



TRAP STAR™ TSF-10S·11S Series STEAM TRAP

PDD-213


INSTRUCTION MANUAL

Thank you very much for purchasing our steam trap. Please read this instruction manual thoroughly before using the product, so that you may do so correctly and safely. Please carefully store this manual in a handy place. The following safety symbols are used in this manual.


	Warning	This symbol indicates a potentially hazardous situation that, if not avoided, could result in death or serious injury.
	Caution	This symbol indicates a hazardous situation that, if not avoided, may result in minor or moderate injury or may result in only property damage.

Specifications

Model		TSF-10S	TSF-10SF	TSF-11S	TSF-11SF
Nominal size		15A , 20A , 25A		25A , 32A , 40A , 50A	
Application		Steam condensate			
Working pressure		TSF-1□S□-5 : 0.01~0.5MPa TSF-1□S□-10 : 0.01~1.0MPa TSF-1□S□-21 : 0.01~2.1MPa			
Max. temperature		220℃			
Material	Body	Cast stainless steel			
	Float	Stainless steel			
	Valve, Valve seat	Stainless steel			
Connection		JIS Rc NPT	JIS 10K FF JIS 20K RF ASME150RF ASME300RF BSEN 25/40	JIS Rc NPT	JIS 10K FF JIS 20K RF ASME150RF ASME300RF BSEN 25/40

	Caution	Please confirm that the indications on the product correspond with the specifications of the ordered product model before use. * If they are different, do not use the product and contact us.
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Installation

	Warning	In order to discharge condensate to the atmosphere, lead the outlet to a safe place where there is no possibility of physical damage even if condensate blows out. * Failure to follow this notice may result in scalds or injury when condensate blows out.
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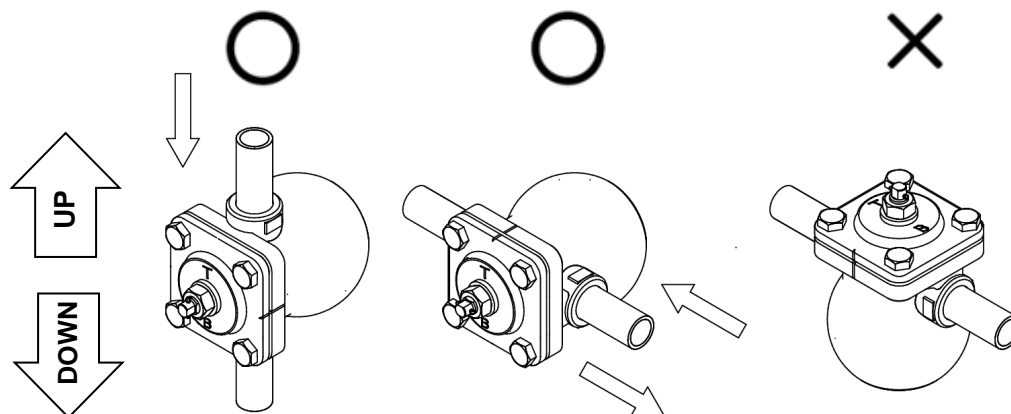
Caution

- Before connecting the product to piping, remove foreign substances and scale from the piping.
* Failure to follow this notice may prevent the product from functioning properly.
* To plumb the product, be careful to keep seal materials from entering into the product.
- To install the product, confirm if the direction of fluid flow matches with inlet and outlet sides of the product and install the product correctly.
* Setting the product in wrong directions prevents it from functioning properly.

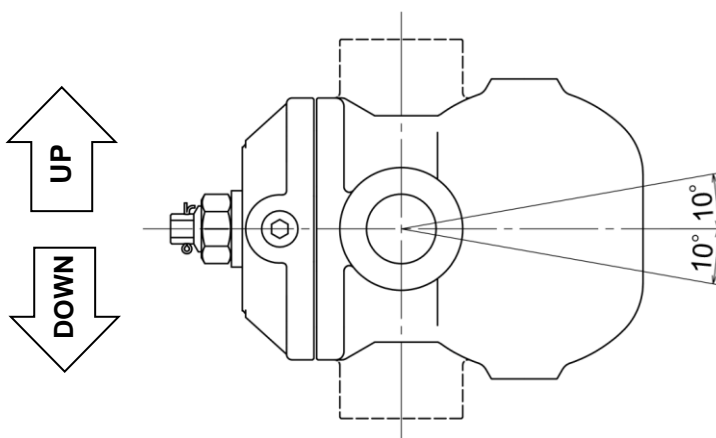
! Caution

3. Check installation posture.

* Wrong posture hampers proper operation.



* Allowable tilt from horizontal line is within $\pm 10^\circ$.



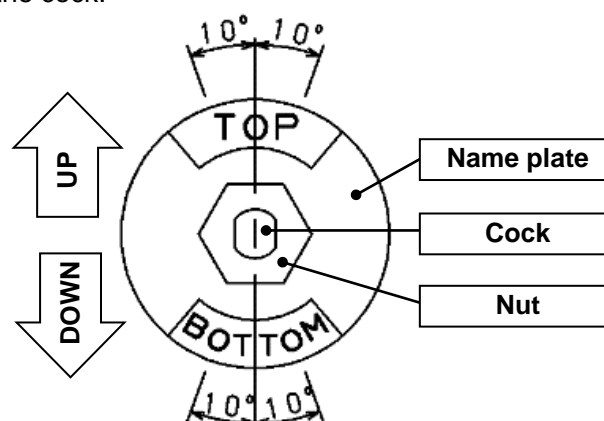
4. Adjust direction of the name plate in no pressure condition after installation.

* Do not turn the cock unless the pressure inside of the product and piping is completely discharged. Forcing the cock to turn may result in damage to the cock.

* Wrong direction hampers proper operation.

* Fix the cock with spanner and loosen the nut. Turn the cock and adjust direction of the name plate to position "TOP" and "BOTTOM" signs on upside and downside respectively. Fix the cock with spanner and fasten the nut after adjustment.

* Allowable tilt from vertical line is within $\pm 10^\circ$.



5. Make sure to support the piping immovably.

* If an excessive piping stress is applied, the product may not open or close.

6. Do not disassemble the product unless it is necessary.

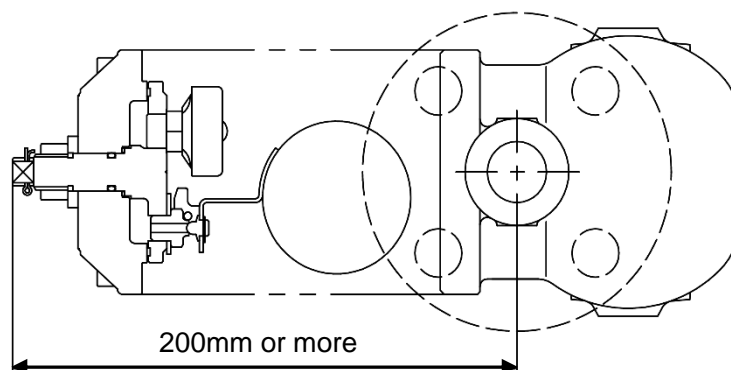
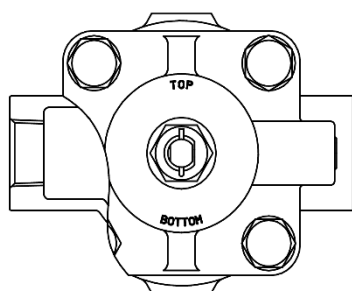
* Disassembly may prevent the product from functioning properly.

⚠ Caution

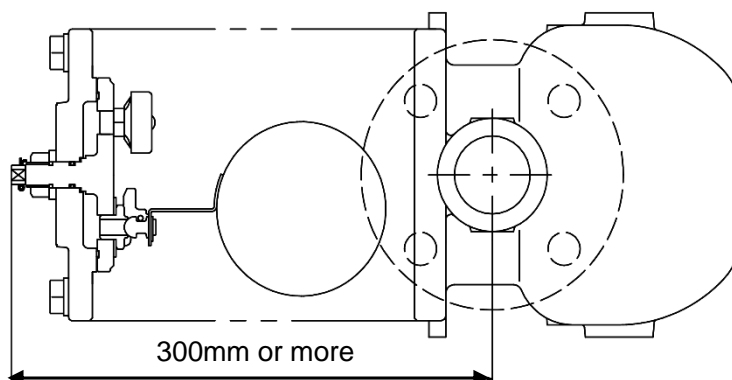
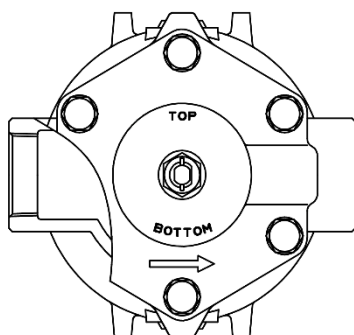
7. Secure enough space for maintenance (such as cleaning of strainer), inspections and repair as shown below.

* Failure to follow this notice prevents maintenance, inspection and repair.

TSF-10S•10SF



TSF-11S•11SF



8. Slope the piping and place the product at as a low position as possible in order to make condensate flow into the product by its own weight.
9. To install the product in a main steam pipe, provide a drip leg at the inlet side of the product.
10. Install a strainer (mesh size of 80 or more is recommended) at the inlet side of the product.
11. Install the product so that it is not subjected to the shock of water hammer. Do not install a quick operating valve before and/or after the product.
- * Failure to follow this notice may result in malfunction due to damage to the float, or may result in scalds or injury due to blow off when the product is subjected to an excessive shock and damaged.
12. Install a bypass line.
- * The system has to stop operation while inspection and maintenance of the product if the bypass line is not installed.

Operation

Warning

1. Before leading fluid, make sure that the product is securely connected to piping and that there is no loose.
 - * Failure to follow this notice may result in scalds or injury due to blow-off.
2. Do not touch the product with bare hands while the product operates.
 - * Failure to follow this notice may result in scalds.
3. Do not stand in front of the outlet opening of the product while the product operates.
 - * Failure to follow this notice may result in scalds or injury due to blow-off.

Caution

1. Slowly open each stop valve to prevent water hammer.
 - * Opening stop valves quickly may result in damage to other equipments due to hunting or water hammer.
2. Do not turn the cock while the product operates.
 - * Do not turn the cock unless the pressure inside of the product and piping is completely discharged. Forcing the cock to turn may result in damage to the cock.
 - * Wrong direction of the cock hampers proper operation.

Maintenance

Warning

Disassembly and inspections must be done by experienced professional or valve manufacturer.

1. Do not touch the product with bare hands.
 - * Failure to follow this notice may result in burns.
2. Completely discharge internal pressure of the product, piping and equipment, and cool down the product prior to disassembly or maintenance.
 - * Failure to follow this notice may result in scalds or injury due to residual pressure.

Caution

1. Conduct daily inspection in order to maintain the optimal performance of the product.
 - * See "Troubleshooting" on page 5 if trouble is observed.
2. After leaving the product not operated for a long period, perform inspection before start-up of operation.
 - * Failure to follow this notice may cause malfunction due to rust inside of the product and piping.
3. Put a container under the product at disassembly since condensate may flow out.
 - * Failure to follow this notice may result in making the surroundings dirty.
4. Be careful not to drop the parts at the time of disassembly. The disassembled parts should be placed on soft cloth in order to avoid scratches and damage.
 - * Damage on the parts may cause malfunction and affect the optimal performance.
5. To assemble, connect all the parts securely.
 - * Failure to follow this notice may cause malfunction or outside leakage.
6. When repairing, do not use the parts other than the dedicated parts manufactured by Yoshitake. Do not modify the product.
 - * Failure to follow this notice may cause damage to the product, or may result in scalds or injury due to blow-off or malfunction.
7. In case of problems due to foreign substances or scale, the product needs repair or part replacement. Please contact us for details.
(Please note that any repair due to foreign substances or scale in the product is subject to a charge even during the warranty period.)

Troubleshooting

Trouble	Cause	Remedy
Condensate is not discharged.	1. Blockage of foreign substances in a discharge hole of the valve seat.	1. Disassemble and clean it.
	2. The screen is clogging.	2. Disassemble and clean it.
	3. The float (P) is damaged.	3. Replace it with a new one.
	4. Breakage as a result of abnormal pressure rising due to freezing or water hammer, etc.	4. Replace the product with new one and use it within the working pressure range.
	5. Steam locking.	5. Change the piping system layout.
	6. "TOP" and "BOTTOM" signs on the name plate are in wrong positions.	6. Adjust direction of the name plate to position "TOP" and "BOTTOM" signs on upside and downside respectively. * See Caution No. 4, "Installation" on Page 2.
Continuous blowout.	1. Foreign substances stuck on valve, valve seat or air vent (P).	1. Disassemble and clean them.
	2. Abrasion or scratches on the valve, valve seat or air vent (P).	2. Replace the parts.
	3. Insufficient capacity of the product.	3. Replace the product with another model of sufficient capacity.
	4. "TOP" and "BOTTOM" signs on the name plate are in wrong positions.	4. Adjust direction of the name plate to position "TOP" and "BOTTOM" signs on upside and downside respectively. * See Caution No. 4, "Installation" on Page 2.
Steam leakage.	1. Leakage due to loosening of the bolt.	1. Replace the cover gasket with new one, and retighten the bolt.
	2. Leakage due to deterioration of cock gasket (P2) and O-ring.	2. Replace the parts with new ones.
	3. Leakage as a result of abnormal pressure rising due to freezing or water hammer, etc.	3. Replace the product with new one and use it within the working pressure range.

* Refer to "Exploded drawing" for the part names mentioned above.

Disassembly and Assembly

To disassemble the product, follow the procedure below with referring to “Exploded drawing” on pages 7.

- (1) Disassembly of the body and cover (to replace internal parts or to clean the screen)
Loosen the bolt and remove the cover together with the internal parts from the body.
- (2) Removal of the float (P) (to replace the float (P) assembly)
The float (P) can be removed by taking out the spindle connecting the float (P) and the float holder.
- (3) Disassembly of the cover and cock (to replace the cock assembly)
After removing the split pin on the tip of the cock, remove the nut from the cock, and then separate the cock from the cover.

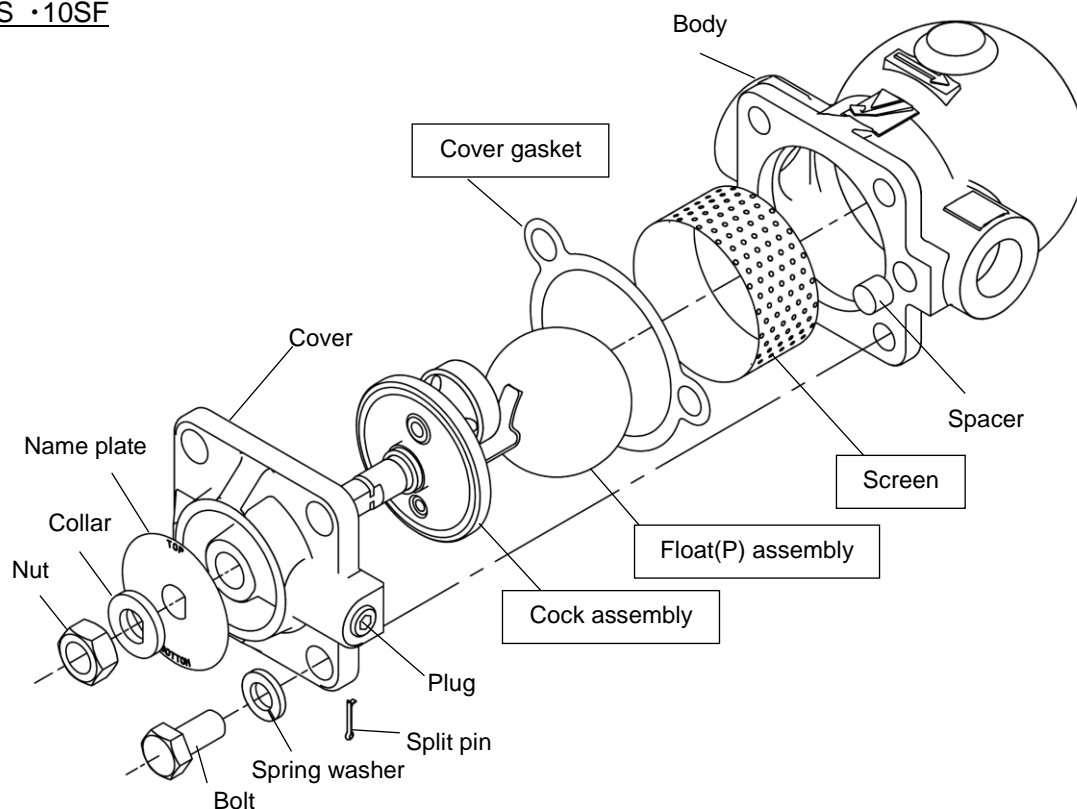
Assemble in the reverse order of disassembly procedure above mentioned. Clean each part and replace the consumable parts before assembly.

- Clean the screen.
- Check that the valve and valve seat are free from foreign substances.
- The cover gasket is a consumable part. Replace it with new one at the time of assembly. Apply lubricant agent to the cover gasket (Recommendation: SOLVEST No.110 paste, STT Inc.).
- Apply lubricant agent to the surface (contacting part of the cock) of the cock gasket (P1). (Recommendation: SOLVEST No.110 paste, STT Inc.)
- Apply fluoro grease to the O-ring (Recommendation: SOLVEST No.245, STT Inc.).
- See the following table of tightening torque for the bolt and nut. Apply lubricant agent to the screw parts of the bolt and nut. (Recommendation: SOLVEST No.110 paste, STT Inc.)

Part name	Width across flat (mm)	Tightening torque (N•m)	
		TSF-10S ・10SF	TSF-11S ・11SF
Bolt	19	45	55
Nut	22	35	35

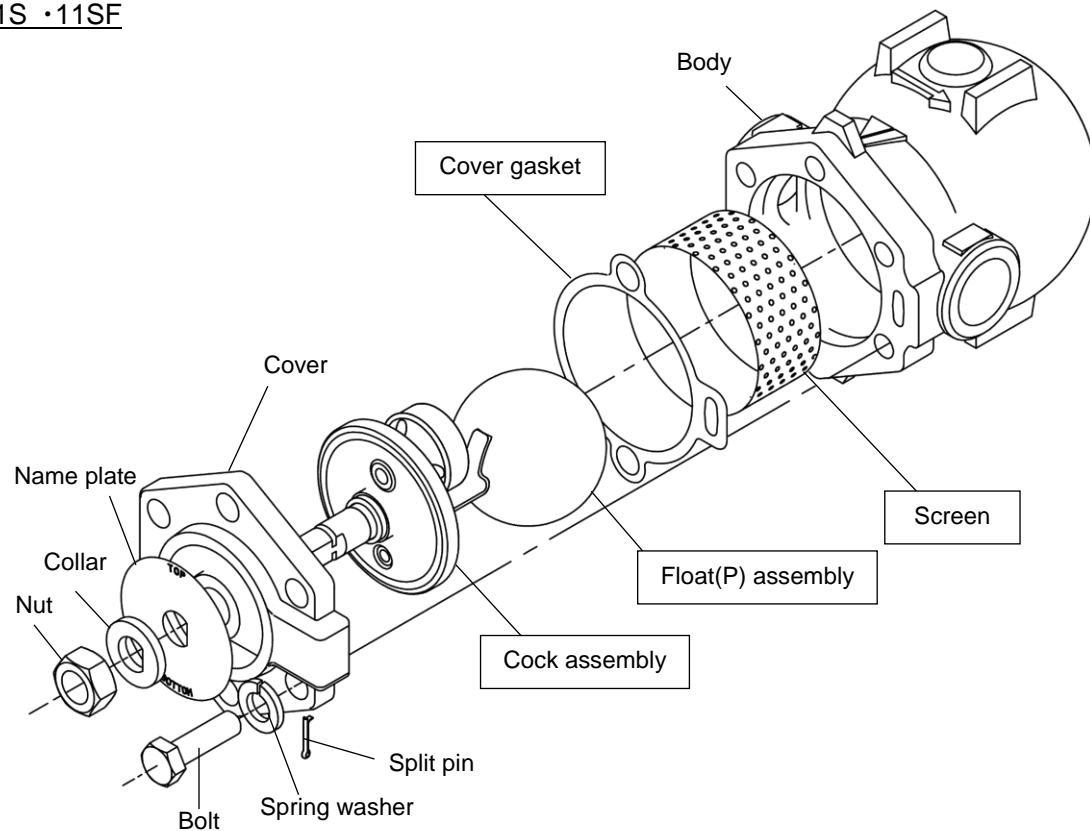
Exploded Drawing

TSF-10S ・10SF

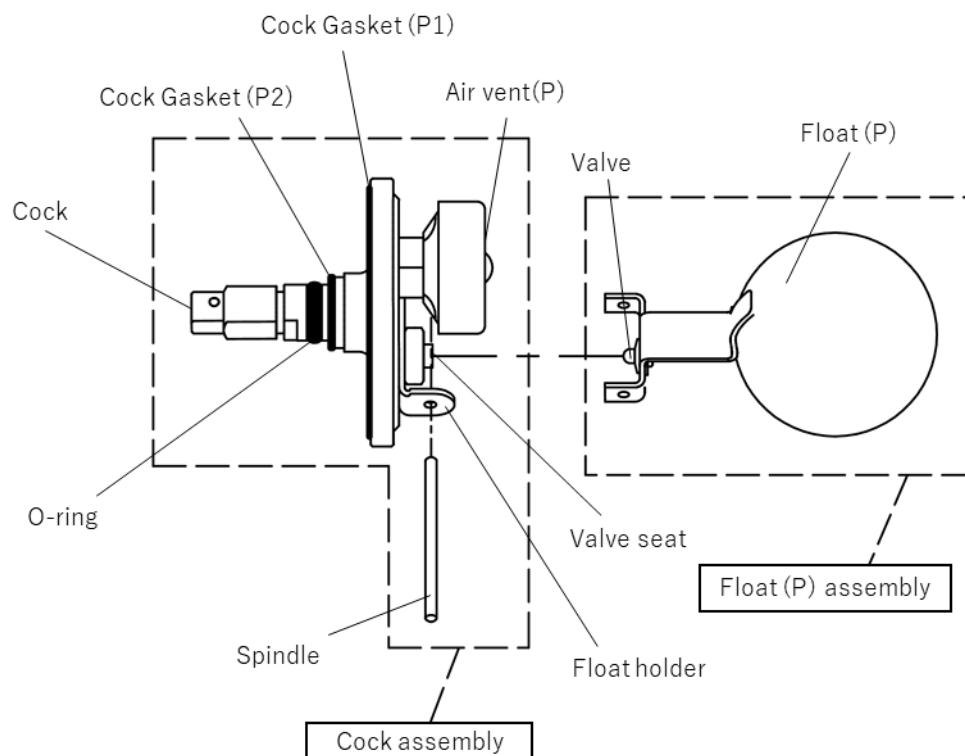


* Do not remove the plug from the cover except when disposing.

* The parts shown in the rectangle boxes are available as consumable supply.



* The parts shown in the rectangle boxes are available as consumable supply.



* The air vent (P) cannot be removed from the cock assembly.

* The parts shown in the rectangle boxes are available as consumable supply.

Warranty Information

1. Limited warranty
This product has been manufactured using highly-advanced techniques and subjected to strict quality control. Please be sure to use the product in accordance with instructions on the manual and the label attached to it.
Yoshitake warrants the product to be free from any defects in material and workmanship under normal usage for a period of one year from the date of receipt by the original user, but no longer than 24 months from the date of shipment from Yoshitake's factory.
2. Parts supply after product discontinuation
This product may be subject to discontinuation or change for improvement without any prior notice. After the discontinuation of the product, Yoshitake supplies the repair parts for 5 years otherwise individually agreed.
3. This warranty does not cover the damage due to any of below:
 - (1) Valve seat leakage or malfunction caused by foreign substances inside piping.
 - (2) Improper handling or misuse.
 - (3) Improper supply conditions such as abnormal water pressure/quality.
 - (4) Water scale or freezing.
 - (5) Trouble with power/air supply.
 - (6) Any alteration made by other than Yoshitake.
 - (7) Use under severe conditions deviating from the design specifications
(e.g. in case of corrosion due to outdoor use).
 - (8) Fire, flood, earthquake, thunder and other natural disasters.
 - (9) Consumable parts such as O-ring, gasket, diaphragm and etc.Yoshitake is not liable for any damage or loss caused by malfunction or defect of the product.

YOSHITAKE

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