Innovation in Motion TSUBAKI

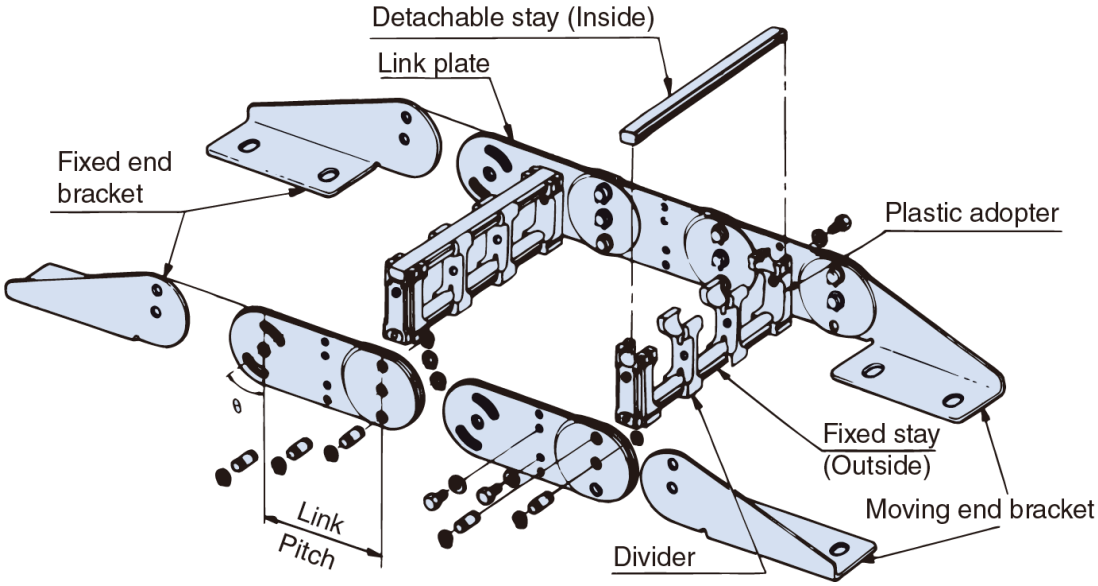
TSUBAKI CABLEVEYOR (Cable Carriers)

Instruction Manual

TKS Series

Caution: Wear the appropriate protective gear (safety glasses, gloves, safety shoes, etc.) when working.

1 Structure/Part Name

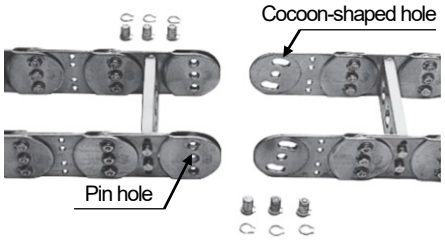


2 Delivery

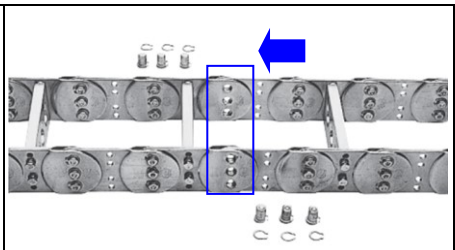
The cable carrier is delivered in sections if its length exceeds the standard length (number of links shown below). The number of links is such that each section is an equivalent length that does not exceed the standard length.
The cable carrier is normally delivered with the moving end bracket, fixed end bracket, flame (outside: fixed stays, inside: detachable stays), dividers (in case that dividers were ordered with cable carrier together) and stays equipped.
[Standard length (No. of links)]
TKS070: 50 links TKS095: 25 links

3 Connection

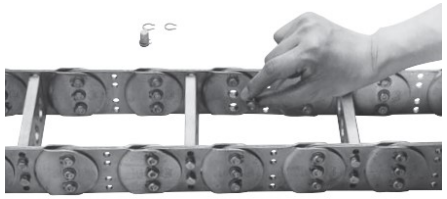
* The same procedure applies to connecting the links to the fixed and moving end brackets respectively.



(1) Place the outside mounting (detachable stay) down on the floor, and then line up the cable carrier.



(2) Insert the link plate with cocoon-shaped holes into the offset surface of the other link plate, aligning the pin holes and the cocoon-shaped holes.



(3) Secure the link plates together with circlips, inserting them in order starting from the center pin hole.

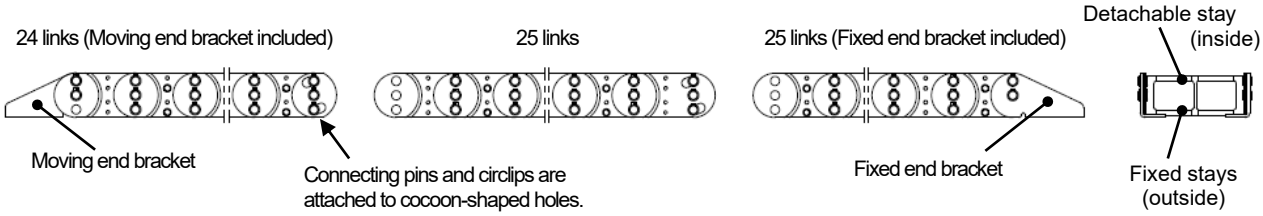
Notes: 1. The cable carrier will not bend correctly if the outside mounting identification mark is installed in the inside mounting.
2. To compensate for sag caused by the cable carrier's weight and the mass of the cable/hose to store, the cable carrier will have pretension. Therefore, when the outside mounting is placed down on the floor, the length of the cable carrier will cause its ends to lift up from the floor. When this happens, place blocks or something similar under the cable carrier to align the link plate and offset surface pin holes to connect them.
3. Just for the reference. The photos on page 1 are TK series.

There are two types, one in which the stays are split and one in which the stays are not.

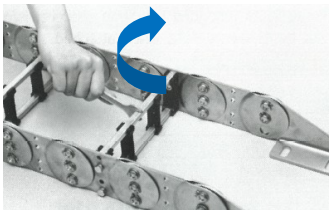
1. Connect the cable carrier sections. (When delivered in sections, refer to section 3 "Connection.")
Example) TKS095 R300 74 links, with brackets on both ends, 1 cable carrier
It is described as follows in the drawing (delivery drawing or delivery specification drawing).

Cable carrier configuration (74 links + brackets on both ends) × 1 cable carrier Cable carrier splitting: 74 links = 24 links + 25 links × 2

To connect the chains, lay them out as shown below.



(1) Install the cables and hoses.
1) Remove the detachable stay (inside). (It is available to rotate 90°.
Refer to the photo on the right.)
2) Place the cables and hoses in the prescribed indentations on the fixed stay.
3) Adjust the positions of dividers.
4) Install the detachable stay.

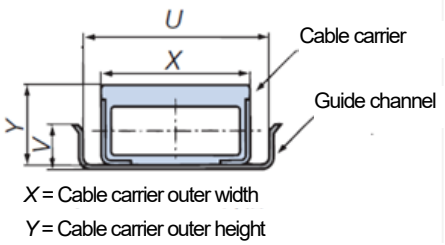


(2) Make adjustments and check
When finished installing the cables and hoses and equipping the detachable stays, place the cable carrier down on a level floor as shown in the following photo, and carefully check to ensure the cable carrier does not meander or twist. Just for the reference. The following photos are TK series.

Notes: 1. If a part has a large amount of meandering or twisting, remove the detachable stay for approximately 10 links before and after the corresponding part, correct the meandering or twisting, and then tighten the bolts for the plastic adopter.
2. Even when inserting cables/hoses without removing the detachable stay, retighten the bolts as they may have become loose.

4 Handling Precautions

1. A guide channel is required for use with cable carriers. Construct a guide channel using steel plates or steel angles. (See figure below)

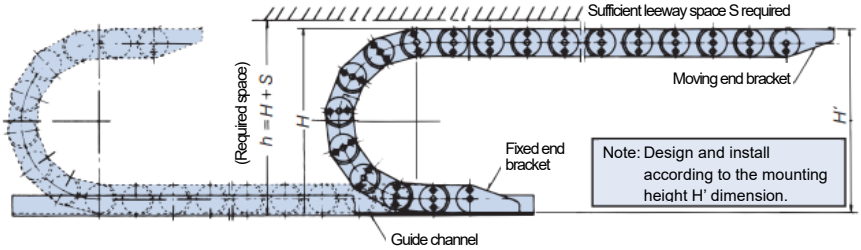


X = Cable carrier outer width
Y = Cable carrier outer height

Model	*U* (mm)	*V* (mm)
TKS070	*X* + *20*	*Y*/2 or more
TKS095		

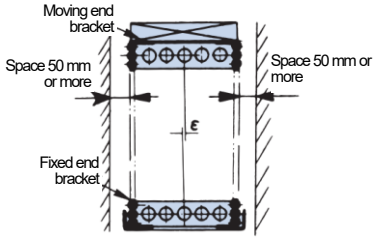
2. When the configuration requires a support roller, select it according to the drawings provided by Tsubaki or the selection criteria included in the catalog.

3. For the cable carrier mounting height (H') and the required space (h: the installation space height for the cable carrier), refer to the following table.



Model	*H'* (mm)	*h* (mm)
TKS070	H + 10	H + 100 or more
TKS095		

4. Keep the difference (ε) in mounting positions between the moving and fixed end brackets less than or equal to the values shown in the table below.



Model	ε mm or less
TKS070	4
TKS095	6

5 Maintenance Check

1. At the start of operation, compared with the status at the installation, sag in the unsupported length of the cable carrier increases due to initial fitting, but it will stabilize after a certain period of time.

2. There is no need for cable carrier lubrication, but when using the product in a rust-prone atmosphere, apply rust-preventive treatment with grease or the like.
(The link plate, moving end bracket, fixed end bracket, and pin surfaces are galvanized.)

3. Regularly check the fixed stay and the plastic adopter installing bolts for loosening as they may become loose due to vibration during cable carrier operation.

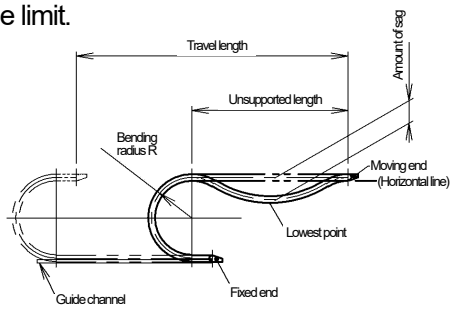
4. Check that there is no foreign matter on the guide channel. If any is present, it may cause cable carrier meandering or increased sag.

5. When a hydraulic or pneumatic hose is used, an excessive contact force may act between the detachable and fixed stay and hose due to expansion and contraction when the hose is pressurized, leading to hose jacket or stay damage. Adjust the length of the hose using the adapter or similar item specified by the hose manufacturer.

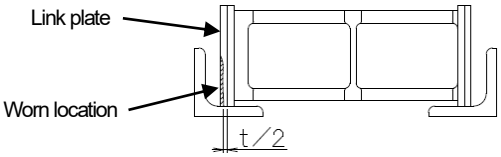
6. For cables, repeated bending may unwind a strand of core wire and make its cover uneven, and eventually wear out the cable. This interferes with the smooth movement of the cable between the flames, causing it to lose tension in one direction (connected cables in the terminal box may be pulled and disconnected, causing short circuiting) or to protrude from between the flames in a U-shape. To prevent these phenomena, fix (clamp) the cable with the moving and fixed ends of the cable carrier.

7. If noise during cable carrier operation causes issues, affix a rubber sheet to the contact surface between the guide channel and the cable carrier or lubricate between the link plates of the cable carrier to alleviate the operating noise.

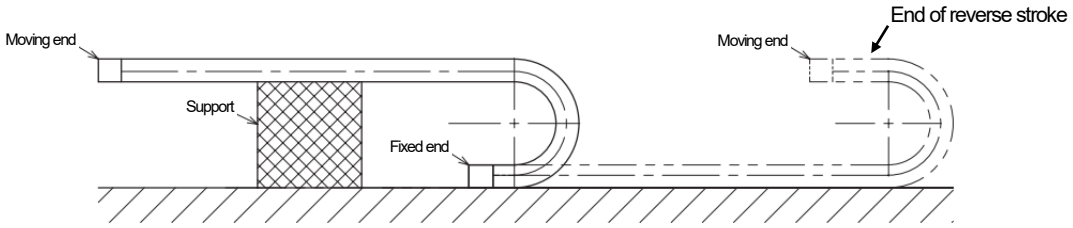
8. The following status of the cable carrier means that it has reached its usage limit.
   (1) Unsupported length sag amount ((1) used as a rough indication of cable carrier service life)
   When the amount of sag is the smaller of the values shown below
   • 10% of the unsupported length (F); (F × 0.1)
   • Cable carrier bending radius (R) amount



   (2) Link plate wear
   When a link plate thickness (t) becomes half due to wear



9. If the machine will be stored following installation, fix the moving end of the cable carrier so that it is at the end of its reverse stroke to prevent sag in the unsupported length portion due to creeping. Moreover, use supports or some other means to hold the center unsupported length portion if not possible given the system structure.



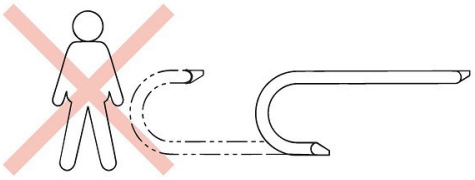
For Safe Use

WARNING Observe the following points in order to prevent hazardous situations.

- Do not use the cable carrier and its accessories (including Cleanveyor and Flatveyor) for anything other than their original purpose.
- Do not stand or ride on the cable carrier. There is a risk of damage and falls.

- Never perform additional work on the cable carrier or the accessories (except fitting connectors on Cleanveyor or Flatveyor).
  - Do not clean the cable carrier or the accessories with acids or alkalis, as they may cause cracking.
  - Never electroplate the cable carrier or the accessories, as this may cause cracking due to hydrogen embrittlement.
  - Do not weld the cable carrier or the accessories, as the heat may cause cracking or a reduction in strength.
- Observe all appropriate labor safety codes and standards for your region or area.
- When there is a need to replace a damaged (fractured) portion of a cable carrier or an accessory, always replace the whole cable carrier or the accessory with a new product rather than replacing only the damaged or fractured portion.
- Immediately stop using the cable carrier or the accessories if they comes into contact with a substance that can cause embrittlement cracking (acid, strong alkali, battery fluid, etc.) and replace with a new cable carrier or accessory.

- Observe the following when connecting, installing, removing, servicing, and inspecting the cable carrier or the accessories.
  - Perform the procedure as specified in the instruction manual, catalog, or documentation specially provided to the customer.
  - Secure the cable carrier and the accessories so they do not move freely. The cable carrier may move on its own or collapse under its own weight.
  - Be careful not to pinch, crush, or entangle hands in the bending section of the cable carrier.
  - Wear suitable clothing and protective equipment for the work (such as safety goggles, gloves and safety shoes).
  - Always turn off the source power supply beforehand, and take care not to accidentally operate switches.
  - Only experienced personnel should handle the cable carrier.



CAUTION Observe the following points to prevent accidents

- Carefully understand the construction and specifications of the cable carrier or the accessories before handling.
- Inspect the cable carrier or the accessories for damage during transport before installation.
- The cable carrier or the accessories should be periodically serviced and inspected.
- Cable carrier capacity varies according to manufacturer. When selecting a chain based on a Tsubaki catalog always use the corresponding Tsubaki product.
- Always ensure that the final customer receives the instruction manual.
  - If you do not have the instruction manual, contact a Tsubaki representative with the product name, series name, and chain/model number to receive the appropriate manual.
- The product information given in this catalog is mainly for selection purposes. Thoroughly read the instruction manual before actually using the product, and use it properly.

