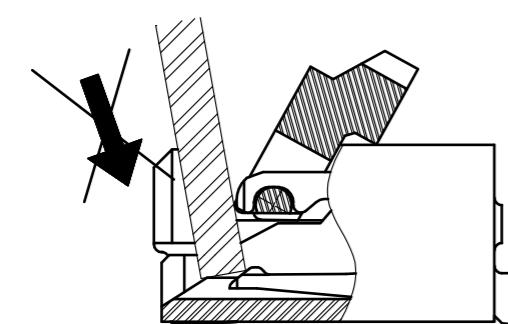
This connector has contacts on the bottom. Thus, insert it with the exposed conductors face down.

◆Inserting the FPC

1. Insert the FPC horizontally along the surface and at a right angle to the connector.  
Insert it properly to the very end.  
If the FPC is inserted at a slant (incorrectly),  
the conductors may short-circuit due to pitch shift or the edge of the FPC may catch in the terminals,  
resulting in deformation of the terminals.  
This connector has a ZIF structure, and its effective engagement length is 1.1 mm  
(when the recommended FPC nominal is used).  
Use the actuator carefully to prevent the FPC from dislocating after inserting it.
2. Do not insert the FPC diagonally from above.  
If the FPC is inserted at a slant (incorrectly) as shown below in the FPC insertion process,  
the FPC may bend and patterns may break or the FPC may not insert completely,  
resulting in improper conduction.

※Keep a sufficient FPC insertion space in the stage of the layout in order to avoid incorrect FPC insertion.  
Besides, it is not difficult to insert FPC correctly all the way to the end.  
Design the proper layout of parts.

※Make adjustments with the FPC manufacturer for FPC bending performance and wire breakage.



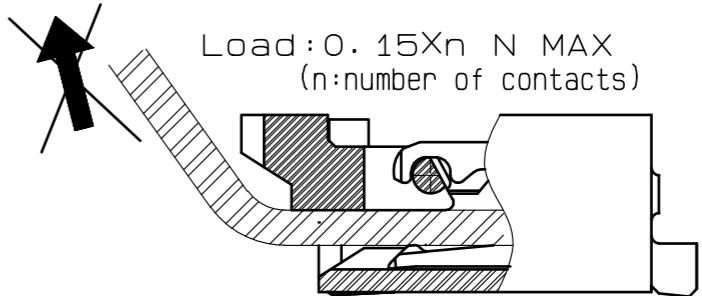
◆Checking the Locking Condition

In the locked condition, make sure that the actuator is horizontal on the board surface.  
Do not apply excessive force to it near the 0° position of the actuator.  
Otherwise, the terminals may be deformed. (Allowable force: 1 N or less)

[INSTRUCTIONS ON FPC LAYOUT AFTER CONNECTION]

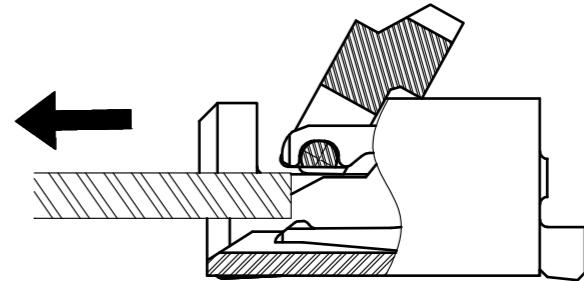
◆Load to FPC

Be very careful not to apply any force to the FPC after inserting it.  
Otherwise, the connector may become unlocked or the FPC may break.  
Fix the FPC, in particular, when loads are applied to it continuously.  
Design the FPC layout with care not to bend it sharply near the insertion opening.



[INSTRUCTIONS ON REMOVING FPC]

◆Release the actuator to remove the FPC.



[OTHER INSTRUCTIONS]

◆Instructions on Manual Soldering

Follow the instructions shown below when soldering the connector manually during repair work, etc.

1. Do not perform reflow soldering or manual soldering with the FPC inserted into the connector.
2. Do not heat the connector excessively. Be very careful not to let the soldering iron contact any parts other than connector leads. Otherwise, the connector may be deformed or melt.
3. Do not use excessive solder (or flux).

If excessive solder (or flux) is used on the terminals, solder or flux may adhere to the contacts or rotating parts of the actuator, resulting in poor contact or a rotation failure of the actuator.

Supplying excessive solder to the reinforcing bracket may hinder actuator rotation,  
resulting in breakage of the connector.