

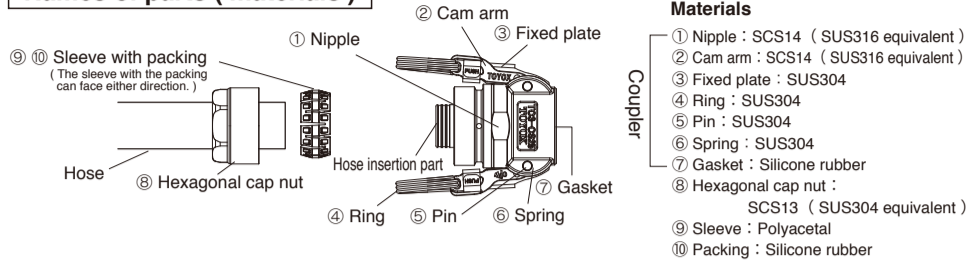
TC3-CS type TOYOCONNECTOR® Handling Manual

Be sure to read this manual before using the connector.

Warning : A potentially hazardous situation which could result in death or serious injury.

This is an explanation of the "correct use" of TOYOCONNECTOR. Similar to individually sold hoses, please be aware of the restriction on use and follow the warnings below. Failure to observe these could result in injury or property damage.

Names of parts (materials)



Before fitting

- When cutting a hose, please make sure that the edge face of the hose will become square-on.
- Make sure that the hose is inserted completely into the root of the hose insertion part.
- Warning** When inserting TOYOCONNECTOR TC3-CS into hoses, never put grease on the surface of the hose insertion part. It would be a cause of hose being pulled out.
- Warning** Tighten the hexagonal cap nut completely. If the nut becomes loose, the hose may become detached and liquid may leak. When tightening the nuts, please be careful not to get injured by slipping the " Adjustable (Power) Wrench ".
- Do not cut the hose insertion part or sleeve with packing in place with a knife or the like.
- After attaching the hose, make sure that the hose has not become detached and fluid does not leak at the connector.
- Use an " Adjustable (Power) Wrench " for tightening the nuts. Do not use a " Pipe Wrench ". It may damage hexagonal cap nuts.
- Take care to avoid injury from the sharp edges of the connector.
- Avoid adhering incompatible chemicals to rubber parts of coupler.

Notes for connecting a coupler

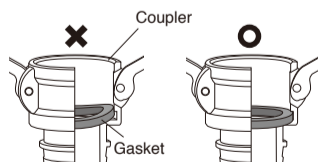
- Select the main unit and gasket materials suitable for the fluid used.
- Chemicals which are dangerous when permeating (active gases) should not be used in gaseous form.
- Do not apply external force (e.g. impact) to the body and cam arm. This may cause damage.
- Avoid pulling or dragging the hoses on the floor. Doing so may cause the cam arms to catch against an object and unlock.
- Avoid applying loads on joints. This may cause fluid spills.
- We recommend using couplers and adapters made of the same material when connecting fittings. Using couplers and adapters made of different materials may lead to corrosion (electrical corrosion).
- Dismantle the coupler connection only after confirming that there is no residual pressure or materials.
- To avoid burns during use with high-temperature fluids, avoid direct contact with the fitting main unit.
- Wear gloves and safety shoes to prevent injury during installation and operation.
- Position the coupler on the lower side when installing fittings.
- High fluid flow rates may result in cavitation that abrades or damages the inner surface of the coupler. Perform inspections at the appropriate intervals.
- When connecting coupler, chip dust may transpire due to cam arm tightening. Remove chip dust before use.

Notes for use

- TOYOCONNECTOR is a hose joint used only for the following TOYOX hoses. TOYOX is not liable for any damages caused by using TOYOCONNECTOR with any other hose including those produced by TOYOX as well as those by other manufacturers as full performance may not be achieved or maintained.
 - * Hose compatibility depends on the connector. Confirm through the catalog or the homepage.
- Use TOYOCONNECTOR within the operating temperature and pressure ranges of the applicable hose.
- Do not fully bend the hose near the joint. Do not bend the hose beyond the minimum bending radius.
- Warning** Do not assemble or disassemble the connector while fluid is in the hose because the hose may become loose and the liquid will leak.
- Do not use the hose where there is vibration or shock. It may cause the connector to break or the hose to become detached.
- Perform periodic inspections to make sure that the hose does not become detached and the fluid does not leak at the connection during use period of the hose.
- Do not allow anything other than the inner surface of the couplings or hose to come in contact with fluids, because the fluids may permeate the hose reinforcement layer or remain inside the couplings, and bacteria may propagate (attach to the parts) or the hose may deteriorate. Also, dust, hose fragments (reinforcement material) and ink adhering to the outer surface may be mixed in.
- Warning** Never use TC3-CS for the below applications. Hoses may rupture or become loose.
 - For piping such as electromagnetic valve piping, which would put impact pressure on the piping.
 - Where vibration or impact will be applied to the connector
 - Using the hose above the operating temperature limit
 - Where constant tensile stress may be applied to the hoses
 - In a way that may cause static buildup (There is a danger of electrical shocks.)
- Before using TC3-CS, make certain to sterilize and disinfect inside the hoses. (The hoses do not go through sterilization procedures before shipping.)
- When cleaning TC3-CS, do not rub their surfaces with a hard brush or other things because doing so may damage the surfaces, and bacteria may propagate (attach to the parts).
- Warning** Products should be disposed of in accordance with the requirements of the local region.

Notes for gaskets

- Before using the coupler, check to confirm that the gasket fits into the groove of the coupler main unit. (See figure to the right)
- Foreign matter adhering to the gasket seat can make it hard to close the cam arms and may lead to spills. Inspect and remove any foreign matter.
- Because gaskets using Teflon (PTFE) solids or Teflon lack elasticity, they may leak depending on conditions of use.
- Assess the force required to close the cam arms when connecting or disconnecting Coupler. If the force required is too low, the gasket seal may be compromised. In this case, we recommend replacing the gasket.
 - * If closing the cam arms feels too easy even after replacing the gasket, the main unit may be damaged. If so, replace the main unit.



Notes for inspections

- Startup inspections: Before starting operations, check to confirm that the fittings are free of abnormalities and that the cam arms are fully closed.
- Regular inspection: During periods in use, be sure to perform regular inspections.

What to do if an abnormality is found

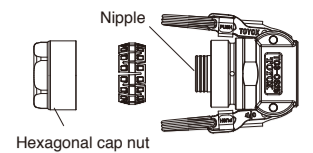
If you observe signs of abnormalities like those below during startup inspections or periodic inspections, stop using the product immediately. Replace with a new product.

- The main unit or any of the components show large scratches, cracks, deformation, or projecting pins. (The service life of the main unit, cam arms, and gaskets depends on materials and usage conditions. We recommend replacement at periodic intervals.)
- Closing the cam arms feels too easy when connecting or disconnecting Coupler.

How to attach a hose

- Removing the hexagonal cap nut

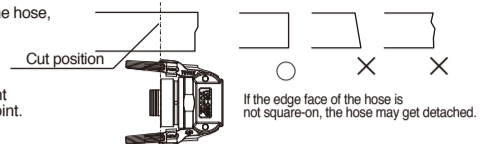
Turn the hexagonal cap nut round and remove it from the nipple.



- Deciding the hose length and aligning and cutting the hose

Fix the nipple to the pipe to which the hose is to be mounted. Then, adjusting the hose length, cut the hose so that the edge face of the hose will become square-on. Please make sure that the hose is not pulled. When inserting the hose, please do not apply oil and the like to the nipple. It may cause the hose to detach.

- Note**
- If threads or hose debris is sticking out from the edge face of the hose, remove it with a nipper or the like.
 - Make sure that no hose debris or threads will get into the hose.
 - Make sure that the hose length is sufficient enough to prevent the bending stress of the hose from being applied near the joint.



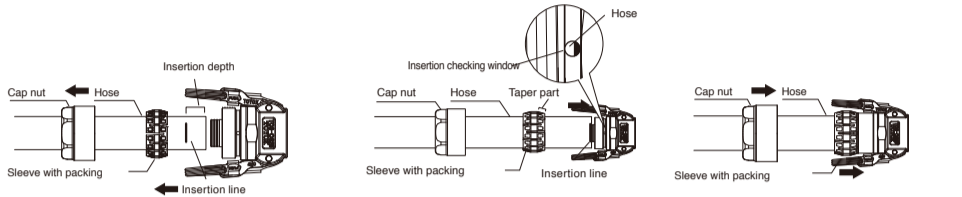
- Building in the joint remove the joint from the pipe before starting the assembling work.

(This makes it easier to do the work.)

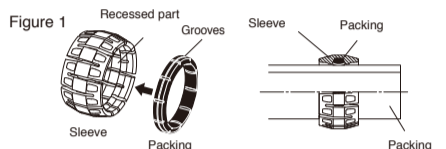
Pass a hexagonal cap nut through the hose and put sleeve with packing on the hose. Insert the hose into the end of the hose nozzle of the nipple. By drawing a line on the hose according to the " hose insertion depth " table right beforehand, you can insert the hose appropriately. This can be checked through the " insertion checking window ".

Appropriate hose insertion depth

TOYOCONNECTOR Code	mm
TC3-CS19	14
TC3-CS25	17



- * Fit the sleeve with the packing attached. If the packing comes off from the sleeve or becomes twisted, refit the packing with its outer circumferential grooves facing outwards to the recessed part of the sleeve as shown in figure 1 .



As shown in Fig. 2, secure the flat part of the nipple with another " monkey (motor) wrench, " and tighten the hexagonal cap nut completely.

- Note** For fastening, cutting scrap of resin (or threadlike substance) may be in rare cases come out. Please clear it off completely before use.

- Warning** Tighten the hexagonal cap nut completely until it touches the flange of the nipple to prevent the hose from becoming detached and the fluid from leaking.



- Clean the inside of the pipe without a failure (every time after a pipe is connected.) After cleaning, make sure that the hexagonal cap nut is not loose. If it is loose, retighten it.

Notes for Connector Reuse and Hose Replacement

Note This connector should not be disassembled for cleaning on a daily basis.

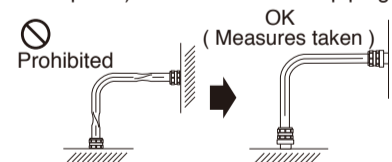
Warning When replacing a hose or disassembling a joint, wait until the joint is cooled down to the room temperature. If not, you may get burned or the joint may get damaged.

- When you reuse TOYOCONNECTOR, a replacement TC3-CStype sleeve with packing is required.
- Please make sure to use a brand-new hose.
- Before replacing a hose, always make sure to remove the fluid and dirt on the connector surface. Fluid and dirt remaining on connector may possibly cause fluid leakage and hose loosening.
- The service life of a joint varies with its use condition and other factors, but it is a good practice to replace it with a new one after it is removed five times or so.
- Do not hit the joint with a hammer or some other tools.

Warning

- The material used for the TOYOCONNECTOR flow pass (inner surface) is SCS16 (SUS316L equivalent) . Phenomena such as corrosion or fluid leaks may occur depending on the type of fluid. Before use, be sure to check data (refer to data on chemical resistance in the catalog or on the homepage) or make inquiries to the toll-free number. Please also make similar checks for fluid contact with the outer surface of joints.
- Do not use hoses when they are twisted. Partially twisted hoses are also a danger as they may cause internal structural damage leading to a " Burst ". Follow the examples below to take preventative measures.

Example 1) Twisted hose while piping



Example 2) Twist when bent

