

## CONQUEROR "C" SERIES THERMOSTATIC STEAM TRAPS

Pressures To 300 PSIG (21 barg)  
Temperatures to 500°F (260°C)

### 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 8*

- SLR - SLR Orifice
- Convuluted Bronze or Welded SS Actuator
- SW - Socketweld
- HC - High capacity orifice

Canadian Registration # 0E0591.9

**Freeze Proof** — When installed with horizontal inlet and vertical outlet.

**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.

**Actuator Construction** — Internal guide rod and tube for vibration resistance and positive valve and seat alignment.

**Temperature Sensitive Actuators** — One moving part. Bronze Convuluted Actuator provides maximum sensitivity and fail closed operation. Optional Stainless Steel, fail open, welded actuator for maximum corrosion, thermal and hydraulic shock resistance.

**Guaranteed** — Guaranteed against defects in materials or workmanship. Traps with Welded Actuator—3 Years. Traps with Convuluted Bronze Actuator—1 Year

### Models

- **C31**—1/2" angle pattern trap w/convuluted bronze actuator
- **C41**—3/4" angle pattern trap w/convuluted bronze actuator
- **C51**—1" angle pattern trap w/convuluted bronze actuator
- **C61**—1-1/4" angle pattern trap w/convuluted bronze actuator
- **C71**†—1-1/2" angle pattern trap w/convuluted bronze actuator
- **C81**†—2" angle pattern trap w/convuluted bronze actuator
- **C33**—Welded SS actuator on C31
- **C43**—Welded SS actuator on C41
- **C53**—Welded SS actuator on C51
- **C63**—Welded SS actuator on C61
- **C73**†—Welded SS actuator on C71
- **C83**†—Welded SS actuator on C81

\*CS models are the same as above in cast steel.

†Add "HC" to all the above for high capacity.

### Operating Principle

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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## Typical Specifications

Steam trap shall be of balanced pressure design with bronze convoluted actuator or 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.

## Maximum Operating Conditions

### Type C

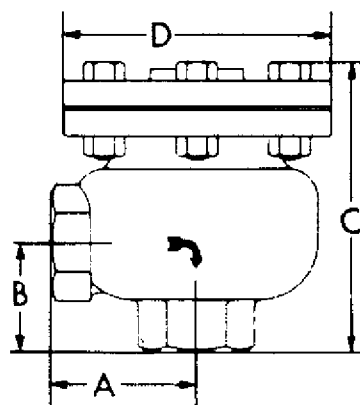
PMO: Max. Operating Pressure 250 psig (17.2 barg)  
TMO: Max. Operating Temperature 450°F (232°C)  
PMA: Max. Allowable Pressure 250 psig (17.2 barg)  
TMA: Max. Allowable Temperature 450°F (232°C)

### Type CS

PMO: Max. Operating Pressure 300 psig (20.7 barg)  
TMO: Max. Operating Temperature 500°F (260°C)  
PMA: Max. Allowable Pressure 300 psig (20.7 barg)  
TMA: Max. Allowable Temperature 500°F (260°C)

## Materials of Construction

Body & Cover: Cast Iron ASTM A216 Grade WCB  
Actuator: Convoluted Bronze or Welded SS  
Cover Gasket: Graphite  
Valve & Seat: Hardened 416 Stainless Steel



Type C & CS

Connections:  
1/2"-2" NPT or Socketweld

Actuators		Pipe Size inches	Inches (mm)				Weight lb (kg)
Convoluted Bronze	Welded Stainless		A	B	C	D	
C31	C33W	1/2	2 5/8 (67)	1 13/16 (46)	4 15/16 (125)	4 1/2 (114)	8.3 (3.8)
C41	C43W	3/4	2 3/4 (70)	2 1/2 (52)	5 1/8 (138)	5 1/8 (129)	11.1 (5.0)
C51	C53W	1	3 1/2 (89)	2 13/16 (71)	6 1/8 (154)	5 13/16 (148)	17.8 (8.1)
C61	C63W	1 1/4	3 1/2 (89)	2 13/16 (71)	6 1/8 (154)	5 13/16 (148)	17.5 (8.0)
C71	C73W	1 1/2	5 (127)	3 3/4 (95)	8 3/8 (213)	7 3/4 (197)	39.1 (17.8)
C81	C83W	2	5 (127)	3 3/4 (95)	8 3/8 (213)	7 3/4 (197)	39 (17.7)
CS31	C-33W	1/2	2 5/8 (67)	1 13/16 (46)	4 15/16 (125)	4 1/2 (114)	8.6 (3.9)
CS41	CS43W	3/4	2 3/4 (70)	2 1/2 (52)	5 1/8 (138)	5 1/8 (129)	13 (5.9)
CS51	CS53W	1	3 1/2 (89)	2 13/16 (71)	6 1/8 (154)	5 13/16 (148)	19.6 (8.9)
CS61	CS63W	1 1/4	3 1/2 (89)	2 13/16 (71)	6 1/8 (154)	5 13/16 (148)	19.3 (8.8)
CS71	CS73W	1 1/2	5 (127)	3 3/4 (95)	8 3/8 (213)	7 3/4 (197)	39.2 (17.8)
CS81	CS83W	2	5 (127)	3 3/4 (95)	8 3/8 (213)	7 3/4 (197)	31.1 (14.1)

Maximum Capacity—lbs/hr 10°F Below Saturation (Kg/hr 5°C Below Saturation)																
Trap	Pipe Size  Inch	Orifice  Inches (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)	300* (20.7)
C31,C33,CS31,CS33	½	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)	9220 (4191)
C41,C43,CS41,CS43	¾	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)	13685 (6220)
C51,C53,CS51,CS53 C61,C63,CS61,CS63	1,1¼	1/2 (12)	1825 (830)	2575 (1170)	4050 (1841)	5700 (2591)	6925 (3148)	9350 (4750)	12340 (5609)	13565 (6166)	14030 (6377)	14920 (6782)	15230 (6923)	15960 (7255)	16540 (7518)	17120 (7782)
C71,C73,CS71,CS73 C81,C83,CS81,CS83	1½,2	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)	25915 (11780)
C71HC,C73HC, C81HC,C83HC	1½,2	1-1/4 (32)	3555 (1616)	5030 (2286)	7950 (3614)	11240 (5109)	15900 (7227)	25140 (11427)	33000 (15000)	— —	— —	— —	— —	— —	— —	— —

\*CS Series Only.

C available with screwed connections only. CS available with screwed or socketweld connections.