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Thermostatic Bimetallic Steam Trap

Operation Manual



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Thermostatic Bimetallic Steam Trap

1. Product Overview

The bimetallic steam trap is a typical representative of the thermal static type steam trap. It operates by utilizing temperature difference between steam (high temperature) and condensate (low temperature) to cause deformation or expansion of bimetallic components and drive the steam trap core to open and close the steam trap. The thermal static type steam trap has a high degree of undercooling, and there is always high-temperature condensate in front of the steam trap without steam leakage. It is the most ideal steam trap for small heating equipment with low temperature requirements, such as steam pipelines, heat tracing pipelines, small heating equipment, and heating equipment.

2. Structure and Performance

- 2.1 Equipped with adjustment bolts for precise on-site adjustment, achieving one steam trap for multiple purposes.
- 2.2 The circular bimetallic strip with the highest thermal thrust is used. It can fully utilize the sensible heat of high-temperature condensed water and achieve significant energy-saving effects.
- 2.3 Fast valve opening, no noise, excellent emptying performance.
- 2.4 Built-in filter screen can clean dirt without opening the steam trap bonnet.
- 2.5 The drainage temperature adjustment range is large, ranging from 15 °C to 30 °C below the saturation temperature.
- 2.6 It can be installed in any direction.

3. Drainage Temperature Adjustment Methods

The relationship of work pressure, drainage temperature, and bolt adjustment turns shown on the below chart for reference.

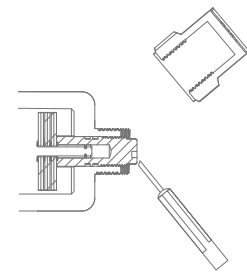
—The adjustment method is as follows

A.Required tools: A open-end wrench, a flathead screwdriver

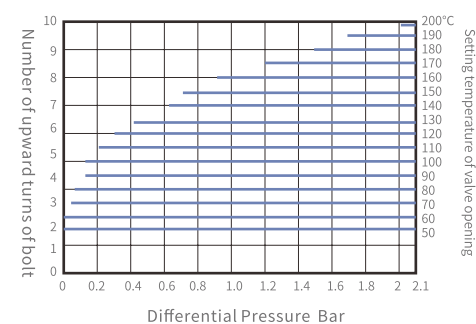
B.Adjustment

After preparation, proceed as follows in sequence:

- 3.1 Use a wrench to unscrew the steam trap bonnet in a counterclockwise direction (refer to the right figure).
- 3.2 Use a wrench to loosen the fastening nut in a counterclockwise direction.
- 3.3 Use a screwdriver to tighten the adjusting bolt all the way clockwise (reset to zero position).
- 3.4 According to the actual pressure and required temperature, determine the number of bolt adjustment turns according to the below figure.
- 3.5 Use a screwdriver to rotate the adjusting bolt counterclockwise until it reaches the predetermined number of turns (note: one turn refers to rotating the adjusting bolt 360 degrees), observe or measure whether the temperature at the rear end of the steam trap meets the target requirements, and make adjustments accordingly.
- 3.6 Tighten the nuts in sequence and secure the steam trap bonnet.



Temperature Adjustment Table



4. Application

Mainly used for industrial steam heating systems, instruments, and small heating equipment in industries such as petrochemicals, rubber, papermaking, printing and dyeing, pharmaceuticals, metallurgy, etc., as well as steam main pipelines. Note: It is not recommended to use it in devices or situations that require immediate drainage. The scope of use of the product should strictly follow the technical parameters on 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 over-temperature.

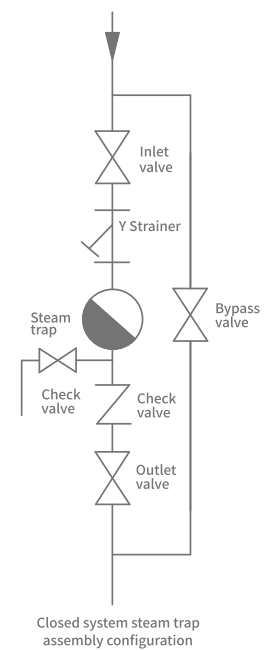
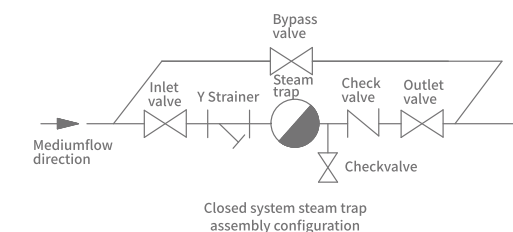
5. Product Standards

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

6. Installation and Piping

No matter it is a vertical or horizontal pipeline, thermostatic bimetallic steam trap all can be installed. The standard configuration of the steam trap refers to the figure on the right: it mainly includes Y Strainer, inlet valve, outlet valve, steam trap, inspecton valve, check valve and bypass valve.

- 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 piping welding, it is necessary to prevent welding slag from entering the flow channel of the steam trap and to prevent any impurities from entering the inside of the steam trap.
- 6.3 The product should be installed at a lower position in the steam system or equipment outlet pipeline, so that condensate water can naturally flow into the steam trap body. The inlet pipe section of the product should not be insulated for at least 1.5 meters or more.



7. Maintenance

- 7.1 Before product installation, steam or compressed air should be used to blow the inlet pipe of the product.
- 7.2 Before the product is put into trial operation, insulation and anti-scalding measures should be taken.
- 7.3 During the initial operation of the system, if there is a large amount of condensate in the pipeline network, the steam trap and bypass valve can be opened to assist in draining the condensate. After the system is running normally, the steam trap and bypass valve can be closed.
- 7.4 When shutting down for maintenance, the front and rear valves of the steam trap must be cut off, and the accumulated water in the steam trap and nearby pipelines must be drained to prevent freezing; Perform operations according to the preceding requirements when restarting the running.
- 7.5 In seasons with ambient temperatures below 0 °C, for steam traps that are not in use, and the drain plug at the bottom of the steam trap should be opened in namely manner for drainage and antifreeze protection.

Thermostatic Bimetallic Steam Trap

- 7.6 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 injury.
- 7.7 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 for a maximum of six months of operation.
- 7.8 It is recommended to check the working condition of the steam trap 1--2 times a week and conduct maintenance on the steam trap at least each 6 months.

9. Warranty

Warranty period: The product warranty period is eighteen months after delivery;

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:

- 9.1 Faults caused by exceeding the technical parameters specified on the product nameplate;
- 9.2 Faults caused by incorrect installation, operation, disassembly, and maintenance;
- 9.3 Faults caused by impurities or severe rust;
- 9.4 Faults caused by natural disasters;

10. Faults and Solutions

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

- 10.1 Blockage: Steam trap cannot operate, steam and condensate cannot be drained at all.
- 10.2 Spray: The valve core cannot be closed, resulting in an accident state where steam and condensate are continuously discharged smoothly.
- 10.3 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. We have listed the possible faults and solutions for bimetallic steam trap in the following table:

Faults	Analysis	Solutions
No discharge Condensate water	Steam trap seat hole blockage	Clean the steam trap seat hole
	Filter clogged	Clean the filter screen
	The drainage temperature is too low and the interval time is too long	If the on-site discharge temperature is lower than the factory set value, remove the steam trap cap, loosen the locking nut, and then rotate the adjusting bolt clockwise to meet the on-site requirements. Then, fix it with the locking nut and tighten the steam trap cap
Steam leakage	Excessive drainage temperature	If the on-site drainage temperature is higher than the factory set value, remove the steam trap cap, loosen the locking nut, and then rotate the adjusting bolt counterclockwise to meet the on-site requirements. Then, fix it with the locking nut and tighten the steam trap bonnet.
	Abnormal objects or wear between the steam trap core and steam trap seat	Disassemble, clean the steam trap seat, steam trap core or replace with new parts
	Insufficient capacity of steam trap	Choose a large capacity steam trap
Continuous drainage	Abnormal objects between the steam trap core and valve seat	Disassemble and clean the seat and steam trap core.