

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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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 UMTC:** Standard connector (NPS 1/2 and 3/4 / DN 15 and 20 only)
- Type UMTCY:** Connector with Y-strainer
- Type UMTCYR:** Right hand connector with Y-strainer
- Type UMTCYL:** 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.

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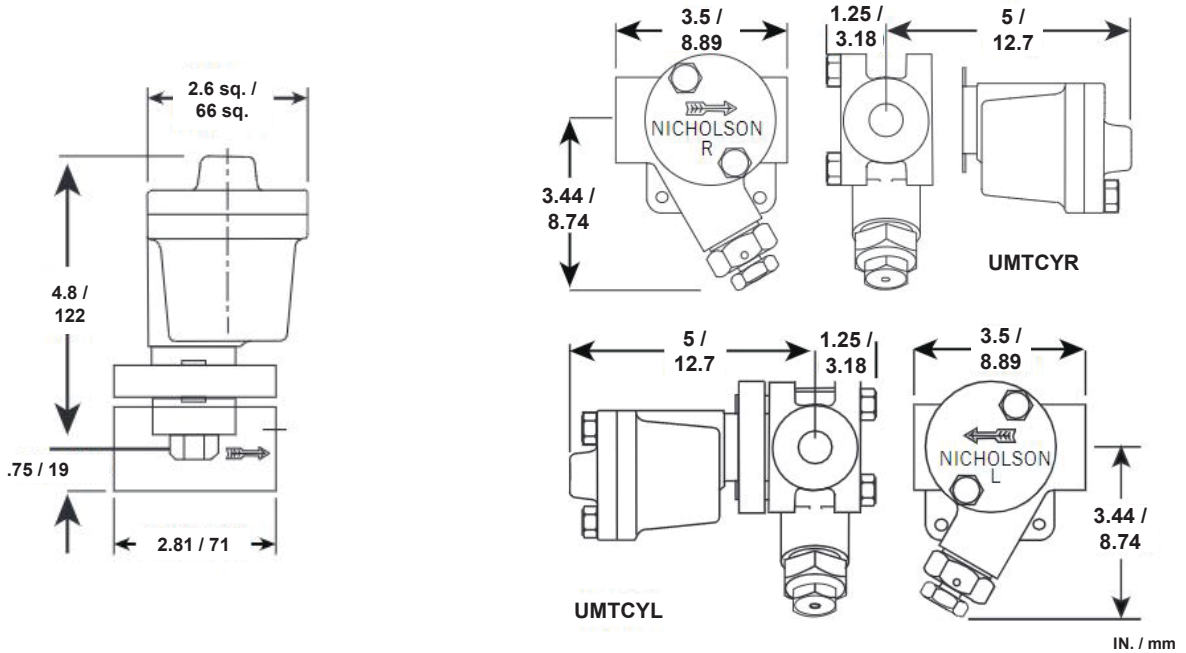


Figure 2. UMT-TD Series Dimension

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 UMTC
- Type UMTCY
- Type UMTCYR
- Type UMTCYL
- Type UMTVS-BB

Options (Select One)

- Socketweld Connections
- Blowdown Valve

Liquidator UMT-TD Series

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