



**NICHOLSON**  
STEAM TRAP

# N450 SERIES

THERMOSTATIC STEAM TRAPS

# N450 SERIES THERMOSTATIC STEAM TRAPS

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

**Compact** - Easy to Install.

**Inexpensive** - Low initial cost.

**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.

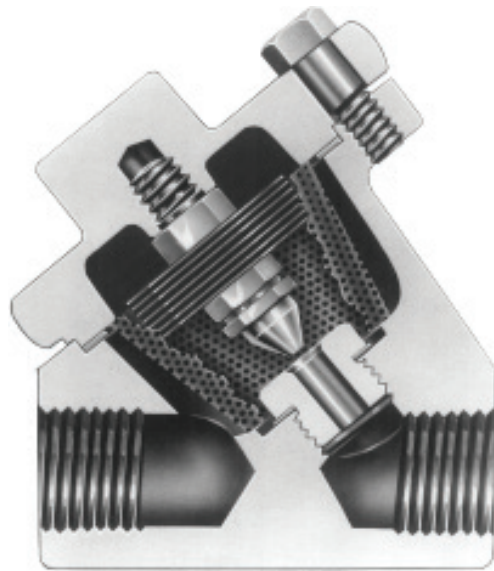
**Easily Maintained** - Can be inspected and serviced without breaking pipe connections.

**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.

**Guaranteed** - Guaranteed against defects in materials or workmanship for 3 years.



## MODELS \*

- N451-FO -Low capacity, fail open only
- N452 -Reduced capacity
- N453 -Standard capacity
- N454 -High capacity

\*Add (-FC) for fail closed or (-FO) for fail open to end of model number

## Options

- SK - Skirted Seat\*
- SLR - SLR Orifice
- ISO - ISO Filled Actuator\*
- ST - Sterilizer Trim
- SW - Socketweld

\*Not available on N451

## 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.

## Applications

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

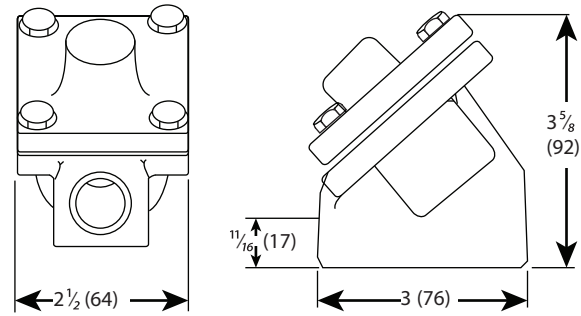
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Line pressure will then compress thermal actuator to open valve and discharge condensate. Valve opening automatically adjusts to load conditions from minimum on very light loads to full lift at maximum load. Restricted orifice in the N451 seat (small opening at bottom of valve seat) prevents trap from discharging continuously on light loads such as are encountered on tracer lines

# N450 SERIES 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 subcooling 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 three orifice sizes shall be available allowing for custom capacity sizing. Trap shall be forged carbon steel bodied suitable for pressures through 450 psig and available in 1/2" and 3/4" NPT or socket weld.



WEIGHT: 3 LBS. (1.4 KG)  
Connections: 1/2" or 3/4" NPT or socketweld

### Maximum operating conditions

PMO: Max. Operating Pressure	450 psig	(31 barg)
TMO: Max. Operating Temperature	600°F	(316°C)
PMA: Max. Allowable Pressure	450 psig	(31 barg)
TMA: Max. Allowable Temperature	750°F	(399°F)

† Consult factory for pressures greater than 300 psi.

### Materials of construction

Body	ASTM A105 Forged Steel
Cover	ASTM A351 Grade CF8 (304)
Cover Gasket	304 SS Spiral Wound w/Graphite Fill
Actuator	Welded Stainless Steel
Valve & Seat	Hardened 416 Stainless Steel

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)
N451	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)
N452	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)
N453	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)
N454	5/16 (8)	860 (390)	1220 (554)	1725 (783)	2725 (1237)	3575 (1623)	3850 (1748)	4090 (1857)	4505 (2045)	4850 (2202)	5155 (2340)	5425 (2463)	5675 (2576)	5900 (2679)

\* Nicholson recommends skirted seat above 300 PSIG (20.7 bar). Nicholson recommends ISO filled Actuator for superheated steam.

# LIQUIDATOR 450 SERIES THERMOSTATIC STEAM TRAP

Pressures To 450 PSIG  
Temperatures to 600°F

## Applications

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

**Easily Maintained**  
Four bolt cover permits easy in-line rebuilding for less than the cost of replacement.

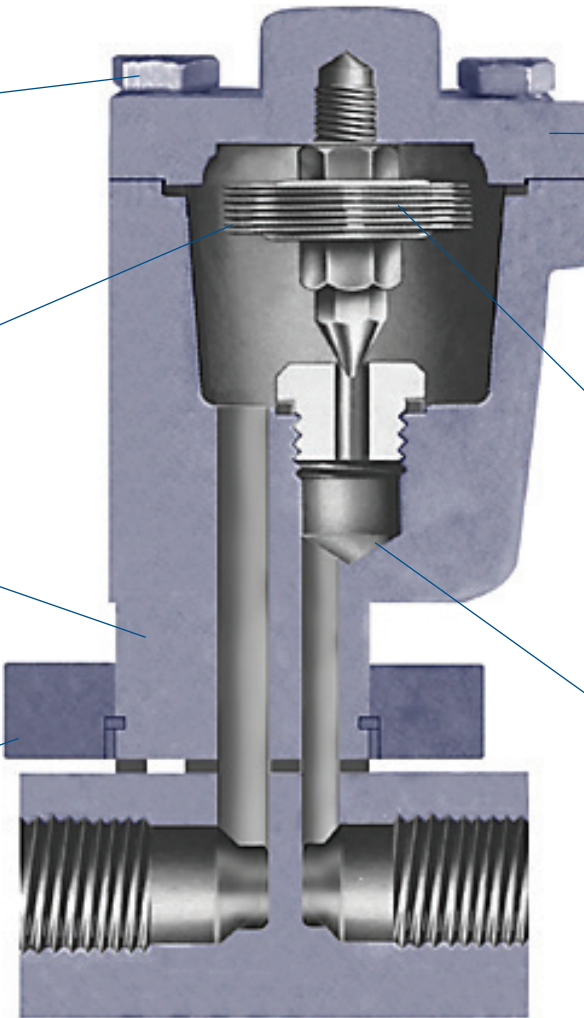
**Excellent Energy Savings**  
Positive shutoff and thermostatic action assure no loss of steam during normal operation.

**Fits all Universal Connectors**  
Liquidator body will replace any manufacturers' universal mount trap body.

**Easily Replaced**  
Two bolt design permits rapid removal without breaking pipe connections.

**Freeze Proof**  
Self draining when installed vertically.

**Optional Integral Strainer**  
Helps prevent dirt and scale build-up on valve seat.



**Durability and Long Service Life**  
Stainless steel body and cover with stainless steel welded actuator for maximum corrosion, thermal and hydraulic shock resistance.

**Rapid Startup with Outstanding Air Handling**  
Thermostatic action responds quickly to eliminate air and other non-condensibles. Large startup capacity.

**Water Tight Seal**  
Hardened stainless steel valve and seat lapped as a matched set assure tight seal and long life.

**3 Year Guarantee**  
Guaranteed against defects in material and workmanship.

# LIQUIDATOR 450 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

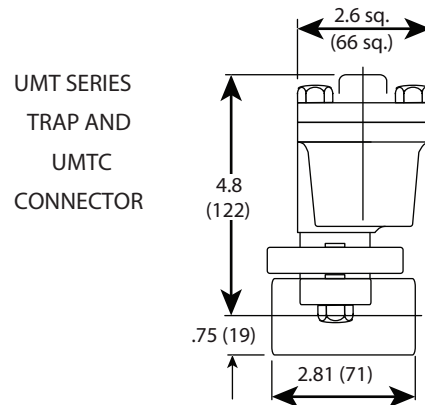
PMO: Max. Operating Pressure	450 psig	(31 barg)
TMO: Max. Operating Temperature	600°F	(316°C)

#### All Traps

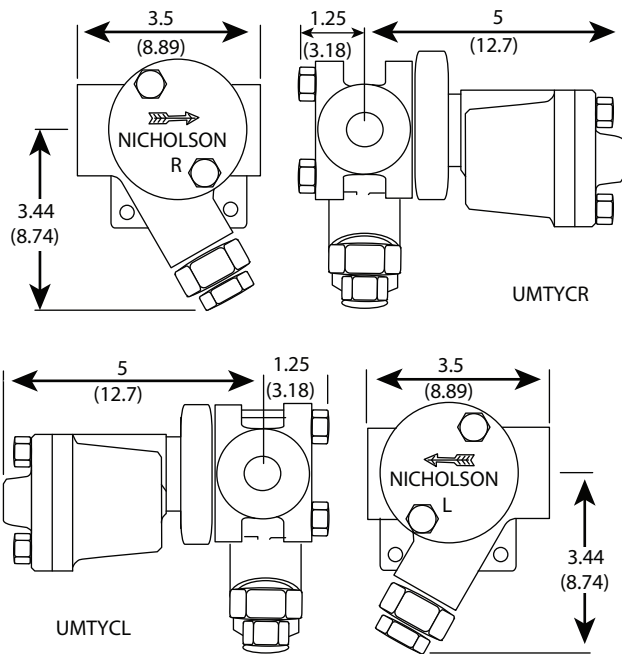
PMA: Max. Allowable Pressure	450 psig	(31 barg)
TMA: Max. Allowable Temperature	750°F	(399°C)

### 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 (MM)

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)	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.



SOLICITAR COTIZACIÓN



# N450 SERIES

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