

# BELIEVER "B" SERIES THERMOSTATIC STEAM TRAPS

**Pressures To 250 PSIG (17.2 barg)  
Temperatures to 450°F (232°C)**

**Freeze Proof** — When installed on side with cover perpendicular to ground.

**Renewable In-line** — Renew trap in-line with factory packaged precision matched internal parts, replacement kits.

**Compact** — Requires minimum space while providing condensate capacities equal to larger mechanical traps.

**Superior Performance** — Maximum air handling capability. Immediate response to changing pressure and condensate loads. No adjustment necessary.

**Sensitivity** — Increased when installed on side with cover perpendicular to ground.

**Temperature Sensitive Actuators** — One moving part, stainless steel, fail open or closed, welded actuator provides maximum corrosion, thermal and hydraulic shock resistance and sensitivity.

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

## MODELS

- **B33**—1/2" straight thru trap
- **B43**—3/4" straight thru trap
- **B53**—1" straight thru trap
- **B63**—1-1/4" straight thru trap
- **B73\***—1-1/2" straight thru trap
- **B83\***—2" straight thru trap

\*Add (-HC) to end of model number for high capacity.

## APPLICATIONS

- Unit Heaters
- Pipe Coils
- Blast Coils
- Steam Mains
- Dry Kilns
- Jacketed Kettles
- Hot Water Heaters
- Dryers (all types)
- Large Heat Exchangers

## OPTIONS *See page 9*

- SLR - SLR Orifice
- HC - High capacity orifice

Canadian Registration # 0E0591.9

## OPERATION

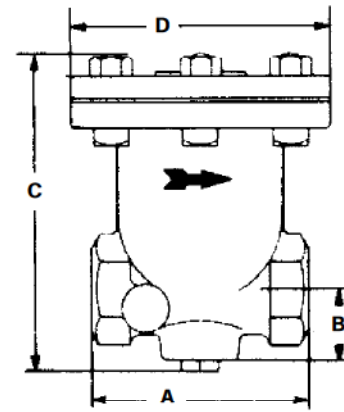
Thermal actuator is filled at its free length with a liquid having a lower boiling point than water. On start-up, valve is normally open. When steam enters trap, thermal actuator fill vaporizes to a pressure higher than line pressure. This forces valve into seat orifice to prevent any further flow.

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.

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## 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 or protection from flash steam locking, a SLR orifice will be available to allow condensate and flash steam evacuation at or near saturated temperatures. Thermostatic actuator shall employ a conical valve lapped in matched sets with the seat ring assuring tight shut off. Trap shall be cast iron or cast steel bodied suitable for pressures to 250 psig and available in 1/2" through 2" NPT.



**TYPE B**

Connections: 1/2"-2" NPT

### MAXIMUM OPERATING CONDITIONS

PMO: Max. Operating Pressure 250 psig (17.2 barg)  
TMO: Max. Operating Temperature 450°F (232°C)  
PMA: Max. Allowable Pressure 250 psig (17.2 barg)  
TMA: Max. Allowable Temperature 450°F (232°C)

### MATERIALS OF CONSTRUCTION

Body & Cover: .....Cast Iron ASTM A278 Class 30  
Actuator: .....Welded Stainless Steel  
Cover Gasket: .....Graphite  
Valve & Seat: .....Hardened 416 Stainless Steel

### Dimensions

Trap	Pipe Size inches	Inches (mm)				Weight lb (kg)
		A	B	C	D	
B33	1/2	3 <sup>7</sup> / <sub>8</sub> (98)	1 <sup>1</sup> / <sub>2</sub> (29)	5 <sup>7</sup> / <sub>8</sub> (149)	4 <sup>1</sup> / <sub>2</sub> (114)	7 (3.2)
B43	3/4	4 <sup>1</sup> / <sub>4</sub> (108)	1 <sup>3</sup> / <sub>8</sub> (35)	6 <sup>1</sup> / <sub>8</sub> (171)	5 <sup>5</sup> / <sub>8</sub> (129)	10.3 (4.7)
B53	1	5 <sup>1</sup> / <sub>2</sub> (140)	1 <sup>7</sup> / <sub>8</sub> (48)	7 <sup>1</sup> / <sub>8</sub> (195)	5 <sup>13</sup> / <sub>16</sub> (148)	15.6 (7.1)
B63	1 1/4	5 <sup>1</sup> / <sub>2</sub> (140)	1 <sup>7</sup> / <sub>8</sub> (48)	7 <sup>1</sup> / <sub>8</sub> (195)	5 <sup>13</sup> / <sub>16</sub> (148)	15.3 (7.0)
B73	1 1/2	7 <sup>1</sup> / <sub>8</sub> (184)	1 <sup>3</sup> / <sub>4</sub> (44)	9 <sup>1</sup> / <sub>8</sub> (230)	7 <sup>3</sup> / <sub>8</sub> (197)	33.6 (15.3)
B83	2	7 <sup>1</sup> / <sub>8</sub> (184)	1 <sup>3</sup> / <sub>4</sub> (44)	9 <sup>1</sup> / <sub>8</sub> (230)	7 <sup>3</sup> / <sub>8</sub> (197)	32.4 (14.7)

### Maximum Capacity—lbs/hr 10°F Below Saturation (Kg/hr 5°C Below Saturation)

Trap	Pipe Size Inch	Orifice Inch (mm)	Differential PSIG (barg)												
			1 (.07)	2 (.14)	5 (0.34)	10 (0.7)	20 (1.4)	50 (3.5)	100 (6.9)	125 (8.6)	150 (10.3)	175 (12.1)	200 (13.8)	225 (15.5)	250 (17.2)
B33	1/2	3/8 (10)	985 (448)	1390 (632)	2180 (991)	3070 (1395)	3735 (1698)	5040 (2291)	6645 (3070)	7315 (3325)	7560 (3436)	8045 (3657)	8200 (3727)	8615 (3916)	8915 (4052)
B43	3/4	7/16 (11)	1460 (664)	2055 (934)	3240 (1473)	4560 (2073)	5550 (2523)	7480 (3400)	9865 (4484)	10850 (4932)	11225 (5102)	11935 (5425)	12165 (5530)	12770 (5805)	13225 (6011)
B53, B63	1, 1 1/4	1/2 (12)	1825 (830)	2575 (1170)	4050 (1841)	5700 (2591)	6925 (3148)	9350 (4250)	12340 (5609)	13565 (6166)	14030 (6377)	14920 (6782)	15230 (6923)	15960 (7255)	16540 (7518)
B73, B83	1 1/2, 2	3/4 (19)	2760 (1255)	3890 (1768)	6120 (2782)	8610 (3914)	10470 (4759)	14125 (6420)	18660 (8482)	20520 (9327)	21235 (9652)	22580 (10264)	23015 (10461)	24190 (10995)	25055 (11389)
B73HC, B83HC	1 1/2, 2	1-1/4 (32)	3555 (1616)	5030 (2286)	7950 (3614)	11240 (5109)	15900 (7227)	25140 (11427)	33000 (15000)	—	—	—	—	—	—