Spence™ High Capacity Float and Thermostatic Steam Trap

⚠ WARNING

Failure to follow these instructions or to properly install and maintain this equipment could result in an explosion, fire and/or chemical contamination causing property damage and personal injury or death.

High Capacity Steam Trap must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson instructions.

If leak develops in the system, service to the unit may be required. Failure to correct trouble could result in a hazardous condition.

Installation, operation and maintenance procedures performed by unqualified personnel may result in improper adjustment and unsafe operation. Either condition may result in equipment damage or personal injury. Only a qualified person shall install or service the High Capacity Steam Trap.

Introduction

Scope of the Manual

This manual provides instructions for installation, maintenance and parts ordering for the High Capacity Steam Trap.

Product Description

FTH Series are float and thermostatic steam traps. Float actuates the valve via a hinged lever and linkage. Air vent is balanced-pressure design with stainless steel welded encapsulated bellows capable of discharging air and non-condensable gases continuously for heavy load process. Trap is cast iron bodied suitable for pressures to 200 psi / 13.8 bar with NPT connection.

***Figure 1**. High Capacity Steam Trap*

Principle of Operation

On startup, air and non-condensible gases enter the trap and are automatically vented through an accurate balanced-pressure internal thermostatic air vent. As condensate enters the trap, the float and lever mechanism is raised, lifting the valve off the seat, discharging the condensate. Condensate will continue to be discharged at the same rate at which it is entering. Any air or non-condensible gas that may accumulate will be continually and efficiently passed by the thermostatic air vent.

Installation

⚠ WARNING

Personal injury, property damage, equipment damage or leakage due to escaping steam or bursting of pressure containing parts may result if this equipment is over pressured or is installed where service conditions could exceed the limits given in the

Specifications

The Specifications section gives some general specifications for the High Capacity Steam Trap.

Available Configurations
Types FTH-C2H9A and FTH-C2H9M:
Steam differential pressure to 20 psig / 1.4 barg
Types FTH-C5H9A and FTH-C5H9M:
Steam differential pressure to 175 psig / 12.1 barg
Types FTH-C5J9A and FTH-C5J9M:
Steam differential pressure to 175 psig / 12.1 barg

Maximum Operating Pressure(1)
Type FTH-C2H9A and FTH-C2H9M:
20 psig / 1.4 barg
Types FTH-C5H9A, FTH-C5H9M, FTH-C5J9A and FTH-C5J9M: 175 psig / 12.1 barg

Maximum Allowable Pressure(1)
200 psig / 13.8 barg

Maximum Operating Temperature(1)
Types FTH-C2H9A and FTH-C2H9M: 259°F / 126°C
Types FTH-C5H9A, FTH-C5H9M, FTH-C5J9A and FTH-C5J9M: 450°F / 232°C

Maximum Allowable Temperature(1)
450°F / 232°C

Materials of Construction
Head and Body: Cast iron
Bolts: Steel
Gaskets: Compressed Graphite
Lever Assembly: Stainless steel
Float, Plug and Seat: Stainless steel
Air Vent: Stainless steel/Phosphorus Bronze or Monel

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.

specifications or where conditions exceed any ratings of the adjacent piping or piping connections.

To avoid such injury or damage, provide pressure-relieving or pressure-limiting device.

FTH Series should be installed in an accessible position and location for easy servicing. The trap seat rating stamped on the nameplate, must be equal or greater than the maximum pressure differential across the trap. Install the trap straight and in a level position to ensure proper installation.

1. Determine where to install trap, based on the following requirements:
   a. The trap must be located as closed as possible, and below the equipment to be drained.
   b. The trap must be in a straight run of horizontal pipe as shown in Figure 2, and pitched to allow condensate to flow into trap inlet, and away from trap outlet.
   c. Allow for enough space around the trap for servicing which may include removal of the body or cover, depending on the model you are installing.
2. Install a Y-strainer with a Blowdown valve in a pipe, ahead of steam trap. This prevents dirt from entering trap.
3. Install union fittings and a shutoff valve in inlet pipe and outlet pipe. This allows trap to be isolated when servicing.
4. Install a test valve in outlet pipe, and cap it. This allows trap to be tested. Cap is used as safety precaution when unit is not being tested.
5. Blowdown piping using full steam pressure for five minutes. This cleaning process will remove debris from pipe and oil from system.

Maintenance

WARNING

To avoid personal injury, property damage or equipment damage caused by sudden release of pressure or explosion of accumulated gas, do not attempt any maintenance or disassembly without first isolating the equipment from system pressure and relieving all internal pressure from the equipment.

When checked regularly and properly maintained, the High Capacity Steam Trap will provide optimum performance.

Recommended schedule:

- Initially, every 2 to 3 days after startup until system is clean.
- Due to normal wear that may occur, recommended to inspect the parts periodically and replace if necessary.

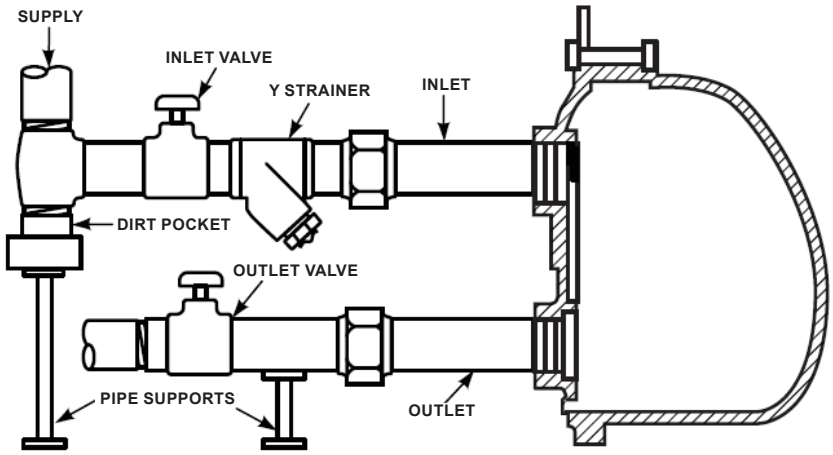

***Figure 2**. Typical Piping Diagram*

Note

The frequency of inspection depends on the severity of service conditions or the requirements of state and federal laws.

1. Inspect the joints for any leaks. Ensure to follow the "Removal from Service" and "Repair" procedure before addressing any joint leaks.
2. Clean strainers by opening blow down valve and allowing full steam pressure to flow out for a couple of minutes. Then, close valve.

Removal from Service

1. Close inlet and outlet supply valves and allow unit to cool. If a test valve is installed, open this valve to relieve any pressure.
2. Remove bolts that attach cover to body and remove trap body.

Repair

1. With body assembly removed from trap cover, remove pin that holds lever assembly to yoke. Inspect seat and pin for wear, replace if worn.
2. Inspect thermostatic element by placing it in boiling water to see if it closes. If it doesn't close, replace it.
3. Check alignment of pin and seat, adjust or replace parts as necessary. See Table 1.
4. Check float ball for damage shake float to make sure there is no fluid inside float. Replace if necessary.
5. Clean gasket surfaces and install new cover gasket.

Return to Service

1. Reinstall trap body assembly on cover.
2. Insert and securely tighten drain plug.
3. Open supply valve on trap outlet side, slowly open the supply valve to the trap inlet.
4. Check for leaks and normal operation.

Parts Ordering

When corresponding with your local Sales Office about High Capacity Steam Trap, always reference the size, service and serial number.

***Table 1**. FTH Series Torque Values for Bolt Covers*

TYPE	TORQUE	
	Ft-lbs	N•m
FTH-C2H9A and FTH-C2H9M	15	20.3
FTH-C5H9A and FTH-C5H9M	53	71.9
FTH-C5J9A and FTH-C5J9M	53	71.9

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