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Inverted Bucket Steam Trap

Operation Manual



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Inverted Bucket Steam Trap

1. Product Overview

Inverted bucket steam trap is a kind of mechanical steam trap, which relies on the density difference between steam and condensate water.

2. Structure and Performance

- 2.1 U-Shaped flow channel design ensures that the inside of the valve body is in a water-sealed state. No original steam leakage.
- 2.2 The inner parts are all stainless steel finishing, and the sealing parts are made of martensitic stainless steel and treated by heat treatment and aging, with high strength, no deformation on and wear resistance.
- 2.3 Patented design with flexible closing system, no steam leakage.
- 2.4 Retrofitted check valve design for superheated steam piping.
- 2.5 Equipped a waterproof device to prevent water hammer from entering the valve body.
- 2.6 Built-in filter makes the steam trap working environment more cleaner.
- 2.7 Equipped with manual drainage device, used to open the screw plug after the steam stopping to remove the condensate water, to prevent the steam trap damaged due to the frost.

3. Working Principle

When steam enters, the bucket sinks and the valve is fully open. The air and low-temperature water in the pipeline enter the steam trap and are discharged by the steam trap through the air exhaust device. When the air is discharged, the steam trap is filled with condensate water and discharged by the steam trap. After the steam condensate water is discharged, steam and high temperature condensate water enter, and the steam is filled with the bucket, so that the bucket recovers its buoyancy and floats up, make the steam trap closed.

4. Application

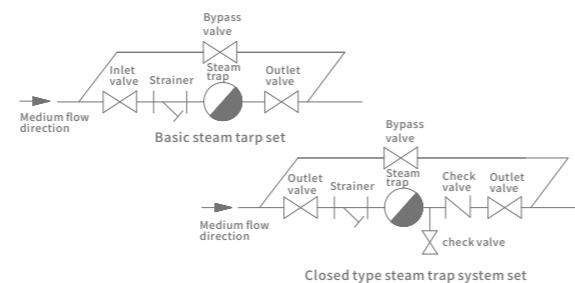
Mainly used in industrial steam heating systems such as petrochemicals, rubber, papermaking, printing and dyeing, pharmaceuticals, metallurgy, and power plants. The scope of use of the product should strictly according to the technical parameters of the product nameplate, and overpressure and over temperature use are strictly prohibited! Our company shall not be liable for any consequences caused by overpressure or overtemperature.

5. Product Standards

Our company's steam trap design, manufacture, inspection, Implement GB/T 22654-2008 "Steam Trap Technical Conditions".

6. Installation and Piping

The piping of inverted bucket steam trap is shown in the figure on the right. Generally installed for horizontal pipeline installation. If the inverted bucket steam trap needs to be installed on a vertical line, medium must be down in, up out. The standard configuration of the inverted bucket steam trap: inlet valve, outlet valve, bypass valve and Y-Strainer.



- 6.1 Before installing the steam trap, please check the nameplate carefully and refer to the user manual. Under the premise that the pressure, temperature, diameter, standard port, connection length, etc. are met, close the front and rear valves of the steam trap, check the flow direction of the medium and the installation direction of the product, and ensure that the arrow shown on the valve body is consistent with the flow direction of the medium.
- 6.2 During pipe welding, welding slag must be prevented from entering the steam trap channel and any impurities must be prevented from entering the steam trap.
- 6.3 The inverted bucket steam trap body is installed perpendicular to the line and should be installed at a lower position in the steam system or equipment outlet pipe to allow condensate water into the valve body naturally.

7. Maintenance

- 7.1 When repairing or cleaning the internal filter of the product on-site, the bypass valve must be opened first, then the front and rear valves of the steam trap must be cut off, and the inspection valve must be opened for pressure relief. After there is no pressure inside the steam trap and the surface temperature of the steam trap body drops to room temperature, cleaning can be carried out to prevent personnel from getting burned.
- 7.2 If the product is used for new pipelines, the filter screen needs to be cleaned when running for one or two weeks. Afterwards, depending on the first cleaning situation and pipeline medium. In generally, it is necessary to clean again after a maximum of six months of operation.

8. Faults and Solutions

The faults of steam trap in use is summarized into three appearances:

- 8.1 Blockage: Steam trap cannot operate, steam and condensate cannot be drained at all.
 - 8.2 Spray: The valve core cannot be closed, resulting in an accident state where steam and condensate are continuously discharged smoothly.
 - 8.3 Leakage: Steam leaking from inside the steam trap to the outside.
- No matter what kind of fault, it must be carefully analyzed, and the steam trap only can be repaired when it is determined to be the fault of the steam trap itself.

The possible faults and solutions for inverted bucket steam trap are listed in the following table.

Faults	Analysis	Solutions
Condensate retention	The steam pressure is higher than the rated steam trap pressure	Reduce steam pressure or replace with a high pressure trap
	The steam trap capacity is insufficient	Choose to replace the large capacity steam trap
	The seat hole is clogged with impurities	Clean the seat hole
	Bucket off	Reinstall the bucket
	Filter clogging	Cleaning filter
Steam Leakage	Lost water seal	Fill the valve body with a certain amount of water
	There is debris between the core and the seat	Remove debris
	core or seat wear	Grind or replace with new parts
	The bucket falls off when the valve is open	Reinstall the bucket
Continuous Blow-down	The steam trap capacity is insufficient	Re-select the steam trap with the appropriate capacity

9. Warranty

Warranty period: The product warranty period is one year after operation or eighteen months after delivery (whichever expires first); During the warranty period, users can use, install, operate, and maintain the product correctly. If the product does not work properly, our company will provide free repair or replacement for the product.

The following situations are not covered by the warranty:

- 1) Faults caused by exceeding the technical parameters specified on the product nameplate;
- 2) Faults caused by incorrect installation, operation, disassembly, and maintenance;
- 3) Faults caused by impurities or severe corrosion;
- 4) Faults caused by natural disasters;