



EMERSON Max-Flo Series Spence Max-Flo Series High Capacity Steam Traps Instruction Manual

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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.

Max-Flo Series steam trap must be installed, operated, and maintained in accordance with federal, state, and local codes, rules and regulations, and Emerson instructions.

If a 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 Max-Flo Series steam trap.

Introduction

Scope of the Manual

This manual provides instructions for installation, maintenance, and parts ordering for the Max-Flo Series.

Product Description

Max-Flo Series are float and thermostatic steam traps. Float actuates the valve via a hinged lever and linkage. The air vent is a balanced-pressure design with stainless steel welded encapsulated bellows capable of discharging air and non-condensable gases continuously for heavy load process. The trap is cast iron bodied suitable for pressures of 175 psi / 12.1 bar with an NPT connection.



Figure 1. Max-Flo Series Steam Trap

Principle of Operation

On startup, air and non-condensable 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, and discharging the condensate. Condensate will continue to be discharged at the same rate at which it is entering. Any air or non-condensable 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 escape steam or burst 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 on this page provides the ratings and other specifications for the Max-Flo Series.

Available Configurations Type HC-15: Steam pressures to 15 PSIG / 1.03 barg Type HC-30: Steam pressures to 30 PSIG / 2.07 barg Type HC-75: Steam pressures to 75 PSIG / 5.17 barg Type HC-125: Steam pressures to 125 PSIG / 8.62 barg Type HC-175: Steam pressures to 175 PSIG / 12.1 barg Maximum Operating Pressure (1) 175 psig / 12.1 barg Maximum Allowable Pressure (1) 175 psig / 12.1 barg Maximum Operating Temperature (1) Saturated at pressure	Maximum Allowable Temperature (1) 377°F / 192°C Materials of Construction Body and Cover: Cast iron Valve, Pin, and Seat: Hardened Stainless steel Float: Stainless steel Lever Assembly: Stainless steel Thermostatic Air Vent: Stainless steel cage and Thermal element Cover Bolts: Grade 5 Baffle: Stainless steel (NPS 2-1/2 / DN 65 units only)
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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 a pressure-relieving or pressure-limiting device.

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

- Determine where to install the trap, based on the following requirements:
 - The trap must be located as closely as possible, and below the equipment to be drained.
 - The trap must be in a straight run of horizontal pipe as shown in Figure 2, and pitched to allow condensate to flow into the trap inlet, and away from the trap outlet.
 - 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.
- Install a Y-strainer with a Blowdown valve in a pipe, ahead of the steam trap. This prevents dirt from entering the trap.
- Install union fittings and a shutoff valve in the inlet pipe and outlet pipe. This allows the trap to be isolated when servicing.
- Install a test valve in the outlet pipe, and cap it. This allows the trap to be tested. Cap is used as a safety precaution when the unit is not being tested.
- Blowdown piping using full steam pressure for five minutes. This cleaning process will remove debris from pipes and oil from the system.

Maintenance



WARNING

To avoid personal injury, property damage, or equipment damage caused by the sudden release of pressure or the 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 Max-Flo Series Float and Thermostatic Traps will provide optimum performance.

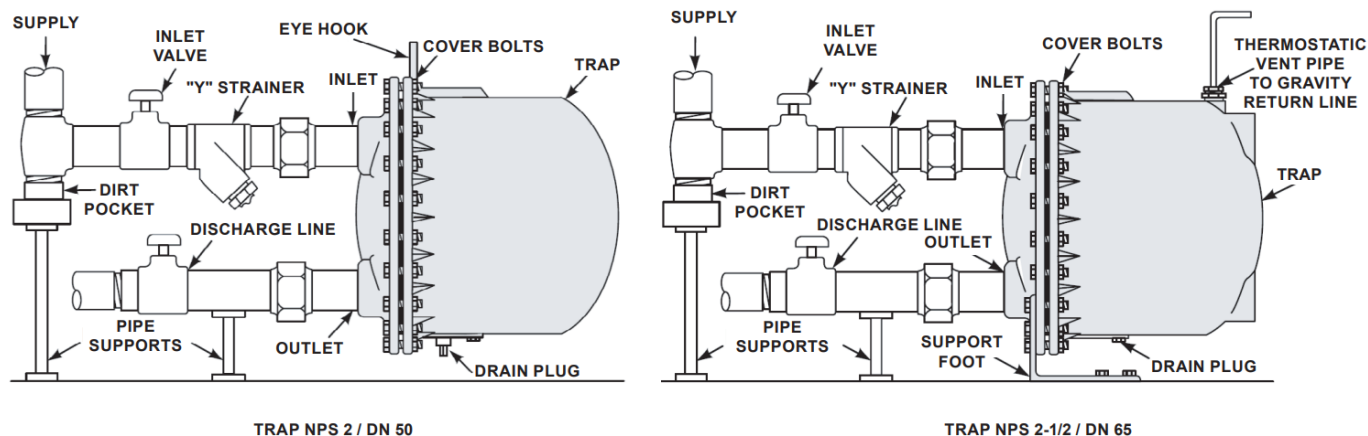


Figure 2. Max-Flo Series Steam Trap Typical Installation

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 them if necessary.

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" procedures before addressing any joint leaks.
2. Clean strainers by opening the blow-down valve and allowing full steam pressure to flow out for a couple of minutes. Then, close the valve.

Removal from Service

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

Repair

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

Table 1. HC Series – "Max-Flo" Super High Capacity F&T Steam Trap Parts

PART	MODEL	P/N
Thermostat	All Models	WAL5891200
Lever and Valve Kit (Includes float lever, mounting pin and yoke, valve pin, and seat)	NPS 2 / DN 50, HC-15 L&V	WAL5818101
	NPS 2-1/2 / DN 65, HC-15 L&V	WAL5819101
	NPS 2 / DN 50, HC-30 L&V	WAL5818102
	NPS 2-1/2 / DN 65, HC-30 L&V	WAL5819102
	NPS 2 / DN 50, HC-75 L&V	WAL5818103
	NPS 2-1/2 / DN 65, HC-75 L&V	WAL5819103
	NPS 2 / DN 50, HC-125 L&V	WAL5818104
	NPS 2-1/2 / DN 65, HC-125 L&V	WAL5819104
	NPS 1-1/4 / DN 32, HC-175 L&V	WAL5817105
	NPS 1-1/2 / DN 40, HC-175 L&V	WAL5817105
	NPS 2 / DN 50, HC-175 L&V	WAL5818105
	NPS 2-1/2 / DN 65, HC-15 L&V	WAL5819105
PART	MODEL	P/N
Float Ball Kit (Includes float ball, mounting screw, and washer)	NPS 1-1/4 / DN 32, HC-FLO	WAL5817201
	NPS 1-1/2 / DN 40, HC-FLO	WAL5817201
	NPS 2 / DN 50, HC-FLO	WAL5818201
	NPS 2-1/2 / DN 65, HC-FLO	WAL5819201
Cover Gasket	NPS 1-1/4 / DN 32, HC-CG	WAL5817301
	NPS 1-1/2 / DN 40, HC-CG	WAL5817301
	NPS 2 / DN 50, HC-CGF	WAL5818301
	NPS 2-1/2 / DN 65, HC-CG	WAL5819301
Cover Casting	NPS 2 / DN 50, HC-CC	WAL5818401
	NPS 2-1/2 / DN 65, HC-CC	WAL5819401
Service Kito)	NPS 1-1/4 / DN 32, HC-KIT	WAL5816501
	NPS 1-1/2 / DN 40, HC-KIT	WAL5817501
1. Includes thermostatic element, lever and valve kit, float ball kit, cover, and cover gasket.		

Return to Service

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

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Parts Ordering

When corresponding with your local Sales Office about Max-Flo Series, always reference the assembly number, see Table 1.

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Documents / Resources

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