DS200 Series Thermostatic Steam Traps

⚠ 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.

The DS200 Series steam trap must be installed, operated and maintained in accordance with federal, state and local codes, rules and regulations and Emerson Process Management Regulator Technologies, Inc. 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 DS200 Series steam trap.

Figure 1. *DS200 Series Thermostatic Steam Trap*

Introduction

Scope of the Manual

This manual provides instructions for operation, installation and parts ordering for the DS200 Series

Product Description

A steam trap is an automatic valve which discharges condensate, undesirable air and non-condensibles from a system while trapping, or holding in, steam. Thermostatic steam traps operate in direct response to the temperature within the trap.

The DS200 Series thermostatic steam trap is balanced pressure design with Stainless steel welded bellows capable of releasing condensate within 10°F / 5°C of saturated pressure. Traps are self draining and normally open. It has SLR orifice where drainage at saturated temperatures is required. All components are 316 or 316L Stainless steel.

Specifications

The Specifications section gives some general specifications for the DS200 Series thermostatic steam traps. The nameplates give detailed information for a specific steam trap as built in the factory.

Available Configurations
Type DS202: Low capacity
Type DS203: Medium capacity
Type DS204: High capacity

Body Sizes
NPS 1/2, 3/4 and 1 / DN 15, 20 and 25

End Connection Styles
NPT or Socketweld

Maximum Operating Temperature[1]
388°F / 198°C

Maximum Operating Pressure[1]
100 psig / 6.9 bar

Maximum Allowable Temperature[1]
366°F / 186°C

Maximum Allowable Pressure[1]
150 psig / 10.3 bar

Construction Materials
Body: Stainless steel
Welded Actuator: 316L Fittings and Plates
Valve and Seat: 316L Stainless steel

Option
SLR Orifice[2]

Applications
Platen Presses
Plating Tanks
Sterilizers
Tire Presses
Cooking Equipment
Laundry Equipment
Other Process Equipment

Approximate Weights
1.1 to 1.6 lbs / 0.5 to 0.73 kg

1. The pressure/temperature limits in this Instruction Manual and any applicable standard or code limitation should not be exceeded.
2. Specify when immediate elimination of condensate and improved sensitivity is desired. A 1/32 in. / 0.79 mm orifice at the apex of the valve allows for continuous discharge of condensate. Trap will nominally pass 50 lbs/hr / 22.7 kg/hr of condensate at 50 psi / 3.45 bar within 2°F / 0.5°C of saturated temperature.

Principle of Operation

Thermal actuator is filled at its free length with a liquid having a lower boiling point than water. As assembled, valve is normally open. On start-up, air passes through vent. As air is eliminated, hot steam reaches vent and the thermal actuator fill vaporizes to a pressure higher than line pressure. This forces valve into seat orifice to prevent any further flow. As more air collects, it takes heat from the actuator, lowering internal pressure. Line pressure will then compress thermal actuator to open valve and discharge air. Valve lift automatically adjusts to variations.

Installation

⚠ WARNING

Personal injury or system damage may result if this steam trap is installed, without appropriate overpressure protection, where service conditions could exceed the limits given in the Specifications section and/or steam trap nameplate.

Additionally, physical damage to the steam trap may result in personal injury or property damage due to escaping of accumulated gas. To avoid such injury and damage, install the steam trap in a safe location.

All pressure equipment should be installed in a non-seismic area; should not be exposed to fire; and should be protected from thunderbolt (lightning) strikes.

1. Before installing trap, blow all dirt and scale from apparatus and piping.
2. Install trap with arrow on body in flow line as close as possible to apparatus with strainer and valve upstream of trap.
3. Pitch all drain lines toward trap.

Note

Approved practice is to install separate traps on each piece of apparatus to be drained. Steam supplied to inlets of several units may be of uniform pressure, but invariably there is a differential at the outlets. Although this differential may be small, unit discharging highest pressure will control the action of trap, while other units become air-bound and water logged. Piping upstream and downstream of trap should be at least equal to or one size larger than trap connection.

4. Record the location of the trap for maintenance accessibility.

Maintenance

The DS200 Series thermostatic steam traps are sealed units making it maintenance free. It is composed of corrosion resistant stainless steel components with welded construction to prevent damage to actuator. No bolts, gaskets or adjustments are necessary.

Parts Ordering

When corresponding with your local Sales Office about DS200 Series, always reference the assembly number.

Parts List

Key	Description	Part Number
1	Body	
	Threaded	
	1/2 NPT	WAL423752
	3/4 NPT	WAL423753
	1 NPT	WAL423754
	Socketweld	
	1/2 SWE	WAL423756
	3/4 SWE	WAL423757
	1 SWE	WAL423754
2	Inlet connection	
	Threaded	
	1/2 NPT	WAL422730
	3/4 NPT	WAL422740
	1 NPT	WAL422721
	Socketweld	
	1/2 SWE	WAL422774
	3/4 SWE	WAL422834
	1 SWE	WAL422721
3	Seat	
	Low Capacity, 1/8 in. / 3.18 mm	
	Standard	WAL423235
	SLR	ERAA52422A0
	Medium Capacity, 1/4 in. / 6.35 mm	
	Standard	WAL423242
	SLR	ERAA52423A0
	High Capacity, 5/16 in. / 7.94 mm	
	Standard	WAL423243
	SLR	ERAA52424A0
4	Seat Gasket	WAL0005599
	Low Capacity, 1/8 in. / 3.18 mm	
	Standard	WAL0005599
	SLR	WAL0005599
	Medium Capacity, 1/4 in. / 6.35 mm	
	Standard	WAL0005599
	SLR	WAL0005599
	High Capacity, 5/16 in. / 7.94 mm	
	Standard	WAL0005599
	SLR	WAL0005599
5	Bellows	WAL0015513
6	Actuator Plate	WAL422707
7	Actuator Nut	WAL422718
8	Nameplate	WAL0028176
9	Outlet connection	
	1 NPT	WAL422722
	1 SWE	WAL422722

SpenceValve.com

Emerson Automation Solutions

Americas
McKinney, Texas 75070 USA
T +1 800 558 5853
+1 972 548 3574

Europe
Bologna 40013, Italy
T +39 051 419 0611

Asia Pacific
Singapore 128461, Singapore
T +65 6777 8211

Middle East and Africa
Dubai, United Arab Emirates
T +971 4 811 8100

SPENCE™