Spence N125 Series Thermostatic Steam Traps

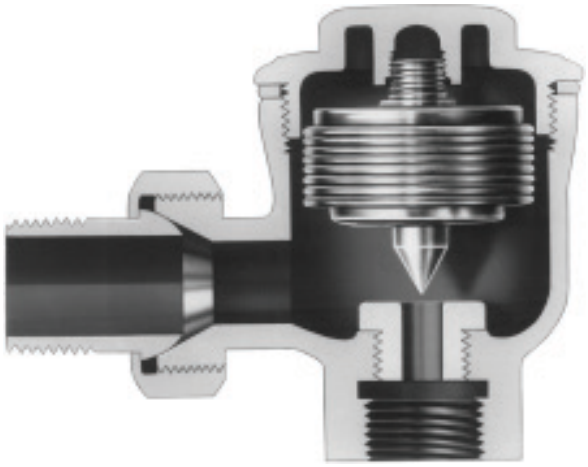

Figure 1. *N125 Series Thermostatic Steam Traps*

Features

- **Superior Performance -** Hardened valve and seats are lapped in matched sets, providing tight shutoff and long service life.
- **Improved Energy Savings -** Maximum elimination of air and non-condensibles - trap is closed at saturated steam temperature.
- **Temperature Sensitive Actuators -** One moving part. Stainless Steel, fail open or fail closed, welded actuator for maximum corrosion, thermal and hydraulic shock resistance.
- **Freeze Proof -** Threaded male union horizontal inlet and vertical outlet-self draining.
- **In-line Maintenance -** Threaded cover for one step removal, inspection and service without breaking pipe connections.
- **Air Vent -** Efficient steam service air vent when equipped with ISO Bellows and installed in air vent location.

Introduction

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.

N125 Series steam trap is a balanced pressure design with stainless steel welded actuator capable of discharging condensate within 10°F / -12°C of saturated temperature.

For greater sensitivity, SLR orifice and sterilizer trim are available to allow condensate evacuation at or near saturated temperatures. If subcooling of condensate is desired, alternate thermostatic actuator is available to allow condensate evacuation at or near 40°F/ 4.4°C below saturated temperatures.

Thermostatic actuator has a conical valve lapped in matched sets with the seat ring assuring tight shut off. A minimum of three orifice sizes is available allowing for custom capacity sizing. Trap is bronze-bodied suitable for pressures through 125 psig / 8.62 bar and available in NPS 3/8 to 3/4 / DN 10 to 20 connections.

Specifications

This section lists the specifications for the N125 Series. Factory specifications are stamped on the nameplate fastened on the steam trap at the factory.

Available Configuration[1]

Type N125: Standard capacity
Type N125L: Low capacity
Type N125HC: High capacity
Type N125ST-FC: Standard capacity with sterilizer seat
Type N125STHC-FC: High capacity with sterilizer seat

Body Size

NPS 3/8, 1/2 and 3/4 / DN 10, 15 and 20

Maximum Operating Pressure[2]

125 psig / 8.75 bar g

Maximum Allowable Pressure[2]

125 psig / 8.75 bar g

Maximum Operating Temperature[2]

400°F / 204°C

Maximum Allowable Temperature[2]

400°F / 204°C

Capacity Information

See Table 1

Materials of Construction

Body and Cover: Brass
Actuator: Welded Stainless Steel
Cover Gasket: Copper Jacketed
Valve and Seat: Hardened 416 Stainless Steel

Applications

Steam Tracing
Drip Legs
Automatic Air Vents
Sterilizers
Cooking Kettles
Water Heaters
Laundry Equipment
Radiators
Process Equipment
Air Handlers

Options

ST: Sterilizer Trim (1/4 and 5/16-inch orifice sizes)
SLR: SLR Orifice
S: Internal Stainless Strainer
ISO: ISO Filled Actuator
HC: High Capacity

Approximate Weight

See Table 2

1. Add (-FC) for fail closed or (-FO) for fail open to end of model number
2. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.

Principle of Operation

Thermal actuator is filled at its free length with a liquid having a lower boiling point than water. On start-up, valve is normally open. When steam enters trap, thermal actuator fill vaporizes to a pressure higher than line pressure. This forces valve into seat orifice to prevent any further flow. As condensate collects, it takes heat from thermal actuator, lowering internal pressure. Line pressure will then compress thermal actuator to open valve and discharge condensate. Valve opening automatically adjusts to load conditions from minimum on very light loads to full lift at maximum load. Restricted orifice in Type N125L (small opening at bottom of valve seat) prevents trap from discharging continuously on light loads.

Table 1. *Maximum Capacity - lbs/hr 10°F Below Saturation / Kg/hr 5°C Below Saturation*

TYPE	ORIFICE		DIFFERENTIAL, psig / barg											
			5 / 0.34		10 / 0.7		20 / 1.4		50 / 3.5		100 / 6.9		125 / 8.6	
	In.	mm	Lbs/hr	Kg/hr	Lbs/hr	Kg/hr	Lbs/hr	Kg/hr	Lbs/hr	Kg/hr	Lbs/hr	Kg/hr	Lbs/hr	Kg/hr
N125L	1/8	3	216	98	265	120	375	170	592	269	778	354	838	383
N125 N125ST	1/4	6	550	249	825	374	1210	549	1975	896	2825	1281	3140	1424
N125HC N125STHC	5/16	8	860	390	1220	554	1725	783	2725	1237	3575	1623	3850	1748
Emerson recommends ISO filled Actuator for superheated steam.														

Installation

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.

Capacity Information

Capacity information for every Type of N125 Series is shown in Table 1.

Ordering Information

When ordering, complete the ordering guide on this page. Refer to the Specifications section on page 2.

Review the description to the right of each specification and the information in each referenced table or figure. Specify your choice whenever a selection is offered.

Ordering Guide

Type (Select One)
- ☐ Type N125
- ☐ Type N125L
- ☐ Type N125HC
- ☐ Type N125ST-FC
- ☐ Type N125STHC-FC

Body Size (Select One)
- ☐ NPS 3/8 / DN 10
- ☐ NPS 1/2 / DN 15
- ☐ NPS 3/4 / DN 20

Options (Select One)
- ☐ ST - Sterilizer Trim
- ☐ SLR - SLR Orifice
- ☐ S - Internal Stainless Strainer
- ☐ ISO - ISO Filled Actuator
- ☐ HC - High Capacity

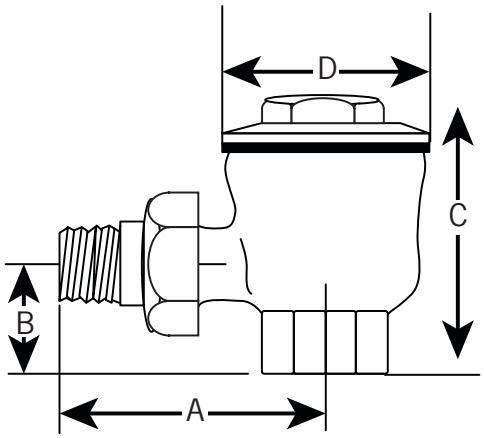

Figure 2. *N125 Series Dimension*

Table 2. *N125 Series Dimension*

BODY SIZE	A		B		C		D		WEIGHT	
	In.	mm	In.	mm	In.	mm	In.	mm	Lb	kg
NPS 3/8 and 1/2 / DN 10 and 15	2-3/4	70	1-1/8	29	2-7/8	73	2-5/32	54	1.5	0.68
NPS 3/4 / DN 20	3-3/16	81	1-9/16	40	3	76	2-5/32	54	1.8	0.82

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