

UMT450 AND UMTC SERIES UNIVERSAL MOUNT THERMOSTATIC STEAM TRAPS

Pressures to 450 PSIG (31 barg)
Temperatures to 600°F (316°C)

Easily Maintained - Universal two bolt swivel mounting simplifies removal from system. Kits allow flexibility to replace or rebuild.

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.

Applications

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

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.



THERMOSTATIC
STEAM TRAPS

Options

- SLR - SLR Orifice*
- ISO - ISO Filled Actuator*
- SW - Socketweld
- B - Blowdown Valve

*Not available on UMT451T

MODELS

- **UMT451**—Very Low Capacity Trap
- **UMT452**—Low Capacity Trap
- **UMT453**—Standard Capacity Trap
- **UMTC**—Standard connector (1/2" & 3/4" only)
- **UMTCY-RH**—Right Hand Connector w/Y strainer*
- **UMTCY-LH**—Left Hand Connector w/Y strainer*
- **UMTVS-BB**—Connector with Isolation Valves, Strainer, Blowdown Valve and Test Port

For complete unit, order trap and connector as separate items.

*Add (-B) for Blowdown Valve.

Canadian Registration # OE20210.52

For information on Big Block UMTVS-BB Connector
SEE PAGE 110

UMT450 AND UMTC SERIES

UNIVERSAL MOUNT

THERMOSTATIC STEAM TRAPS

SPECIFICATION

Steam trap shall be of balanced pressure design with stainless steel welded actuator capable of discharging condensate within 10°F of saturated temperature. Where greater sensitivity is required, SLR orifice and Sterilizer trim will be available to allow condensate evacuation at or near saturated temperatures. Where sub cooling of condensate is desired alternate thermostatic actuator will be available to allow condensate evacuation at or near 40°F below saturated temperatures. Thermostatic actuator shall employ a conical valve lapped in matched sets with the seat ring assuring tight shut off. A minimum of two orifice sizes shall be available allowing for custom capacity sizing. Trap shall be stainless steel bodied suitable for pressures through 450 psig. Trap connection shall be two bolt universal swivel mount. Mounting block shall be stainless steel and available in 1/2" through 1" NPT or socket weld.

Maximum operating conditions

Traps with Welded Stainless Actuator

PMO: Max. Operating Pressure	450 psig	(31 barg)
TMO: Max. Operating Temperature	600°F	(316°C)

Traps with Welded Stainless Actuator, ISO

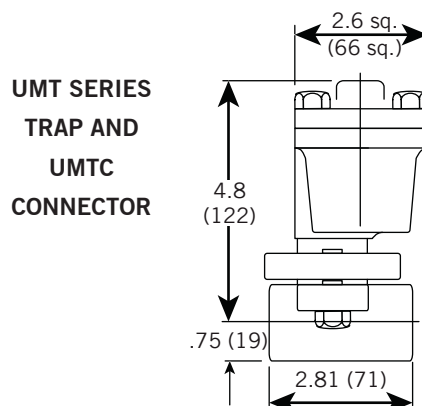
PMO: Max. Operating Pressure	450 psig	(31 barg)
TMO: Max. Operating Temperature	600°F	(316°C)

All Traps

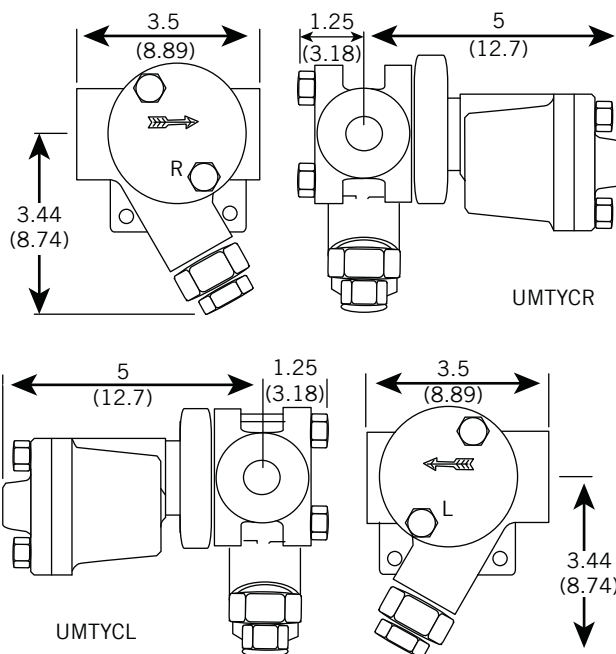
PMA: Max. Allowable Pressure	450 psig	(31 barg)
TMA: Max. Allowable Temperature	750°F	(399°C)

Materials of construction

Body & Cover	ASTM A351 Grade CF8 (304)
Cover Gasket	304 stainless spiral wound w/graphite fill
Actuator	Welded SS
Strainer	.033 perf. 304 Stainless Steel
Valve & Seat	Hardened 416 Stainless Steel
Mounting Block	ASTM A351 Grade CF8 (304)



Connections: 1/2", 3/4" or 1" NPT or socket weld



DIMENSIONS - INCHES (CM)
WEIGHT

TRAP - 3.2 LBS. (1.4 KG)

STD. MOUNTING BLOCK - 1.1 LBS. (0.5 KG)

Y STRAINER MOUNTING BLOCK - 2.3 LBS. (1.0 KG)

Maximum Capacity - lbs/hr 10°F Below Saturation (Kg/hr 5°C Below Saturation)														
Trap	Orifice Inch (mm)	Differential 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)	350 (24.1)	400 (27.6)	450 (31.0)
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)

ISO filled Actuator recommended for superheated steam.

November 2021

Spence Liquidator UMT-TD Series Thermodynamic Steam Trap



Figure 1. UMT-TD Series Thermodynamic Steam Trap

Introduction

The UMT-TD Series is a thermodynamic steam trap. The body is 304 stainless steel two bolt universal swivel construction with a stainless steel in line renewable Celtron® capsule. Celtron® capsule contains all working components and is hardened throughout. Seat is stress relieved to eliminate warping and trap is seal to body with spiral wound graphite gaskets. Trap is suitable for pressures through 450 psi / 31 bar and available in NPS 1/2 to 1 / DN 15 to 25 threaded or socketweld connections.

Features

- **Easily Maintained** - Universal two bolt swivel mounting simplifies removal from system. Kits allow flexibility to replace or rebuild.
- **Simple Installation** - Stainless mounting block mounts permanently into system. Trap installs via two bolt universal connection.
- **Improved Energy Savings** - Lowers steam waste due to steam jacketing. Trap cycle is unaffected by ambient temperatures or precipitation.

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Liquidator UMT-TD Series

Specifications

The specifications section on this page provides the ratings and other specifications for the UMT-TD Series.

Available Configurations⁽¹⁾

Type UMT-TD10L: Low capacity trap

Type UMT-TD10: Standard capacity trap

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

Type UMT-CY: Connector with Y-strainer

Type UMT-CYR: Right hand connector with Y-strainer

Type UMT-CYL: Left hand connector with Y-strainer

Type UMTVS-BB: Connector with isolation valves, strainer, blowdown valve and test port

Maximum Operating Pressure⁽²⁾

450 psig / 31 barg

Maximum Operating Temperature⁽²⁾

650°F / 343°C

Maximum Allowable Pressure⁽²⁾

450 psig / 31 barg

Maximum Operating Temperature⁽²⁾

650°F / 343°C

Maximum Capacity

See Table 1

Materials of Construction

Body and Cover: ASTM A351 Grade CF8

Cover Gasket: 304 Stainless spiral wound with graphite

Celtron® Cartridge: 416 Stainless steel with hardened disk and seat

Strainer: 304 Stainless steel

Mounting Block: ASTM A351 Grade CF8

Options

Socketweld Connections

Blowdown Valve

Approximate Weights

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

- **Extended Trap Life** - Integral strainer keeps disk and seat clean. Non-violent discharge reduces wear. Heavy disk prevents warpage and improves performance.
- **In-line Maintenance** - Completely renewable without disturbing piping connections by removing cover, unscrewing and replacing Celtron® cartridge. Celtron® replacement cartridges are packaged individually with cover and gaskets in a protective bag.
- **Freeze Proof** - When mounted vertically or on its side horizontally.
- **Economical** - First cost and maintenance cost are low.

Principle of Operation

Incoming air and condensate flow through the trap body and into the Celtron® cartridge. Line pressure raises the disk off the seat allowing complete discharge. When flashing condensate enters the cartridge, flow velocity increases, creating low pressure underneath the disk. Flashing condensate at high velocity strikes the inside wall of the disk chamber and is deflected to the top of the disk causing a pressure buildup. The disk is forced down onto the

seat by this pressure imbalance. The trap remains closed as steam in the jacket prevents exposure of the Celtron® cartridge to ambient temperatures. Pressure inside the cap is not lowered until the trapped flash vapor condenses. Condensing steam lowers the pressure above the disk. Disk is then lifted and the cycle repeated.

Installation

1. Before installing connector block and stream trap, blow all dirt and scale from the system.
2. Install connector block in flow line below apparatus to be drained with the directional flow arrow on connector block pointing downstream.

Note

Connector block may be installed horizontally or upright. An optional integral strainer and blow-down valve is available where a separate strainer is not installed before the connector block.

3. Pitch all drain lines toward the trap.
4. Install separate traps on each plane apparatus to be drained.

Liquidator UMT-TD Series

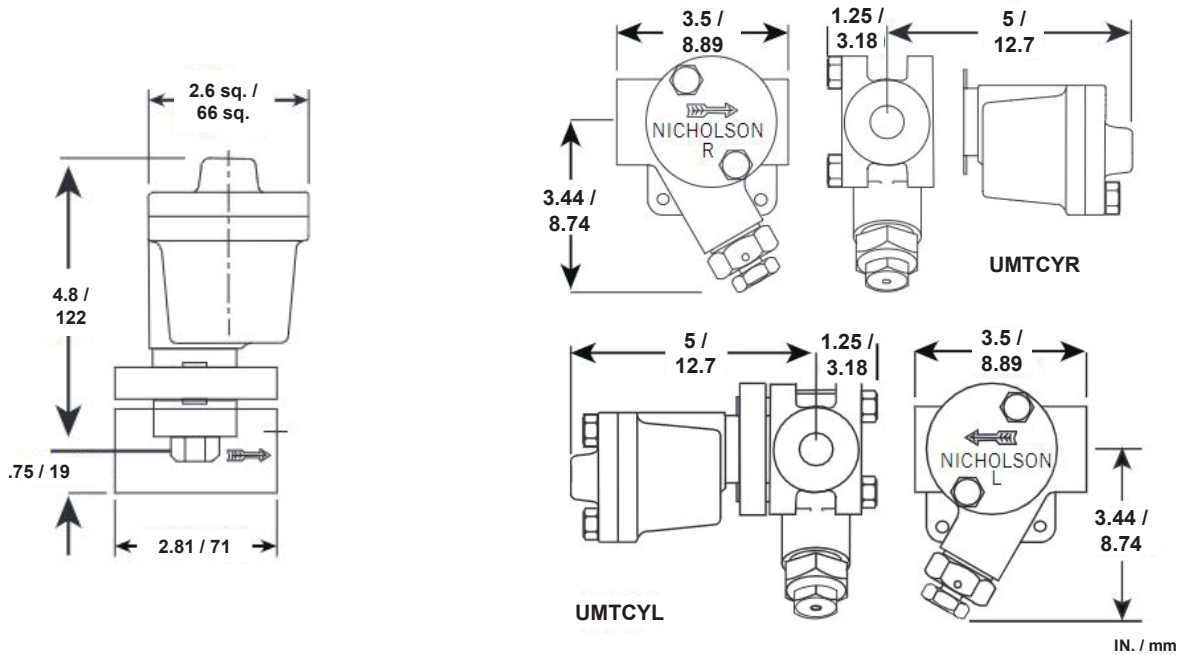


Figure 2. UMT-TD Series Dimension

Table 1. UMT-TD Series Maximum Capacity, lbs/hr / kg/hr (10°F / 12°C Below Saturation)

TRAP TYPE	DIFFERENTIAL PRESSURE																			
	5 psig / 0.34 barg		10 psig / 0.7 barg		25 psig / 1.7 barg		50 psig / 3.4 barg		75 psig / 5.2 barg		100 psig / 6.9 barg		200 psig / 13.7 barg		300 psig / 20.7 barg		400 psig / 27.6 barg		450 psig / 31 barg	
UMT- TD10L	105	48	150	68	235	107	330	150	395	179	435	197	550	249	630	286	690	313	715	324
UMT- TD10	240	109	265	120	420	191	590	268	700	318	770	349	980	445	1120	508	1240	562	1280	581

Note

Piping upstream and downstream of the trap should be at least equal to or one size larger than trap connection.

Trap may be installed in any configuration.

- Inspect the trap and ensure that inner and outer gaskets are in place on the connector.
- Place trap on connector block and evenly tighten two supplied connector bolts.
- Record the location of the trap for maintenance accessibility.

Capacity Information

The UMT-TD Series trap works efficiently at all line pressures between 5 to 450 psi / 0.35 to 31 bar and back pressures to 80% of line pressure.

Ordering Information

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

Available Configuration (Select One)

- ☐ Type UMT-TD10L
- ☐ Type UMT-TD10
- ☐ Type UMT-C
- ☐ Type UMT-CY
- ☐ Type UMT-CYR
- ☐ Type UMT-CYL
- ☐ Type UMTVS-BB

Options (Select One)

- ☐ Socketweld Connections
- ☐ Blowdown Valve

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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

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