Spence™ Liquidator UMT450 Series Thermostatic Steam Traps

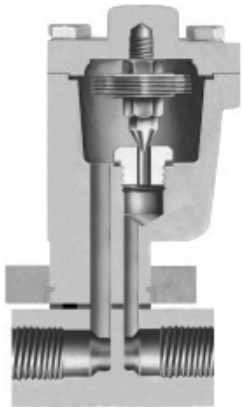


Figure 1. *UMT450 SeriesThermostatic Steam Traps*

Features

- **Easily Maintained –** Universal two bolt swivel mounting simplifies removal from system. Kits allow flexibility to replace or rebuild. Can be inspected and serviced without breaking pipe connections.
- **Simple Installation –** Stainless mounting block mounts permanently into system. Trap installs via two bolt universal connection.
- **Improved Energy Savings –** High efficiency-maximum elimination of air and non-condensibles.
- **Temperature Sensitive Actuators –** One moving part. Stainless steel, fail open, welded actuator for maximum corrosion, thermal and hydraulic shock resistance.
- **Hardened Stainless Steel Valve and Seat –** Long life. Lapped as a matched set for water-tight seal.
- **Freeze Proof –** Self draining when installed vertically.
- **For Superheated Steam Applications –** Because the trap closes at saturated steam temperature, superheated steam cannot reach trap.
- **Air Vent –** Efficient steam service air vent when equipped with ISO filled Actuator and installed in air vent location.
- **Positive Shutoff and Long Life –** Integral Stainless steel Strainer helps prevent debris depositing on valve and seat.

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.

The UMT450 Series Steam Trap has two bolt universal swivel mount. Mounting block is stainless steel and available in NPS 1/2 to 1 / DN 15 to 25 in NPT or socketweld end connection.

It 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 two orifice sizes is available allowing for custom capacity sizing. Trap is stainless steel-bodied suitable for pressures through 450 psig / 31 bar.

Specifications

This section lists the specifications for the UMT450 Series Steam Trap. Factory specifications are stamped on the nameplate fastened on the steam trap at the factory.

Available Configuration[1]

Type UMT451: Very Low Capacity Trap

Type UMT452: Low Capacity Trap

Type UMT453: Standard Capacity Trap

Type UMTC: Standard connector (NPS 1/2 and 3/4 / DN 15 and 20 only)

Type UMTCY-RH: Right Hand Connector with Y strainer[2]

Type UMTCY-LH: Left Hand Connector with Y strainer[2]

Type UMTVS-BB: Connector with Isolation Valves, Strainer, Blowdown Valve and Test Port

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

End Connection
NPT and Socket Weld

Maximum Operating Pressure[3]
450 psig / 31 bar g

Maximum Allowable Pressure[3]
450 psig / 31 bar g

Maximum Operating Temperature[3]
600°F / 316°C

Maximum Allowable Temperature[3]
750°F / 399°C

Capacity Information
See Table 1

Materials of Construction

Body, Cover, Strainer and Mounting Block: Stainless steel
Cover Gasket: Stainless steel with graphite fill
Actuator: Welded Stainless steel
Valve and Seat: Hardened 416 Stainless Steel

Applications
Unit Heaters
Steam Tracing
Drip Legs
Tire Presses
Cooking Equipment
Laundry Equipment
Plating Tanks
Platen Presses
Air Vents

Options
SLR: SLR Orifice[4]
ISO: ISO Filled Actuator[4]
SW: Socketweld
B: Blowdown Valve

Approximate Weight
Trap: 3.2 lbs / 1.4 kg
Standard Mounting Block: 1.1 lbs / 0.5 kg
Y Strainer Mounting Block: 2.3 lbs / 1.0 kg

1. For complete unit, order trap and connector as separate items.
2. Add (-B) for Blowdown Valve.
3. The pressure/temperature limits in this Bulletin and any applicable standard or code limitation should not be exceeded.
4. Not available on Type UMT451T.

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 UMT451T seat (small opening at bottom of valve seat) prevents trap from discharging continuously on light loads such as are encountered on tracer lines.

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.

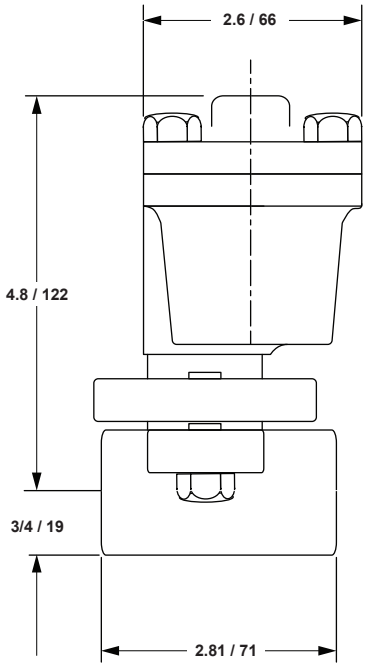
Note

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.

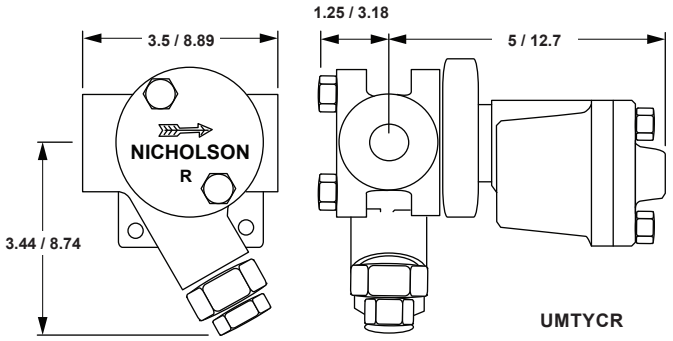
4. Record the location of the trap for maintenance accessibility.

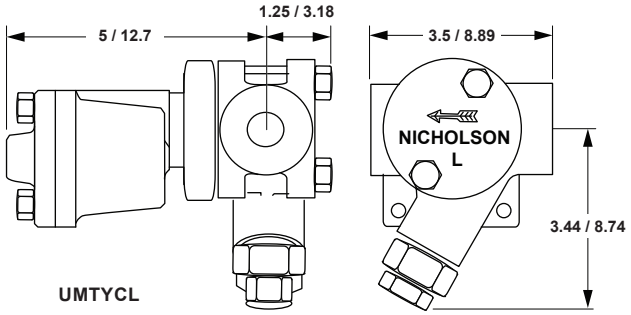
Capacity Information

Capacity information for every Type of UMT450 Series is shown in Table 1.



UMT SERIES TRAP AND UMTC CONNECTOR





IN. / mm

Figure 2. *UMT450 Series Dimensions*

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

TYPE	ORIFICE, IN. / mm	DIFFERENTIAL PRESSURE, psig / barg												
		5 / 0.34	10 / 0.7	20 / 1.4	50 / 3.4	100 / 6.7	125 / 8.4	150 / 10.1	200 / 13.4	250 / 16.8	300 / 20.1[1]	350 / 24.1	400 / 27.6	450 / 31.0
		lbs/hr / kg/hr												
UMT451T	5/64 / 2	84 / 38	119 / 54	168 / 76	265 / 120	348 / 158	375 / 170	398 / 181	439 / 199	472 / 214	502 / 228	529 / 240	553 / 251	575 / 261
UMT452T	1/8 / 3	216 / 98	265 / 120	375 / 170	592 / 269	778 / 354	838 / 381	890 / 405	980 / 445	1055 / 480	1121 / 510	1180 / 536	1235 / 561	1284 / 584
UMT453T	1/4 / 6	550 / 249	825 / 374	1210 / 549	1975 / 896	2825 / 1281	3140 / 1424	3425 / 1554	3650 / 1656	3960 / 1796	4100 / 1860	4230 / 1919	4420 / 2005	4600 / 2086

1. ISO filled Actuator recommended for superheated steam.

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 UMT451
☐ Type UMT452
☐ Type UMT453
☐ Type UMTC
☐ Type UMTCY-RH
☐ Type UMTCY-LH
☐ Type UMTVS-BB

Body Size (Select One)
☐ NPS 1/2 / DN 15
☐ NPS 3/4 / DN 20
☐ NPS 1 / DN 25

End Connection (Select One)
☐ NPT
☐ Socket Weld

Options (Select One)
☐ SLR - SLR Orifice(1)
☐ ISO - ISO Filled Actuator(1)
☐ SW - Socketweld
☐ B - Blowdown Valve

1. Not available on Type UMT451T.

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