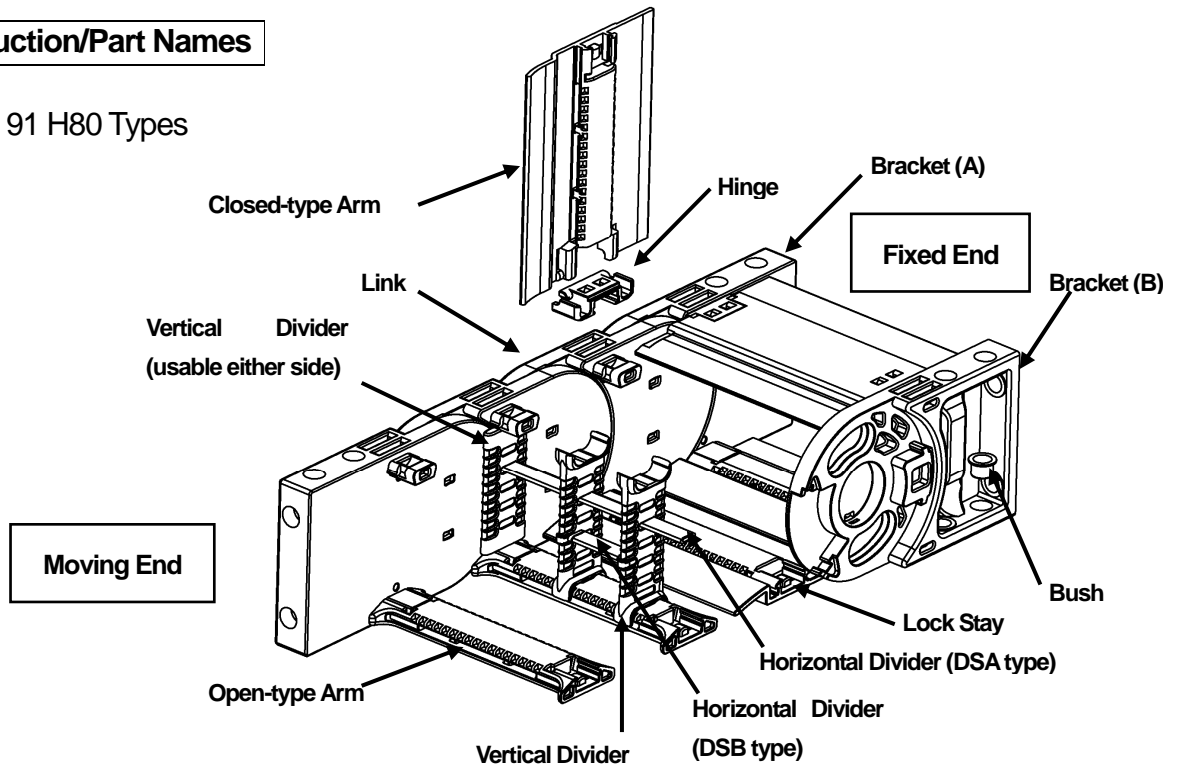


Tsubaki TKP/TKC91 Plastic Cableveyor Instruction Manual

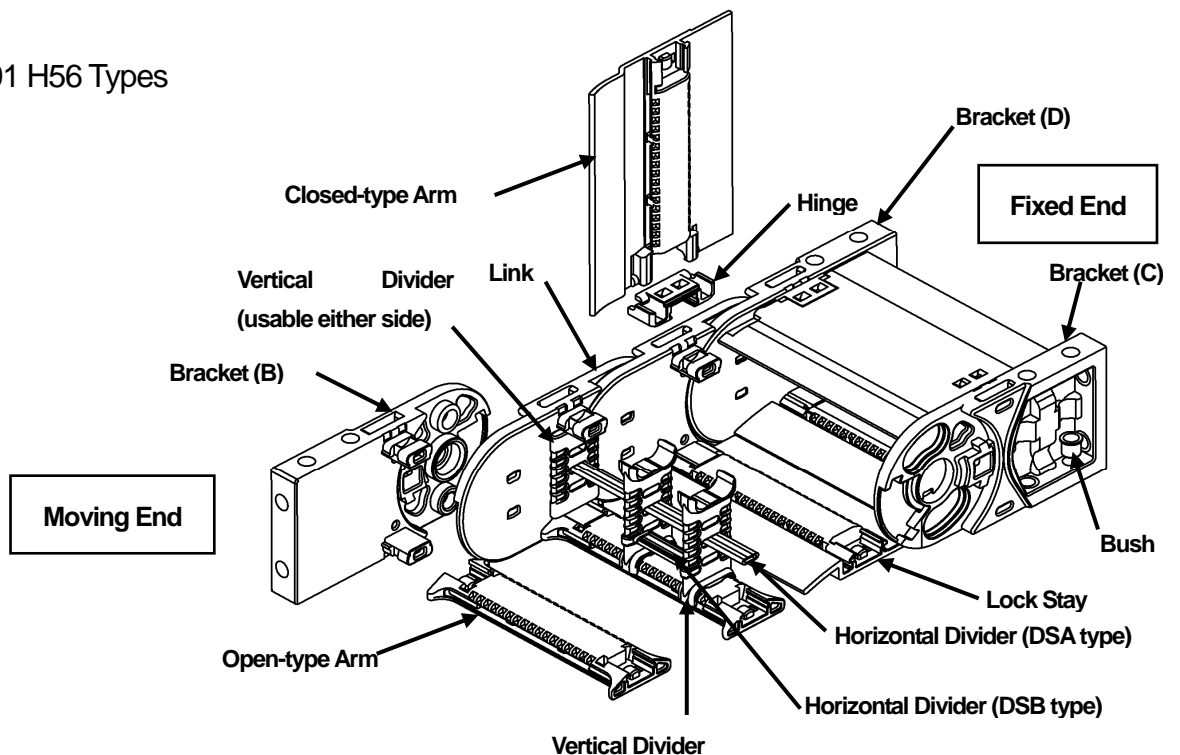
Thank you for your purchase of a Tsubaki plastic Cableveyor.
 This instruction manual covers points from delivery to installation, and should be read before beginning work.

1 Construction/Part Names

TKP/TKC 91 H80 Types



TKP/TKC 91 H56 Types



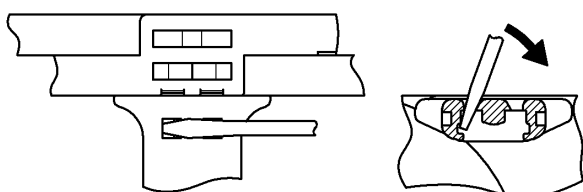
2 Before Assembly

- 1) Use only a flat-head screwdriver with a **4.5mm head** and a plastic hammer.
A screwdriver with a larger head will not fit into the release hole and can damage parts.
- 2) This product can be easily assembled and disassembled. If parts are difficult to insert they may be misaligned.
Do not pound in. Check positioning and realign.
- 3) There is no need to tap the screwdriver handle with a hammer. Doing so may damage parts.
- 4) Wear gloves, safety glasses, safety shoes, and other protective gear as appropriate when working.

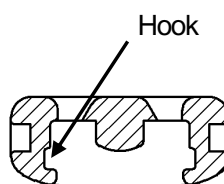
3 Arm Types and Removal

***All TKP91 (open type) arms are interchangeable**

- 1) Hold down the arm with your hand and insert a screwdriver about 7mm into the release hole and twist as shown in the diagram



Upper and cross-sectional view (link side omitted)

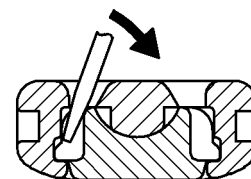


Arm cross-section

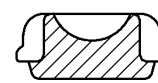
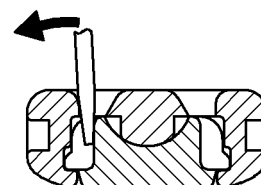
(Caution!)

Cross-section of arm and link
Undo the hook as shown below.

○ Correct



× Bad



Cross-section of link fastener

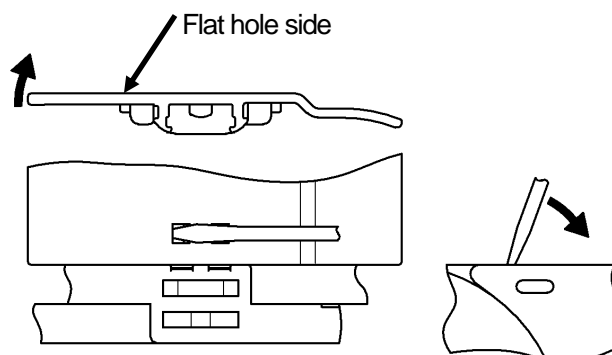
- 2) Once you have undone the hook and one side of the arm has lifted, undo the hook on the opposite side and twist and lift up to remove arm.



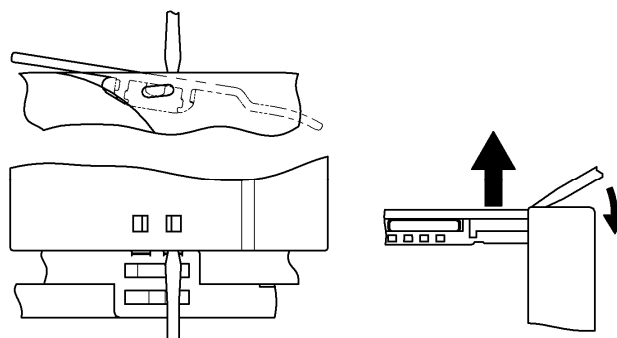
***For TKC91 (closed type), the arms (with hinge) and lock stays are not interchangeable.**

-Removing an arm on the end

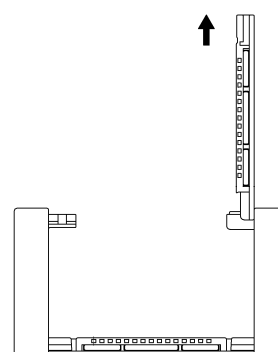
- 1) The arm has a hook on one end and a hinge (separate part) on the other, as shown below. First, insert a screwdriver about 7mm into the release hole on the flat side of the hook end (the left side in this diagram) and twist to lift the arm.



- 2) Insert fingers into the space under the lifted arm and lift and hold up. Next, insert the screwdriver slightly between the groove on the top of the link and the underside of the arm and pull the screwdriver down to release the hook.



- 3) Hold the end of the arm and using the hinge side as a base push down while twisting to lift arm up. To remove just the arm, pull straight up with the arm in a standing position to remove. It will pull out easily, leaving only the hinge behind.

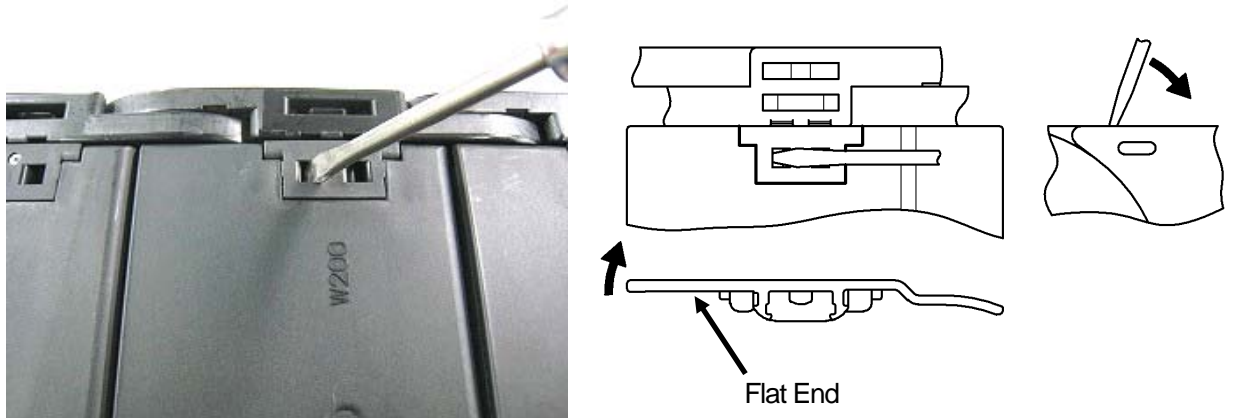


- 4) To remove the hinge remaining on the link, insert a screwdriver into one of the two release holes and twist.

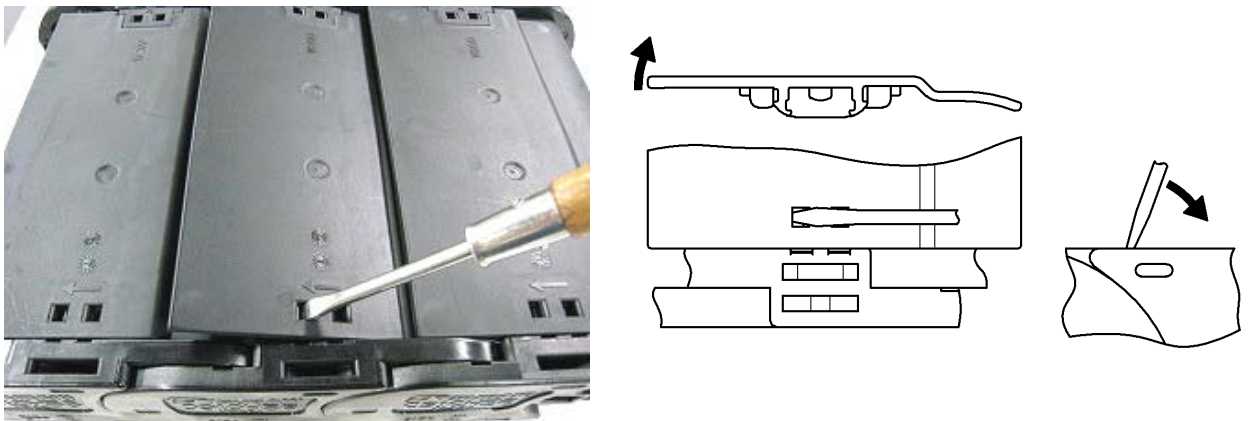


•Removing an arm in the center

- 1) Insert a screwdriver about 7mm into the release hole on the flat arm end (the left side in this diagram) and twist to lift arm. This may release the hook side at the same time.



- 2) If the hook side does not release, insert a screwdriver about 7mm into the release hole on the flat side of the arm on the opposite side (the left side in this diagram) and twist to lift arm.

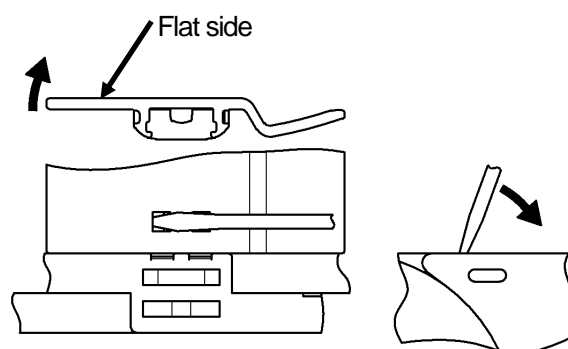


- 3) Lift up the lifted side fully and twist to remove arm.



•Removing the lock stay

- 1) Both sides of the lock stay have the same hook construction. Insert a screwdriver about 7mm into the removal hole on the flat side of the arm (left side in this diagram) and twist to raise lock stay end.



- 2) Insert fingers into the lifted space in the lock stay and lift and hold up. Insert a screwdriver into the release hole on the flat side on the other end. Unhook the side and twist the entire arm while lifting up to remove.



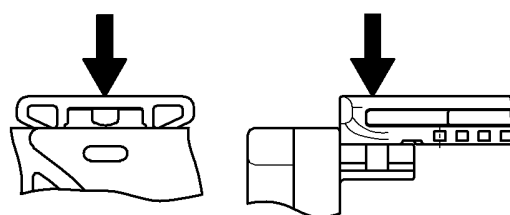
4 Arm Types and Assembly

*TKP91 (open type) arms are interchangeable

- 1) Ensure the link cannot move. Align an arm parallel with the installation area of the link and lightly tap with a plastic hammer from directly above as indicated by the arrows below to attach. Links will not attach if misaligned. Forcing links into place may damage them. Refer to the notes below if links are difficult to attach. Once the link is securely attached, repeat these steps on the other side.



Note: Lay against link end and keep parallel.



Not tilted

Parallel

- 2) If the arm isn't securely attached then it will be lifted like shown in the photo below. Ensure the arm is attached securely before use.

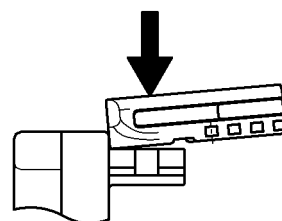
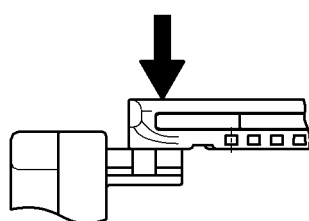
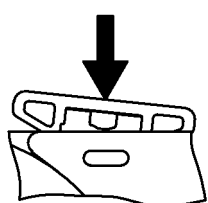


Note: You will not be able to attach the arms if they are:

① Tilted laterally

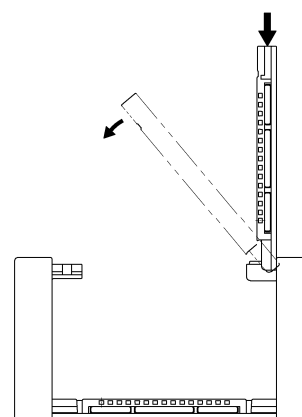
② Not flush with the link end

③ Attachment area not parallel



***TKC91 (closed type) arm**

- 1) Closed-type arms consist of the arm itself and two hinges. If there are only hinges in the link, then hold the arm vertically on the hinge side and press into the hinge to secure it. Once secure, press down on the link, twist slowly, and let fall.



- 2) While pressing down the center of the arm, lightly tap the hook area on the hinge and non-hinged side to close.



Note: Attach the hinge unit to the link installation area as follows.

- ① If using a plastic hammer
Lay parallel in the mounting area and tap directly from above.



- ② If using your hands
Lay hinge diagonally and twist with hook attached on one side.



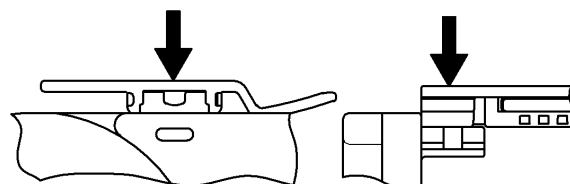
Note: The part is small, so tap until it is firmly attached.

***TKC91 (closed type) lock stay**

- 1) Lay a lock stay parallel to the installation area of a secured link. Then, tap lightly from directly above as indicated by the arrows below to attach. Lock stays will not insert if they are misaligned. Forcing lock stays into place may damage them. See cautions below if it is difficult to attach the stay.
Once the lock stay is firmly inserted follow these directions for the other side to attach.

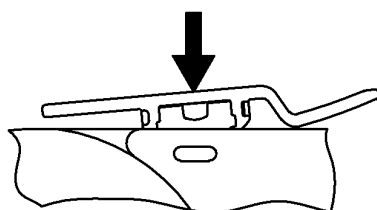


Lay against link end and keep parallel.

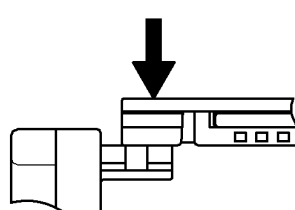


Note: You will not be able to attach the stay if they are:

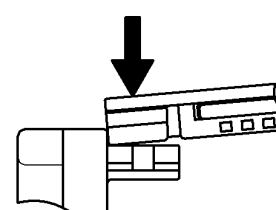
- ① Tilted laterally



- ② Not flush with the link end

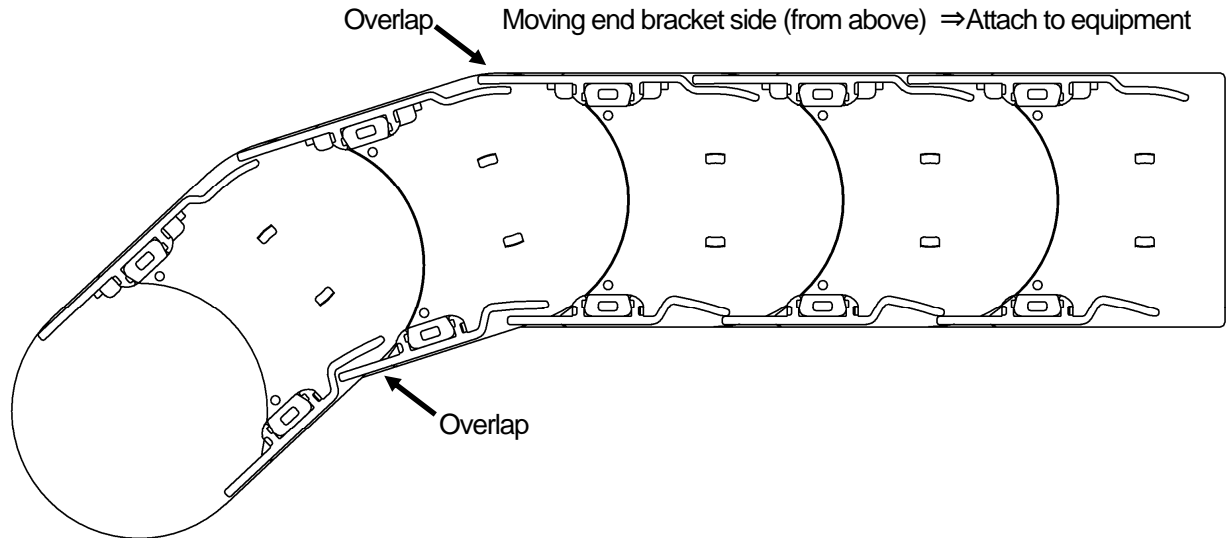


- ③ Attachment area not parallel



5 Closed-type Arm Direction and Assembly

- 1) For closed-type Cableveyors, either the arms on the outer circumference or the lock stays on the inner circumference will overlap each other. Attached dust and other foreign matter can enter the Cableveyor interior unless installed as shown below.



Note: Install as shown in the diagram.

- 2) There is an assembly direction for arms and lock stays. An arrow is stamped onto the part – please ensure that all parts face the same direction when installing. Keep in mind when attaching to the equipment that all arrows point in the direction of the fixed end bracket.

Arm



Lock Stay



6 Connecting Links

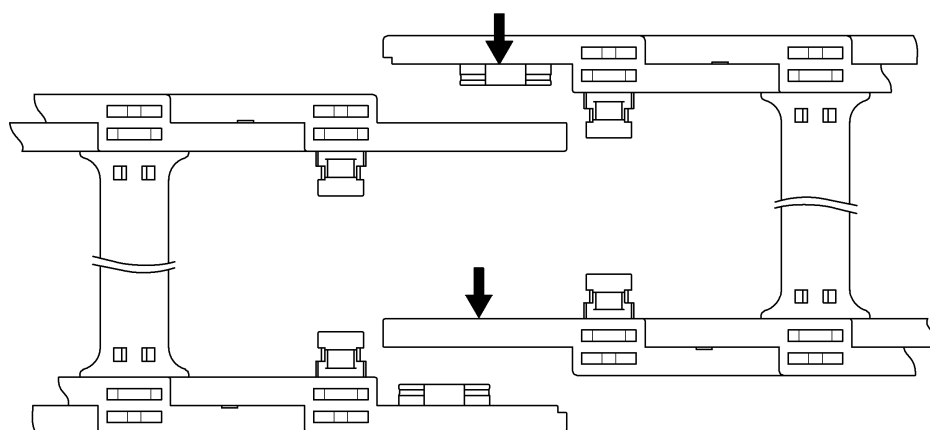
Tsubaki plastic Cableveyors may be packaged and shipped disassembled in set unit lengths. Use the following method to connect the Cableveyor to the desired length.

***91H80 (inner height 80mm) Left and right links are the same.**

- 1) To connect two disassembled Cableveyors, remove the arms and lock stays (if present) on the links of each end to be connected.



- 2) Align the links to be connected and press together laterally. Links will fit together with a loose snap fit. Then, push together firmly by hand or tap lightly with a plastic hammer until the link ends touch and they are firmly connected. Once joined, attach the arms.



*Open type arm

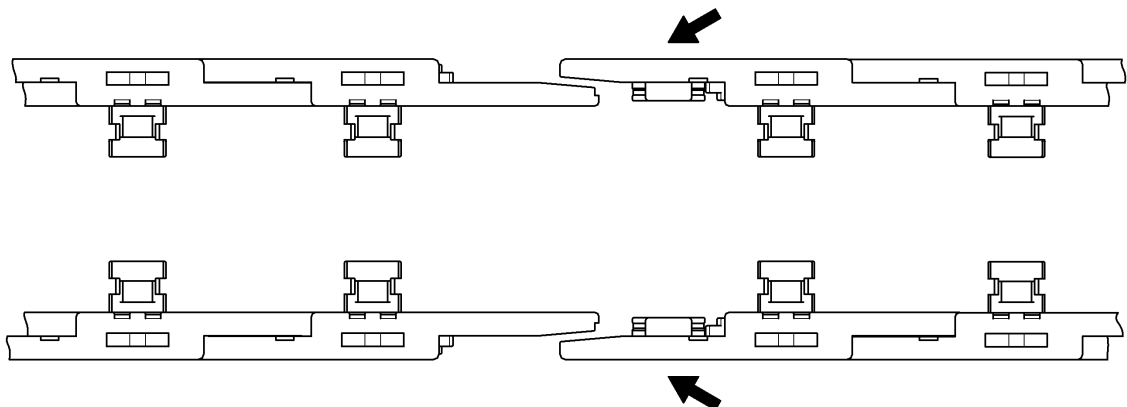
***91H56 (inner height 56mm) Left and right links are different and cannot be interchanged.**

- 1) To connect two disassembled Cableveyors, remove the arms and lock stays on the two links at each end to be connected.



- 2) Align the links to be connected and press together along the direction of pitch. Links will fit together with a loose snap fit.

Then, push together firmly by hand or tap lightly with a plastic hammer until the link ends touch and they are firmly connected. Once joined, attach the arms.



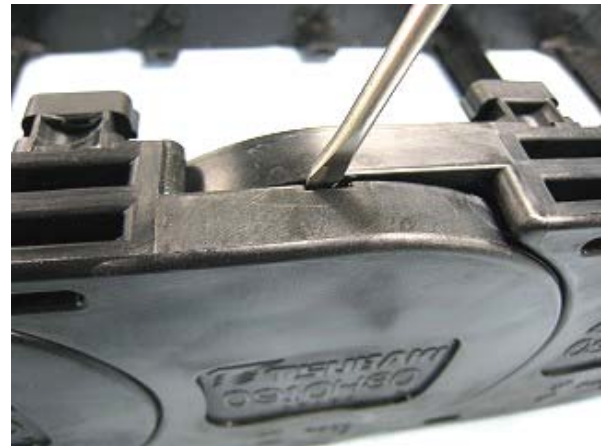
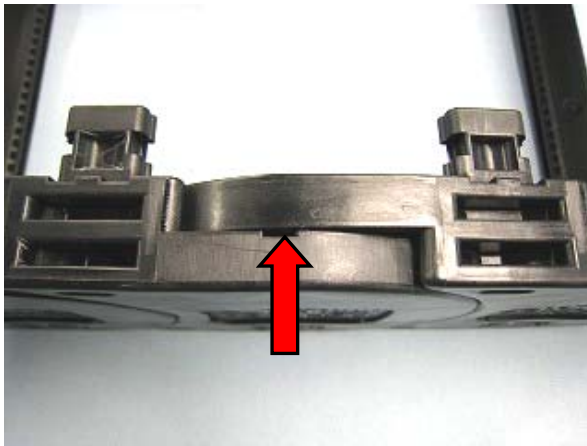
*Open type arm

7 Link Disassembly

As with connection, before disassembly please remove the arms from each side of the links. (On one link for 0910 H80, two links for 91 H56)

Once the arm has been removed, insert a screwdriver in the groove on top and twist lightly. Once the links have been separated slightly, insert the screwdriver further and separate totally. Do not force apart one side only – ensure that the opening is uniform when separating.

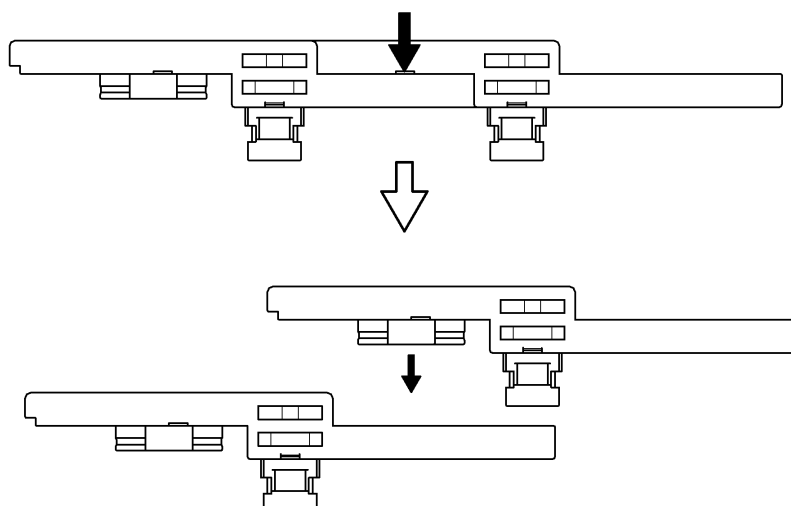
Note: The Cableveyor will become unstable when links are separated. Be sure work surface is level. Holding the Cableveyor up and disassembling it will place undue force on the Cableveyor and potentially damage it.



Insert a screwdriver into the groove

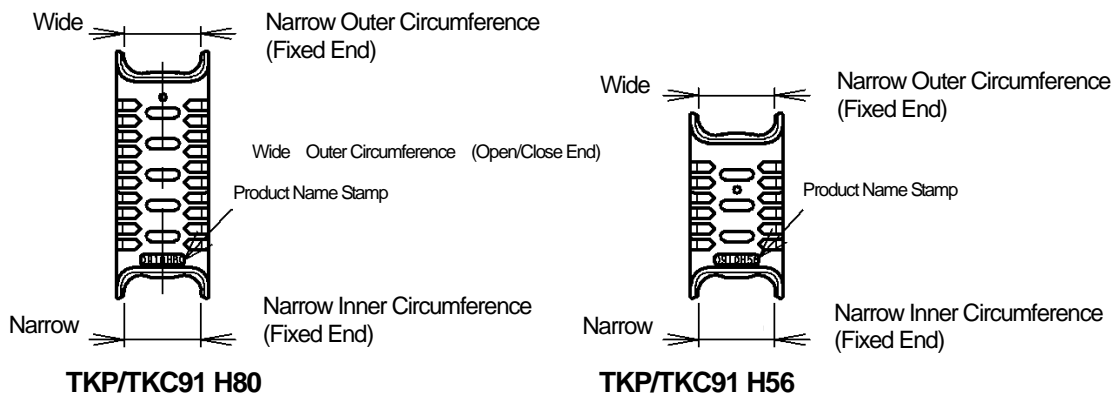


Separate link uniformly.



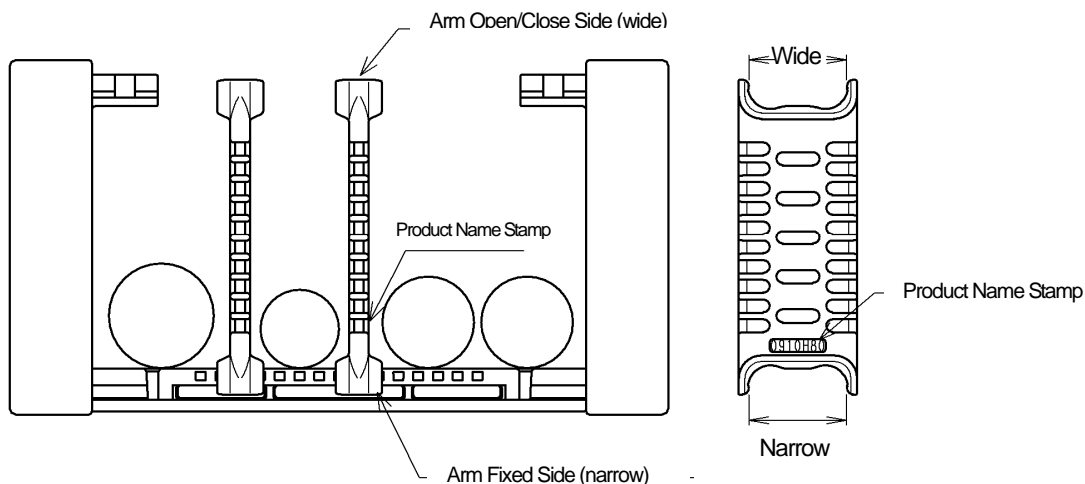
8 Attaching Dividers

(IMPORTANT!) Vertical dividers have a direction.



The end with the product name stamped on it is narrow. Attach the divider to the arm side that is fixed (normally the inside).

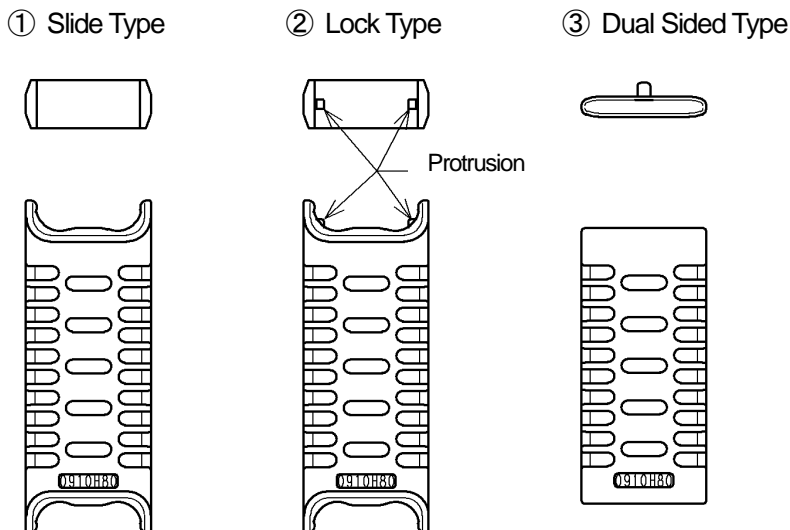
Attaching the narrow end to the arm opening side will cause the divider to be removed when opening the arm.



***Types of dividers**

There are three types of dividers. The slide and lock types have the same shape, but one has a protrusion while the other does not.

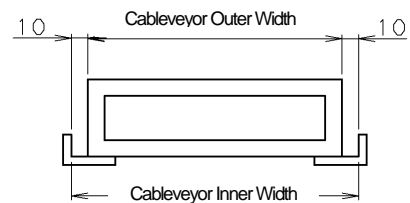
The top and bottom of the divider on each side is different.



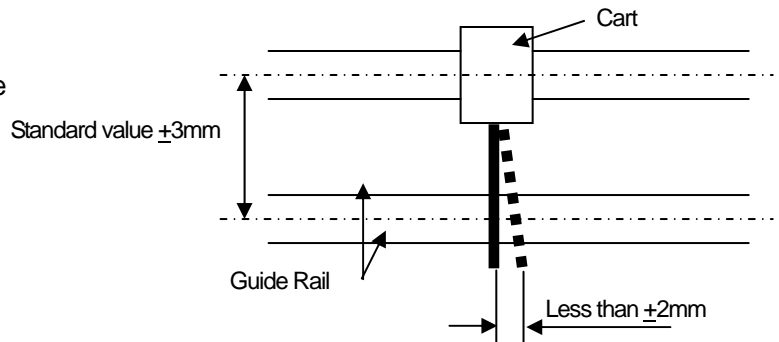
9 | Mounting on the Equipment

***Check (inspect) the equipment beforehand.**

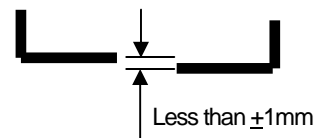
- 1) Is the guide rail long and wide enough?
 Length: Long enough to support the Cableveyor
 (About half the travel stroke)
 Width: Cableveyor width + less than 20mm



- 2) The guide rail should be parallel with the equipment running rail.

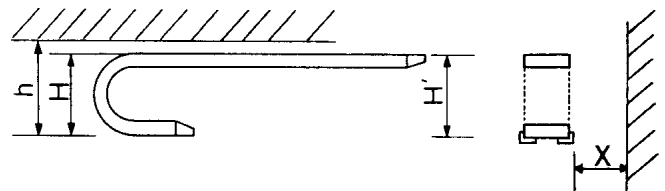


- 3) Guide rail should be level on both sides.



- 4) Bracket should be mounted at the prescribed height.

Bracket mounting height (H')
 $H' = H + (10 - 30)$



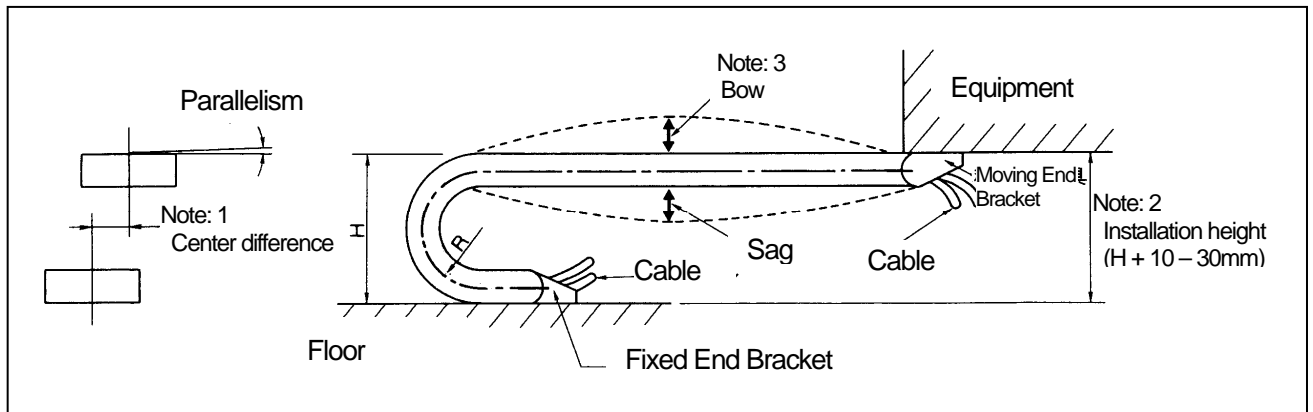
- 5) Is there enough space for installation?

Installation height (h)	H + more than 100mm
Installation width (X)	More than +50mm

***Mounting on the equipment**

- Moving end bracket: TKP91 H80: Can be mounted on either side.
 TKC91 H80: Mount so that foreign matter cannot get inside cover space (see pg. 8).
 TKP/TKC91 H56: Mount on bracket A/B side.
- Fixed end bracket: TKP91 H80: Can be mounted on either side.
 TKC91 H80: Mount opposite the moving end bracket.
 TKP/TKC91 H56: Mount on bracket C/D side.

- 1) Insert the Cableveyor into the center of the guide rail (inner side should face up).
- 2) Lightly fasten bolts to the fixed end bracket.
- 3) Lightly fasten the moving end bracket to the equipment (upper side) with bolts.
- 4) Ensure that both end brackets are parallel, squared, and centered before tightening thoroughly.

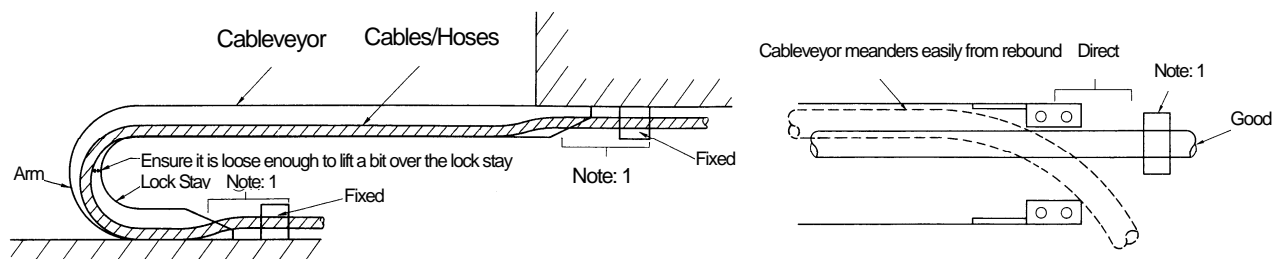


- Note: 1. The difference between bracket centers on both ends should be less than 6mm.
2. The bracket installation height is ($H + 10 \sim 30\text{mm}$). Do not install so that it places undue force on the Cableveyor.
3. Cableveyor sag and bow will change slightly depending on temperature fluctuations and cable/hose weight. This does not pose a problem in use.

*Important points in inserting cables and hoses

- 1) Insert cables and hoses so that lift slightly over the lock stay (arm) where articulating as shown below. Fix both ends of the cables/hoses and ensure their length in the Cableveyor does not fluctuate after use (operation).
- 2) Remove any twists or kinks from the cables/hoses and ensure they lay straight in the Cableveyor.

Note: Remove all twists/kinks from the cables/hoses, fix both ends, and ensure length in Cableveyor does not fluctuate.



*After-installation inspection

- 1) Ensure there is no foreign matter on the guide rail, as it may cause the Cableveyor to meander or damage it.
- 2) Let it run a full stroke and ensure that the specified Cableveyor leeway length is present.
- 3) Ensure there is no undue tension on the cables/hoses during movement. (Refer to points above.)

10 Maintenance and Inspection

- 1) The Cableveyor does not need to be lubricated.
- 2) Sitting atop or placing heavy objects atop the Cableveyor may damage it.
- 3) Take precautions to ensure that foreign matter does not fall into or collect on the guide rail.
- 4) Ensure the Cableveyor's return stroke is smooth, and that there is no undue tension on the cables/hoses.
- 5) Ensure there are no cracks in the Cableveyor or abnormal wear on its surface.