

# INSTRUCTION MANUAL

Keep this manual in a safe place for future reference

## TLV Free Float Drain Trap SS1VA

Thank you for purchasing the TLV Free Float Drain Trap for air and inert gases.

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. Before beginning installation or maintenance, please read this manual to ensure correct usage of the product.

This instruction manual is needed not only for installation, but for subsequent troubleshooting. Please keep it in a safe place for future reference. The contents of this manual are subject to change without notice.

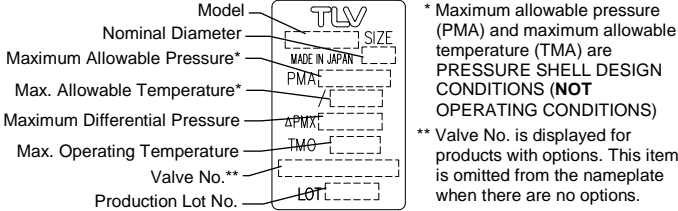


### 1. Safety Considerations

- WARNING** DO NOT use for toxic, flammable or otherwise hazardous fluids. This product is a drain trap that discharges condensate from air or inert gas systems. Use only for air or inert gas. This product is for intended use only. Improper use may result in such hazards as damage to the product or malfunctions that may lead to serious accidents.
- 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 which 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 or burns or other injury due to malfunction or the discharge of fluids.
- 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** Installation, inspection, maintenance, repairs, disassembly, adjustment and valve opening/closing should be carried out only by trained maintenance personnel.

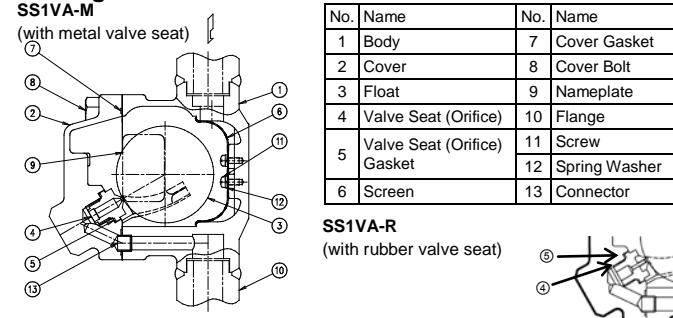
### 2. Specifications

Refer to the product nameplate for detailed specifications.



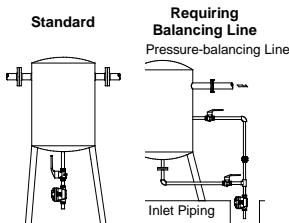
**Minimum Required Condensate Load:** For SS1VA-M with a metal valve seat, a minimum required condensate load of 0.5 kg/h (1 lb/h) is necessary to maintain a liquid seal. There is a chance of air/gas leak if the condensate load falls below this rate.

### 3. Configuration



### 4. Proper Installation

- Before installation, be sure to remove all protective seals.
- Before installing the product, open the inlet valve and blow out the piping to remove any piping scraps, dirt and oil. Close the inlet valve after blowdown.
- Install the product so the arrow on the body is pointing in the direction of flow.
- To prevent air binding, inlet piping must be straight, vertical, as short as possible and with a minimum nominal diameter of 15 mm (1/2 in). If a length of horizontal piping



between the equipment and the product is unavoidable, the horizontal piping must be kept as short as possible. If it exceeds 200 mm (8 in), a pressure-balancing line must be installed (see right).

- The product must be installed vertically, inclined no more than 5° horizontally and front-to-back.
- Install a condensate outlet valve and outlet piping.
- Open the inlet and outlet valves, make sure that the product functions properly.

### 5. Inspection and Maintenance

**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 or thermometer.

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

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

Gaskets: check for warping or damage
Screen: check for clogging, corrosion or damage
Valve Seat: check for clogging, warping or scratches
Float: check for scratches, dents or water inside the float
Body, Cover: check for damage or build-up inside

### 6. Disassembly / Reassembly

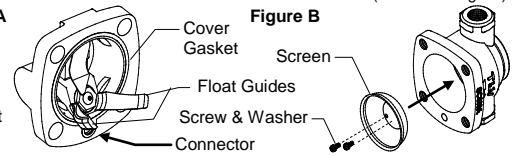
Use the following procedures to remove components. Use the same procedures in reverse to reassemble. If drawings or other special documentation were supplied for the product, any torque given there takes precedence over values shown here.

Part	During Disassembly	During Reassembly
Cover Bolt	Remove with a 17 mm (5/8 in) socket wrench	Coat threads with anti-seize; tighten to a torque of 45 N-m (33 lbf-ft)
Cover	Remove; 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 left on the sealing surfaces, then reattach; be careful not to bend the float guides (Fig. A)
Float	Remove being careful not to scratch the polished surface	Place inside body, being careful not to scratch or misshape
Connector	Remove	Insert into hole in cover
Cover Gasket	Remove gasket and clean sealing surfaces	Replace with a new gasket if warped or damaged, do not apply anti-seize
Valve Seat	Remove with a 13 mm (1/2 in) socket wrench	Coat threads with anti-seize; tighten to a torque of 15 N-m (11 lbf-ft)
Valve Seat Gasket	Remove gasket and clean sealing surfaces	Replace with a new gasket if warped or damaged, apply anti-seize
Screw & Washer	Remove with a Philips screwdriver	Tighten to a torque of 0.3 N-m (0.22 lbf-ft)
Screen	Remove without bending	Insert the screen with the proper orientation, aligning screw holes (Fig. B)

(1 N-m ≈ 10 kg-cm)

**Figure A**

Note: Do not change the position of the float guides. Tight sealing cannot be guaranteed if the float guides have been moved out of position.



### 7. Troubleshooting

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

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 valve seat opening, screen or piping are clogged with rust and scale	Clean parts
	The trap operating pressure exceeds the maximum specified pressure, or there is insufficient pressure differential between the trap inlet and outlet	Compare specifications and actual operating conditions
	Air binding has occurred	Correct the installation (see "Proper Installation")
Air/gas is discharged or leaks from the outlet* (blowing) (air/gas leakage)	The specific gravity of the fluid is not suitable for this product	Consult TLV
	Rust and scale have built-up around the valve seat or beneath the float	Clean parts
	The valve seat is scratched or damaged	Replace with a new valve seat
Air/gas is leaking from a place other than the outlet	The float is deformed or has a build-up	Clean or replace with a new float
	Improper installation orientation	Correct the installation
Air/gas is leaking from a place other than the outlet	There is excessive trap vibration	Lengthen the inlet piping and fasten it securely
	Gasket(s) are deteriorated or damaged	Replace with new gasket(s)
	Improper tightening torques were used	Tighten to the proper torque

\* SS1VA-M with metal valve seat requires a minimum condensate load of 0.5 kg/h (1 lb/h) to prevent any air/gas leak

### Manufacturer

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# TLV EXPRESS LIMITED WARRANTY

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## **Exceptions To Warranty**

This warranty does not cover defects or failures caused by:

1. improper shipping, installation, use, handling, etc., by other than TLV 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 other than TLV or service representatives authorized by TLV; or
4. disasters or forces of nature; or
5. abuse, abnormal use, accidents or any other cause beyond the control of TLV; 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. 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 the earlier of: (i) three (3) years after delivery of Products to the first end user in the case of sealed SST-Series Products for use in steam pressure service up to 650 psig; (ii) two (2) years after delivery of Products to the first end user in the case of PowerTrap® units; or (iii) one (1) year after delivery of Products to the first end user in the case of all other Products. Notwithstanding the foregoing, asserting a claim under this warranty must be brought by the earlier of one of the foregoing periods, as applicable, or within five (5) 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 TLV.

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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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