ISO 9001
ISO14001

Manufacturer
TLV CO., LTD.
Kakogawa, Japan
is approved by LRQA Ltd. to ISO 9001/14001

Instruction Manual

Free Float Steam Trap
QuickTrap

Featured Models: FS21-L/FS21-H

Trap Units: S21-L/S21-H

172-65417M-07
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Table of Contents

Introduction

Thank you for purchasing the TLV free float steam trap.

This product has been thoroughly inspected before being shipped from the factory. When the product is delivered, before doing anything else, check the specifications and external appearance to make sure nothing is out of the ordinary. Also be sure to read this manual carefully before use and follow the instructions to be sure of using the product properly.

This free float steam trap uses a universal flange, a precision-ground float and three-point support for the valve body. The three-point seating for the valve body supports the precision-ground float securely at three points and ensures a high degree of sealing for even minute quantities of condensate.

The universal flange allows the trap to be installed in either horizontal or vertical piping. This flexibility greatly reduces the time required for installation and removal, as compared to conventional steam traps, and also facilitates repair and maintenance operations.

The product contains a built-in air vent, allowing a large amount of initial condensate and air to be discharged, significantly reducing start-up time.

If detailed instructions for special order specifications or options not contained in this manual are required, please contact TLV for full details.

This instruction manual is intended for use with the model(s) listed on the front cover. It is necessary not only for installation, but for subsequent maintenance, disassembly/reassembly and troubleshooting. Please keep it in a safe place for future reference.

Safety Considerations

- Read this section carefully before use and be sure to follow the instructions.
- Installation, inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.
- The precautions listed in this manual are designed to ensure safety and prevent equipment damage and personal injury. For situations that may occur as a result of erroneous handling, three different types of cautionary items are used to indicate the degree of urgency and the scale of potential damage and danger: DANGER, WARNING and CAUTION.
- The three types of cautionary items above are very important for safety: be sure to observe all of them as they relate to installation, use, maintenance and repair. Furthermore, TLV accepts no responsibility for any accidents or damage occurring as a result of failure to observe these precautions.

Cautionary items and definitions

Danger
Indicates an urgent situation which poses a threat of death or serious injury

Warning
Indicates that there is a potential threat of death or serious injury

Caution
Indicates that there is a possibility of injury or equipment/product damage

Safety Considerations for the Product

Warning
NEVER apply direct heat to the float. The float may explode due to increased internal pressure, causing accidents leading to serious injury or damage to property and equipment.

Caution
Install properly and DO NOT use this product outside the recommended operating pressure, temperature and other specification ranges. Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents. Local regulations may restrict the use of this product to below the conditions quoted.

Caution
DO NOT use this product in excess of the maximum operating pressure differential. Such use could make discharge impossible (blocked).

Caution
Take measures to prevent people from coming into direct contact with product outlets. Failure to do so may result in burns or other injury from the discharge of fluids.

Caution
When disassembling or removing the product, wait until the internal pressure equals atmospheric pressure and the surface of the product has cooled to room temperature. Disassembling or removing the product when it is hot or under pressure may lead to discharge of fluids, causing burns, other injuries or damage.

Caution
Be sure to use only the recommended components when repairing the product, and NEVER attempt to modify the product in any way. Failure to observe these precautions may result in damage to the product and burns or other injury due to malfunction or the discharge of fluids.

Caution
Do not use excessive force when connecting threaded pipes to the product. Over-tightening may cause breakage leading to fluid discharge, which may cause burns or other injury.

Caution
Use only under conditions in which no freeze-up will occur. Freezing may damage the product, leading to fluid discharge, which may cause burns or other injury.

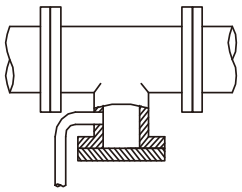
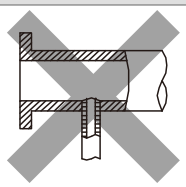
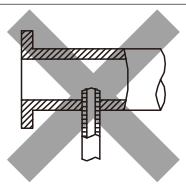
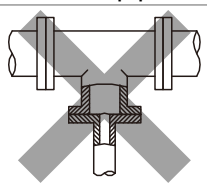
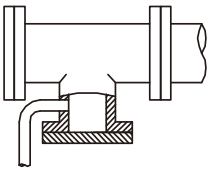
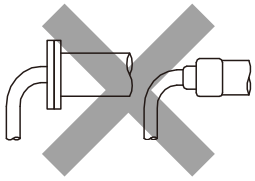
Caution
Use only under conditions in which no water hammer will occur. The impact of water hammer may damage the product, leading to fluid discharge, which may cause burns or other injury.

Checking the Piping

Caution
Use only under conditions in which no water hammer will occur. The impact of water hammer may damage the product, leading to fluid discharge, which may cause burns or other injury.

Check to make sure that the pipes to be connected to the product have been installed properly.

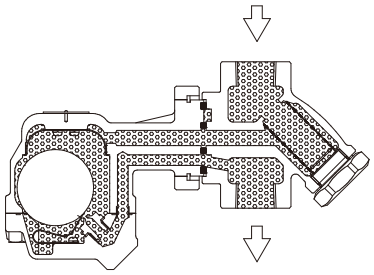
1. Is the pipe diameter suitable?
2. Is the trap unit installed horizontally?
3. Has sufficient space been secured for maintenance?
4. Have isolation valves been installed at the inlet and outlet?
   If the outlet is subject to back pressure, has a check valve (TLV-CK) been installed?
5. Is the inlet pipe as short as possible, with as few bends as possible, and installed so the liquid will flow naturally down into the product?
6. Has the piping work been done correctly, as shown in the figures below?
7. Using the appropriate tools, have the screws been tightened enough?

Requirement	Correct	Incorrect
Install catchpot with the proper diameter.		 Diameter is too small.
Make sure the flow of condensate is not obstructed.		 Diameter is too small and inlet protrudes into pipe interior.
To prevent rust and scale from flowing into the product, the inlet pipe should be connected 25 to 50 mm above the base of the T-pipe.		 Rust and scale flow into the trap with the condensate.
When installing on the blind end, make sure the flow of condensate is not obstructed.		 Condensate collects in the pipe.

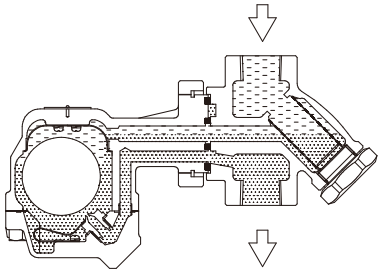
Operation

Principles of air and condensate discharge:

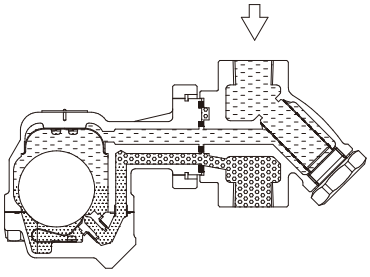
1. Start-up air and cold condensate discharge
   At start-up, before steam is supplied, the system is cold and the bimetal air vent strip is contracted, holding the float off of the valve seat. This allows for the rapid discharge of air and cold condensate through the valve when steam is first supplied to the system.

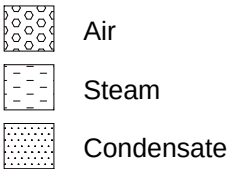


2. Condensate discharge
   If the temperature of the condensate rises above 90 °C, the bimetal air vent strip expands allowing the float to block the valve seat. Rising condensate levels cause the float to rise due to buoyancy, opening the valve and allowing hot condensate to be discharged.



3. Closed position
   When the condensate flow rate decreases, the float falls, closing off the valve seat opening. A water seal is maintained at all times over the valve seat opening to prevent steam loss.





Specifications

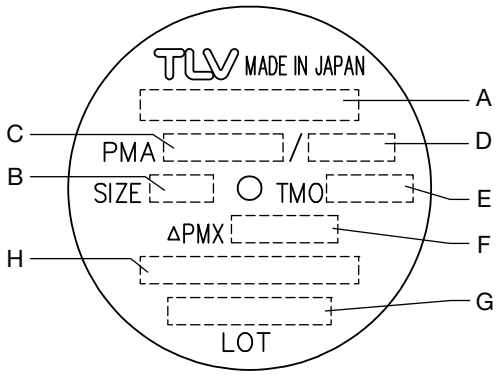
Caution

Install properly and DO NOT use this product outside the recommended operating pressure, temperature and other specification ranges. Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents. Local regulations may restrict the use of this product to below the conditions quoted.

DO NOT use this product in excess of the maximum operating pressure differential. Such use could make discharge impossible (blocked).

Use only under conditions in which no freeze-up will occur. Freezing may damage the product, leading to fluid discharge, which may cause burns or other injury.

Refer to the product nameplate for detailed specifications.



A	Model	E	Maximum Operating Temperature (TMO)
B	Nominal Diameter	F	Maximum Differential Pressure (PMX)
C	Maximum Allowable Pressure (PMA)[01]	G	Production Lot No.
D	Maximum Allowable Temperature (TMA)	H	Valve No.[02]

[01]Maximum allowable pressure (PMA) and maximum allowable temperature (TMA) are PRESSURE SHELL DESIGN CONDITIONS, **NOT** OPERATING CONDITIONS.

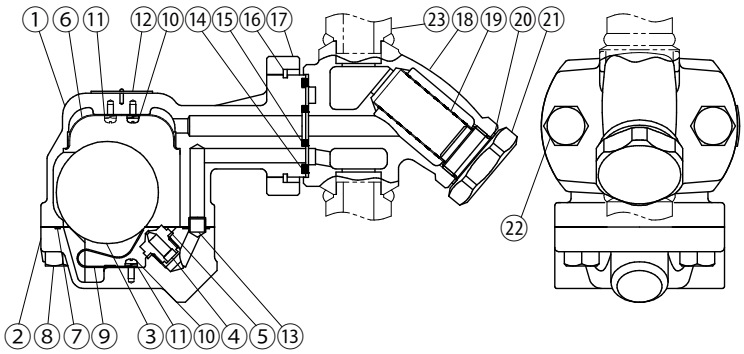
[02]Valve No. is displayed for products with options. This item is omitted from the nameplate when there are no options.

Compatibility

- Trap units FS21-L/S21-H are designed for use with TLV F46 and F32 connector units, trap stations (V1/V2/V1P/V2P Series) and QuickStation QS10.
- Trap and connector units must only be used with compatible models.

The connector unit name is embossed on the connector body.

Configuration



No.	Part Name	A[01]	B[02]	C[02]	D[03]	E[04]
1	Trap Body	✓				
2	Cover	✓				
3	Float	✓			✓	
4	Orifice	✓		✓		
5	Orifice Gasket	✓	✓	✓		
6	Screen	✓		✓		
7	Cover Gasket	✓	✓	✓		
8	Cover Bolt	✓				
9	Air Vent Strip	✓		✓		
10	Screw	✓		✓		
11	Spring Washer	✓		✓		
12	Nameplate	✓				
13	Connector	✓				
14	Outer Connector Gasket	✓	✓	✓		
15	Inner Connector Gasket	✓	✓	✓		
16	Snap Ring	✓				
17	Connector Flange	✓				
18	Connector Body					✓
19	Screen			✓		✓
20	Screen Holder Gasket		✓	✓		✓
21	Screen Holder					✓
22	Connector Bolt	✓				
23	Flange					✓

[01]A= Trap unit: S21-L/S21-H
[02]Replacement parts are available only in the following kits: B = Maintenance Kit, C = Repair Kit
[03]D = Float
[04]E= Connector body: F46J

Installation

Caution

Install properly and DO NOT use this product outside the recommended operating pressure, temperature and other specification ranges. Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents. Local regulations may restrict the use of this product to below the conditions quoted.

Take measures to prevent people from coming into direct contact with product outlets. Failure to do so may result in burns or other injury from the discharge of fluids.

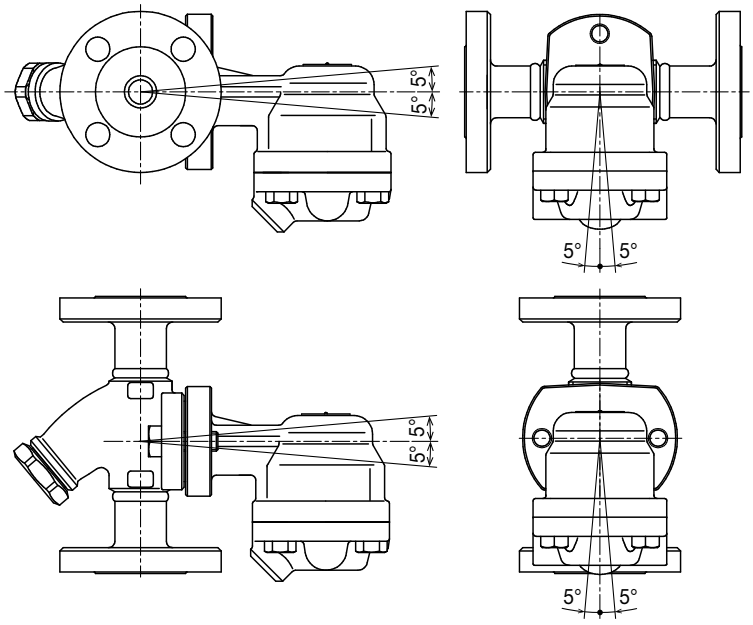
Do not use excessive force when connecting threaded pipes to the product. Over-tightening may cause breakage leading to fluid discharge, which may cause burns or other injury.

Installation, inspection, maintenance, repairs, disassembly and adjustment and valve opening/closing should be carried out only by trained maintenance personnel.

1. Before installation, be sure to remove all protective seals.
2. Before installing the product, blow out the inlet piping to remove any piping scraps, dirt and oil. Close the inlet valve after blowdown.
3. Install the product so the arrow on the body is pointing in the direction of flow.
4. The connector body has no restrictions on installation orientation except for the following conditions: the universal flange face (for connecting to the trap unit) must be in the vertical plane, and the trap unit must be installed with the nameplate facing upwards.
5. The trap unit must be installed with the nameplate facing upward, and should be inclined no more than 5° in any plane. Use the two connector bolts to adjust the angle of the trap unit.
6. Install a condensate outlet valve and outlet piping.
7. Open the inlet and outlet valves and ensure that the product functions properly.

If there is a problem, determine the cause using the "Troubleshooting" section in this manual.

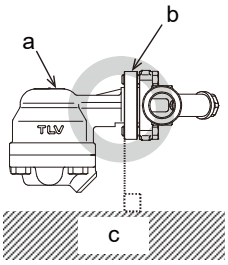
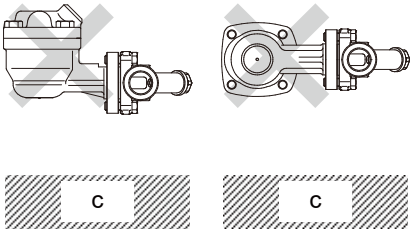
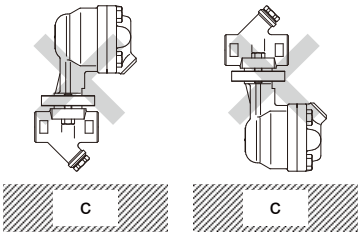
Tolerance Angle for Installation: 5°



Install with the nameplate facing upwards and with the arrow on the connector body pointing in the direction of flow.

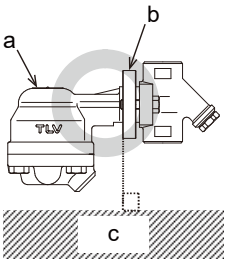
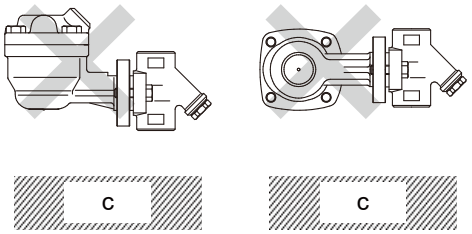
Installation Examples

Horizontal Piping

Correct	Incorrect	
	Nameplate is not facing upwards	Connector Flange is not in the vertical plane
		

a= Name Plate, b= Connector Flange, c= Ground

Vertical Piping

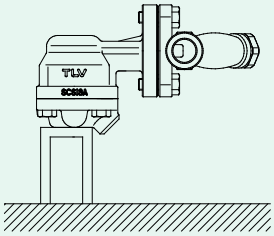
Correct	Incorrect
	Nameplate is not facing upwards
	

a= Name Plate, b= Connector Flange, c= Ground

Note

Screwed Connection:

When products with screwed connections are installed on horizontal piping, there is a danger that the weight of the trap unit will cause the connector body to rotate on the pipe, putting the trap mechanism out of the horizontal plane. To prevent this, tighten the screws securely. In cases where the product is affected by vibrations or by external contact, it is recommended that the trap unit be supported as shown.



Maintenance

Caution
Take measures to prevent people from coming into direct contact with product outlets. Failure to do so may result in burns or other injury from the discharge of fluids.

Be sure to use only the recommended components when repairing the product, and NEVER attempt to modify the product in any way. Failure to observe these precautions may result in damage to the product and burns or other injury due to malfunction or the discharge of fluids.

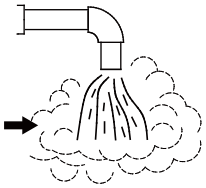
Operational Check

A visual inspection of the following items should be done on a daily basis to determine whether the product is operating properly or has failed. Periodically (at least biannually) the operation should also be checked by using diagnostic equipment such as a stethoscope, thermometer, TLV Pocket TrapMan or TLV TrapMan.

If the product should fail, it may cause damage to piping and equipment, resulting in faulty or low quality products or losses due to steam leakage.

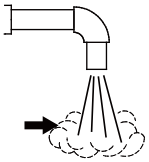
Normal:	Condensate is discharged continuously, together with flash steam, and the sound of flow can be heard. If there is very little condensate, there is almost no sound of flow.
Blocked (Discharge Impossible):	No condensate is discharged. The product is quiet and makes no noise, and the surface temperature of the product is low.
Blowing:	Live steam continually flows from the outlet and there is a continuous metallic sound.
Steam Leakage:	

Flash Steam



White jet containing water droplets

Live Steam Leakage



Clear, slightly bluish jet

Parts Inspection

When parts have been removed, or during periodic inspections, use the following table to inspect the parts and replace any that are found to be defective.

Gaskets: Check for warping or scratches

Screen: Check for clogging or corrosion

Float: Check for scratches or dents

Body Interior: Check for build-up

Orifice Opening: Check for dirt, oil film, wear or scratches

Disassembly/Reassembly

Warning
NEVER apply direct heat to the float. The float may explode due to increased internal pressure, causing accidents leading to serious injury or damage to property and equipment.

Caution
When disassembling or removing the product, wait until the internal pressure equals atmospheric pressure and the surface of the product has cooled to room temperature. Disassembling or removing the product when it is hot or under pressure may lead to discharge of fluids, causing burns, other injuries or damage.

Use the following procedures to remove components. Use the same procedures in reverse to reassemble.

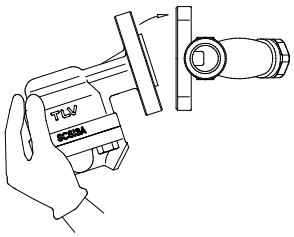
(Installation, inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.)

Detaching/Reattaching the Trap Unit and Connector Body

Part Name & No.	During Disassembly	During Reassembly
Connector Bolts 22	Remove with a socket wrench	Consult the table of tightening torques and tighten to the proper torque
Connector Gaskets 14,15	Remove with a flat-head screwdriver and clean sealing surfaces	Replace with new gaskets; to facilitate assembly and prevent loosening of the gaskets, apply a small amount of adhesive at 120º intervals around the outer edge of the gaskets

Attaching the Trap Unit to the Connector Body

1. If attaching a new trap unit, be sure to remove the protective cap from the connector flange. Be careful not to drop the gaskets when removing the cap.
2. Grasp the end of the trap unit and align its gasket housing with the indentation on the connector body. Be sure to have the nameplate facing upwards.
3. Once aligned, insert and finger tighten the connector bolts. Verify that the trap unit is within the allowable inclination.



Detaching/Reattaching the Cover and Float

Part Name & No.	During Disassembly	During Reassembly
Cover Bolt 8	Remove with a socket wrench	Consult the table of tightening torques and tighten to the proper torque
Cover 2	Remove carefully; take care to prevent any damage to the float, which may fall out when the cover is removed	Make sure there are no pieces of the old gasket on the sealing surfaces, align the cover with the body and connector and reattach
Float 3	Remove, being careful not to scratch the surface	Place inside the body (or on the cover), being careful not to scratch the surface
Cover Gasket 7	FS21-H: Remove the gasket and clean sealing surfaces	Replace with a new gasket
	FS21-L: Remove only if damaged	Replace with a new gasket if damaged

Disassembly/Reassembly of Components Inside the Trap Body

Part Name & No.	During Disassembly	During Reassembly
Screw 10 Spring Washer 11	Remove screws with a Philips screwdriver	Consult the table of tightening torques and tighten to the proper torque
Screen 6	Remove without bending	Reassemble after removing any scale build-up on the surface

Disassembly/Reassembly of Components Inside the Cover

Part Name & No.	During Disassembly	During Reassembly
Connector 13	Remove the connector	Reinsert the connector
Screw 10 Spring Washer 11	Remove with a Phillips screwdriver	Consult the table of tightening torques and tighten to the proper torque
Air Vent Strip 9 (Bimetal)	Remove without bending	Reinstall without bending
Orifice 4	Remove with a socket wrench	Consult the table of tightening torques and tighten to the proper torque
Orifice Gasket 5	Remove the gasket and clean sealing surfaces	Replace with a new gasket

Disassembly/Reassembly of Components Inside the Connector Body

Part Name & No.	During Disassembly	During Reassembly
Screen Holder 21	Remove with a socket wrench	Consult the table of tightening torques and tighten to the proper torque
Screen Holder Gasket 20	Remove the gasket and clean sealing surfaces	Replace with a new gasket; coat surfaces with anti-seize
Screen 6	Remove with needle-nose pliers	Insert securely into the connector body

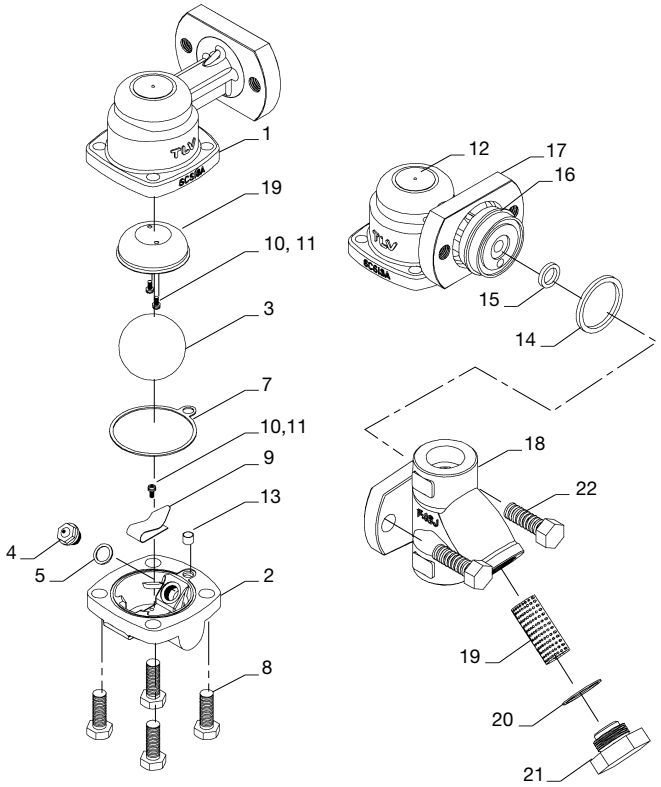
Table of Tightening Torques

Part Name & No.	Torque N·m	Distance Across Flats mm
Orifice 4	20	13
Cover Bolt 8	45	17
Screw 10 Spring Washer 11	0.3	+
Screen Holder 21	150	38
Bolt 22 (Trap Body 1/Connector Body 18)	80	19

Note

- Coat all threaded portions with anti-seize.
- If drawings or other special documentation were supplied for the product, any torque given there takes precedence over values shown here.

Exploded View



No.	Part Name	No.	Part Name
1	Trap Body	13	Connector
2	Cover	14	Outer Connector Gasket
3	Float	15	Inner Connector Gasket
4	Orifice	16	Snap Ring
5	Orifice Gasket	17	Connector Flange
6	Screen	18	Connector Body
7	Cover Gasket	19	Screen
8	Cover Bolt	20	Screen Holder Gasket
9	Air Vent Strip	21	Screen Holder
10	Screw	22	Connector Bolt
11	Spring Washer	23	Flange[01]
12	Nameplate		

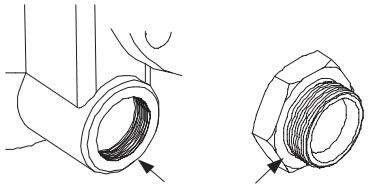
[01]Not shown

Instructions for Plug/Holder Disassembly and Reassembly

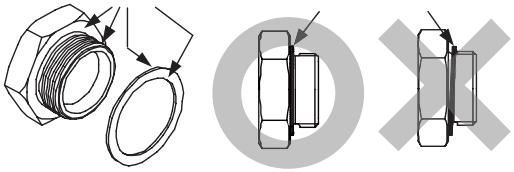
The seal on the threaded plugs/holders found on TLV products is formed by a flat metal gasket. There are various installation orientations for the gaskets, such as horizontal, diagonal and downward, and the gasket may be pinched in the thread recesses during assembly.

Instructions for Disassembly and Reassembly

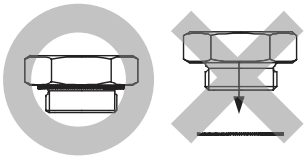
1. Remove the plug/holder using a tool of the specified size (distance across flats).
2. The gasket should not be reused. Be sure to replace it with a new gasket.
3. Clean the gasket surfaces of the plug/holder and the product body using a rag and/or cleaning agents, then check to make sure the surfaces are not scratched or deformed.



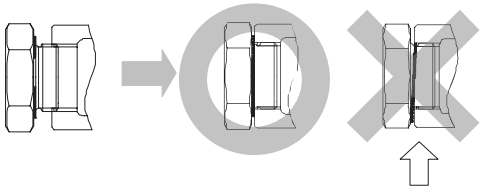
4. Coat both the gasket surface of the plug/holder and the threads of the plug/holder with anti-seize, then press the gasket onto the center of the gasket surface of the plug/holder, making sure the anti-seize affixes the gasket tightly to the plug/holder. Check to make sure the gasket is not caught in the recesses of the threads.



5. Hold the plug/holder upside down to make sure that the anti-seize makes the gasket stick to the plug/holder even when the plug/holder is held upside down.



6. Screw the plug/holder by hand into the product body while making sure that the gasket remains tightly affixed to the center of the gasket surface of the plug/holder. Make sure the entire gasket is making contact with the gasket surface of the product body. It is important at this point to make sure the gasket is not pinched in the thread recesses of the plug/holder.



7. Tighten the plug/holder to the proper torque.
8. Next, begin the supply of steam and check to make sure there is no leakage from the part just tightened. If there is leakage, immediately close the inlet valve and, if there is a bypass valve, take the necessary steps to release any residual pressure. After the surface of the product cools to room temperature, repeat the procedure beginning from step 1.

Troubleshooting

Caution
When disassembling or removing the product, wait until the internal pressure equals atmospheric pressure and the surface of the product has cooled to room temperature.
Disassembling or removing the product when it is hot or under pressure may lead to discharge of fluids, causing burns, other injuries or damage.

When the product fails to operate properly, use the following table to locate the cause and remedy.

Problem	Cause	Remedy
No condensate is discharged (blocked) or discharge is poor	The float is damaged or filled with condensate	Replace with a new float
	The float is sticking to the valve seat	Clean parts
	The valve seat opening, screen or piping are clogged with rust and scale	Clean parts
	The capacity of the product is insufficient	Compare specifications and actual operating conditions
	The product operating pressure exceeds the maximum specified pressure, or whether there is insufficient pressure differential between the product inlet and outlet	Compare specifications and actual operating conditions
	Steam locking has occurred	Perform a bypass blowdown or close the product inlet valve and allow the product to cool
Steam is discharged or leaks from the outlet (blowing) (steam leakage)	The valve seat opening is clogged or there is rust or scale build-up on the surface of the float	Clean parts
	The valve seat is damaged	Replace with a new valve seat
	The float is damaged	Replace with a new float
	Improper installation	Correct the installation
	The bimetal air vent strip is damaged	Replace with a new bimetal strip
	Product vibration	Lengthen the inlet piping and fasten it securely
Steam is leaking from a place other than the outlet	Gasket deterioration or damage	Replace with new gaskets
	Improper tightening torque was used	Tighten to the proper torque
Float frequently becomes damaged	Water hammer has occurred	Study and correct the piping

Note
If parts need replacement, refer to the parts list in this manual and select the appropriate kit/unit for replacement parts. Parts are only available as a part of the kits/units shown.

TLV EXPRESS LIMITED WARRANTY

Subject to the limitations set forth below, TLV CO., LTD., a Japanese corporation ("**TLV**"), warrants that products which are sold by it, TLV International Inc. ("**TII**") or one of its group companies excluding TLV Corporation (a corporation of the United States of America), (hereinafter the "**Products**") are designed and manufactured by TLV, conform to the specifications published by TLV for the corresponding part numbers (the "**Specifications**") and are free from defective workmanship and materials. The party from whom the Products were purchased shall be known hereinafter as the "**Seller**". With regard to products or components manufactured by unrelated third parties (the "**Components**"), TLV provides no warranty other than the warranty from the third party manufacturer(s), if any.

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This warranty does not cover defects or failures caused by:

1. improper shipping, installation, use, handling, etc., by persons other than TLV, TII or TLV group company personnel, or service representatives authorized by TLV; or
2. dirt, scale or rust, etc.; or
3. improper disassembly and reassembly, or inadequate inspection and maintenance by persons other than TLV or TLV group company personnel, or service representatives authorized by TLV; or
4. disasters or forces of nature or Acts of God; or
5. abuse, abnormal use, accidents or any other cause beyond the control of TLV, TII or TLV group companies; or
6. improper storage, maintenance or repair; or
7. operation of the Products not in accordance with instructions issued with the Products or with accepted industry practices; or
8. use for a purpose or in a manner for which the Products were not intended; or
9. use of the Products in a manner inconsistent with the Specifications; or
10. use of the Products with Hazardous Fluids (fluids other than steam, air, water, nitrogen, carbon dioxide and inert gases (helium, neon, argon, krypton, xenon and radon)); or
11. failure to follow the instructions contained in the TLV Instruction Manual for the Product.

Duration of Warranty

This warranty is effective for a period of one (1) year after delivery of Products to the first end user. Notwithstanding the foregoing, asserting a claim under this warranty must be brought within three (3) years after the date of delivery to the initial buyer if not sold initially to the first end user.

ANY IMPLIED WARRANTIES NOT NEGATED HEREBY WHICH MAY ARISE BY OPERATION OF LAW, INCLUDING THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE AND ANY EXPRESS WARRANTIES NOT NEGATED HEREBY, ARE GIVEN SOLELY TO THE INITIAL BUYER AND ARE LIMITED IN DURATION TO ONE (1) YEAR FROM THE DATE OF SHIPMENT BY THE SELLER.

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Severability

Any provision of this warranty which is invalid, prohibited or unenforceable in any jurisdiction shall, as to such jurisdiction, be ineffective to the extent of such invalidity, prohibition or unenforceability without invalidating the remaining provisions hereof, and any such invalidity, prohibition or unenforceability in any such jurisdiction shall not invalidate or render unenforceable such provision in any other jurisdiction.

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Options

With Blowdown Valve (TLV BD2)

Caution

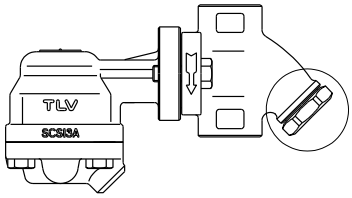
Always wear eye protection and heat-resistant gloves when operating the blowdown valve. Failure to do so may result in burns or other injury.

When operating the blowdown valve, stand to the side well clear of the outlet to avoid contact with internal fluids that will be discharged. Operate the valve slowly and surely, taking care to avoid the area from which internal fluids are discharged and any fluids deflected off piping or the ground etc. Failure to do so may result in burns or other injury.

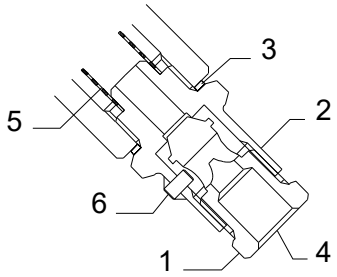
Do not tighten the BD2 valve or the BD2 valve seat in excess of the appropriate tightening torque. Over tightening may cause breakage to threaded portions, which may cause burns, other injuries or damage.

Do not excessively loosen the BD2 valve when opening the blowdown valve. The valve stopper pin installed to prevent the BD2 valve from being removed may break and internal pressure may result in the BD2 valve being blown off, leading to injuries, damage and fluid discharge, causing burns.

The options shown below are available for this product on request. Please compare with the product you received.



Configuration



No.	Part Name	Trque N·m	Distance Across Flats mm
1	BD2 Valve	30	17
2	BD2 Valve Seat (Screen Holder)	150	38
3	Screen Holder Gasket	—	
4	Discharge Hole	—	
5	Screen	—	
6	Valve Stopper Pin	—	

Note

Avoid the use of excessive tightening torques, as threaded parts may become damaged.

TLV Blowdown Valve: BD2

The BD2 Blowdown Valve, installed in the screen area of the body, uses the trap's internal pressure to blow any condensate, steam, dirt or scale accumulated around the screen area out to the atmosphere.

BD2 Blowdown Valve Operation

1. The BD2 valve is in the closed position when the BD2 is shipped from the factory. Before attempting to operate the BD2, reconfirm that the BD2 valve is still in the closed position. Locate the blow outlet and, during operation, stand to the side and well clear of it, as the jet of condensate or steam could cause burns.
2. Remain in the area the entire time the BD2 valve is in the open position. Before opening the BD2 valve, grip the BD2 valve seat with a wrench and hold firmly in place so that it will not rotate when the BD2 valve is loosened. Grip the BD2 valve with another wrench and slowly loosen. Condensate and steam will discharge from the blow outlet in a jet stream. Be careful not to loosen the BD2 valve so far that it becomes removed from the BD2 valve seat. (If the valve stopper pin becomes damaged, large quantities of steam will be discharged in a jet stream.)
3. Close the BD2 valve until the flow of fluid completely stops. If the flow of fluid does not stop, re-open the BD2 valve (as in step "2") to blow out any scale or dirt that may be caught in the BD2. Re-tighten the BD2 valve until the flow of fluid stops completely.