YARWAY CT100 SERIES THERMOSTATIC STEAM TRAPS

Before installation, these instructions must be carefully read and understood.

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. CT100 Series thermostatic steam trap is balanced pressure design with Stainless steel welded bellows capable of releasing condensate within 10°F / 5°C of saturated pressure. Traps are self draining and normally open. It has SLR orifice where drainage at saturated temperatures is required. All components are 316 or 316L Stainless steel.

FEATURES

Self Centering Valve - Leak tight shut off. Assembly of actuator and valve to impingement plate allows valve to self-align with center of valve seat orifice. Provides long lasting valve and seat.
Temperature Sensitive Actuator - One moving part. Inconel® welded actuator for maximum corrosion, thermal and hydraulic shock resistance.
Thermal and Hydraulic Shock Resistant - Impingement plate plus welded construction prevents damage to actuator.
Valve and Seat - Long life, stainlesss teel valve and seat lapped and matched together for water tight seal.

SPECIFICATIONS

The Specifications section gives some general specifications for the CT100 Series thermostatic steam traps. The nameplates give detailed information for a specific steam trap as built in the factory.

Available Configurations:	
Type CT102:	Low Capacity
Type CT103:	Medium Capacity
Type CT104:	High Capacity
Body Size:	NPS 3/8, 1/2, 3/4 and 1 (DN 10, 15, 20 and 25)
End Connection Styles:	NPT or Socketweld
Maximum Operating Temperature[1]:	338°F (170°C)
Maximum Operating Pressure[1]:	100 psig (6.9 bar)
Maximum Allowable Temperature[1]:	366°F (186°C)
Maximum Operating Pressure[1]:	150 psig (10.3 barg)
Construction Materials:	
Body:	Stainless Steel
Welded Actuator:	316L Stainless Steel
Fittings and Plates	
Valve and Seat:	316L Stainless Steel
Option:	SLR Orifice[2]
Applications:	Platen Presses Plating Tanks Sterilizers Tire Presses Cooking Equipment Laundry Equipment Other Process Equipment
Approximate Weights:	1.1 to 1.6 lbs (0.5 to 0.73 kg)

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1. The pressure/temperature limits in this Datasheet and any applicable standard or code limitation should not be exceeded.
2. Specify when immediate elimination of condensate and improved sensitivity is desired. A 1/32 in. / 0.79 mm orifice at the apex of the valve allows for continuous discharge of condensate. Trap will nominally pass 50 lbs/hr / 22.7 kg/hr of condensate at 50 psi / 3.45 bar within 2°F / 0.5°C of saturated temperature.

PRINCIPLE OF OPERATION

Thermal actuator is filled at its free length with a liquid having a lower boiling point than water. As assembled, valve is normally open. On start-up, air passes through vent. As air is eliminated, hot steam reaches vent and the thermal actuator fill vaporizes to a pressure higher than line pressure. This forces valve into seat orifice to prevent any further flow. As more air collects, it takes heat from the actuator, lowering internal pressure. Line pressure will then compress thermal actuator to open valve and discharge air. Valve lift automatically adjusts to variations.

Maintenance - All models are sealed and maintenance-free.
Additional Features - Best air handling capability for fast start up and operation. Fastest response to condensate load or temperature changes. Broad application range. Selection of orifice and pipe sizes meet majority of condensate removal demands in deionized steam systems.
Unique SLR Orifice Option - Provides drainage at saturated temperatures, instant reaction to load changes and guaranteed fail-open operation for extra critical operations.

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.

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 Configurations (Select One)
- ☐ Type CT102 - Low Capacity
- ☐ Type CT103 - Medium Capacity
- ☐ Type CT104 - High Capacity

Body Sizes (Select One)
- ☐ NPS ⅜ (DN 10)
- ☐ NPS ½ (DN 15)
- ☐ NPS ¾ (DN 20)
- ☐ NPS 1 (DN 25)

End Connection (Select One)
- ☐ NPT
- ☐ SW

Options
- ☐ SLR Orifice

TABLE 1. MAXIMUM CAPACITY - LBS/HR AT 10°F BELOW SATURATION (KG/HR AT 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 (6.9)	125 (8.6)	150 (10.3)	200 (13.8)	250 (17.2)	300 (20.7)	350 (24.1)	400 (27.6)	450 (31.0)	500 (34.5)
		lbs/hr (kg/hr)													
CT102	⅛ (3)	216 (98)	265 (120)	375 (170)	592 (269)	778 (354)	838 (383)	890 (405)	980 (445)	1055 (480)	1121 (510)	1180 (536)	1235 (561)	1284 (584)	1323 (601)
CT203	¼ (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)	4760 (2161)
CT104	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)	6110 (2774)

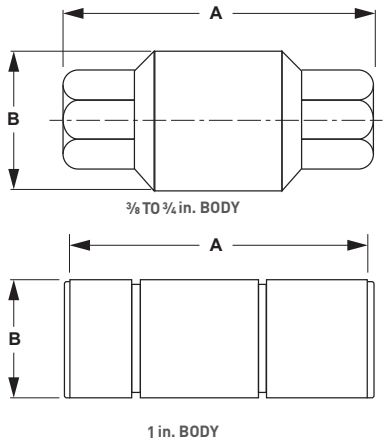

FIGURE 2. CT100 SERIES THERMOSTATIC STEAM TRAP DIMENSION

TABLE 2. CT100 SERIES DIMENSION

BODY SIZE	A		B		WEIGHT
	In.	mm	In.	mm	lbs (kg)
NPS ⅜ and ½ (DN 10 and 15)	3 ¾	95	1¾	44	1.1 (0.5)
NPS ¾ (DN 20)	3 15⁄16	100	1¾	44	1.2 (0.54)
NPS 1 (DN 25)	4 ⅜	111	1¾	44	1.6 (0.73)