

# Mark 94 Series

## High Flow Sanitary Steam Traps

The Mark 94 is a thermostatic steam trap designed specifically for use in high capacity clean steam systems where sanitary conditions must be maintained. It features a 20 Ra internal finish, and a self-draining design, to minimize the possibility of medium entrapment and bacterial growth.

The Mark 94 has been designed to provide high condensate flow rates during SIP heat up, allowing vessels and other process equipment to reach validation temperature in minimum time.

The proprietary fill, bellows and orifice design minimize the subcooling required to open the trap during SIP temperature hold or maintenance, insuring fast drainage under lower load conditions to help insure against low temperature faults.

The Mark 94 is designed for use up to 50 psig (3,5 bar) differential pressure.

### OPERATION

During SIP Heatup, the bellows assembly is fully open to discharge all air, non-condensate gases and cool condensate. The heat of the entering steam causes the element to expand, closing the valve. As condensate accumulates in the body, the element cools, causing the bellows/stem tip to retract allowing condensate to flow.

### FEATURES

- Body and solid internal components constructed of ASTM A479 316L
- Polished components – body interior and exterior are mechanically polished to 20 Ra finish
- Sanitary clamp ends standard, other ends (tube weld, threaded, ISO/DIN) available upon request
- Self draining when installed vertically (outlet side down)
- New design provides excellent flow rates with low subcooling during heat up and temperature hold period
- FDA, USP Class VI gasket standard



### APPLICATIONS

- Typical applications are: fermentors, bioreactors, sterilizers/autoclaves
- Condensate drainage from large tube clean steam distribution loops
- Condensate drainage from large scale process systems – fermenters, bioreactors, holding vessels, separators, chromatography vessels, etc.

**SPECIFICATIONS**

Sizes: 3/4" (DN20), 1" (DN25), 1-1/2" (DN40)

**End Connections**

- Standard – Sanitary clamp ends (Tri-Clamp)
- Optional – Tube weld ends, DIN/ISO, threaded

**Material**

- Body Inlet/Outlet: ASTM A479 316L Stainless Steel
- Thermal Element: 316L Stainless Steel
- O-Ring-Gasket: Viton, Teflon Encapsulated (FDA, USP Class VI approved)
- Clamp: 304 SST

**Maximum Operating Conditions**

- Maximum Operating Pressure (PMO): 50 psig (3,5 bar)
- Maximum Allowable Temperature (TMA): 350°F (177°C)

**Design Pressure/Temperature Rating**

- Maximum Allowable Pressure (PMA): 145 psig (10,0 bar)
- Maximum Allowable Temperature (TMA): 350°F (177°C)

**Maximum Recommended Differential Pressure**

- MK94: 5 – 50 psi (0,34 – 3,5 bar)

CRN Number: CRN13987.5

Weight: 2.5 lbs (1,2 kgs)

**FLOW CAPACITY TABLE**

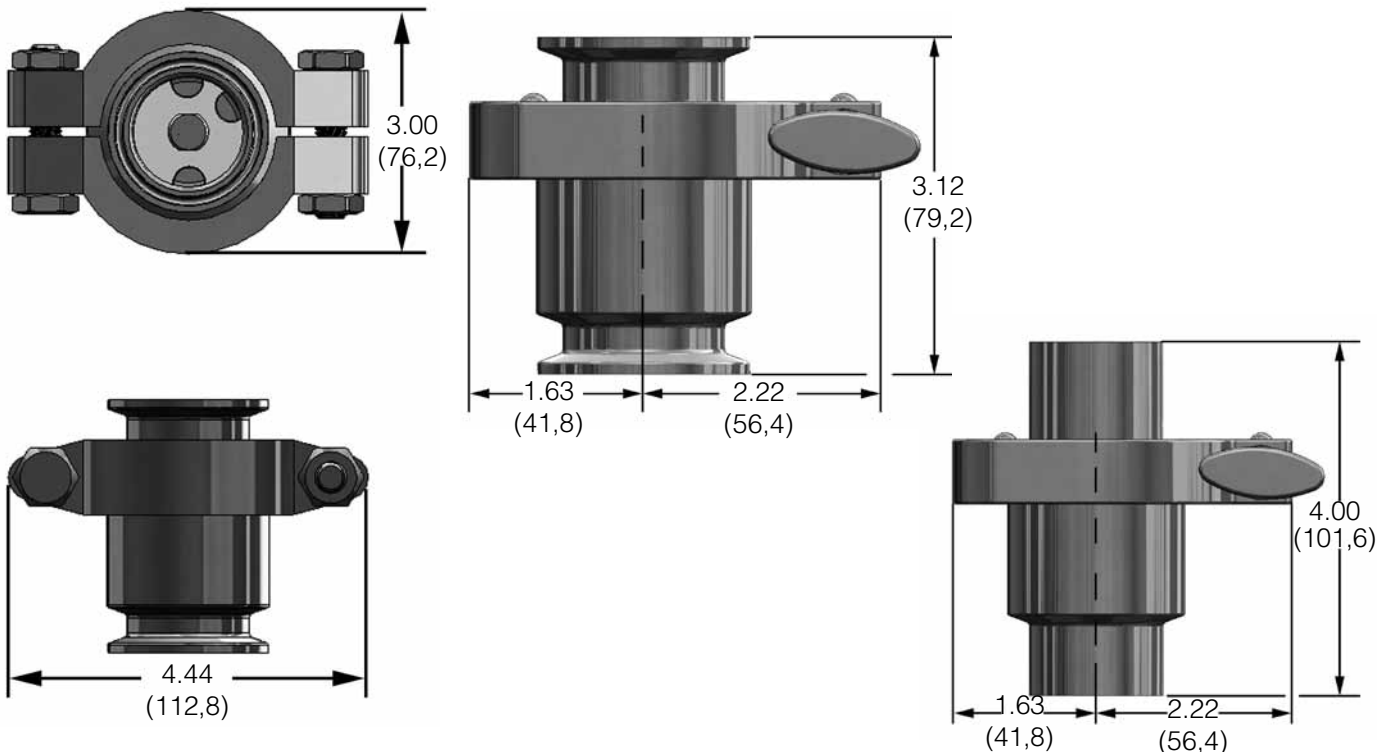
*3/4" (DN20) Size Inlet/Outlets*

Subcooling (Condensate Temp. below Saturation) psi (bar)	Capacity Differential Pressure				
	10 (0,69)	20 (1,38)	30 (2,07)	40 (2,76)	50 (3,45)
5°F lbs/hr (kgs/hr)	1355 (616)	1800 (818)	2460 (1118)	3050 (1386)	3410 (1550)
10°F lbs/hr (kgs/hr)	2190 (996)	3065 (1393)	3920 (1782)	4620 (2100)	5160 (2346)
20°F lbs/hr (kgs/hr)	3720 (1691)	5010 (2277)	5985 (2721)	7190 (3268)	7845 (3566)
Cold Water lbs/hr (kgs/hr)	5870 (2668)	8280 (3764)	10140 (4609)	11710 (5323)	13100 (5955)

*1" & 1-1/2" (DN25 & DN40) Size Inlet/Outlets*

Subcooling (Condensate Temp. below Saturation) psi (bar)	Capacity Differential Pressure				
	10 (0,69)	20 (1,38)	30 (2,07)	40 (2,76)	50 (3,45)
5°F lbs/hr	1490 (677)	1980 (900)	2705 (1230)	3355 (1525)	3750 (1705)
10°F lbs/hr	2410 (1096)	3370 (1532)	4310 (1959)	5080 (2309)	5675 (2580)
20°F lbs/hr	4090 (1859)	5510 (2505)	6585 (2993)	7910 (3596)	8630 (3923)
Cold Water lbs/hr	6460 (2936)	9110 (4141)	11550 (5250)	12800 (5818)	14410 (6550)

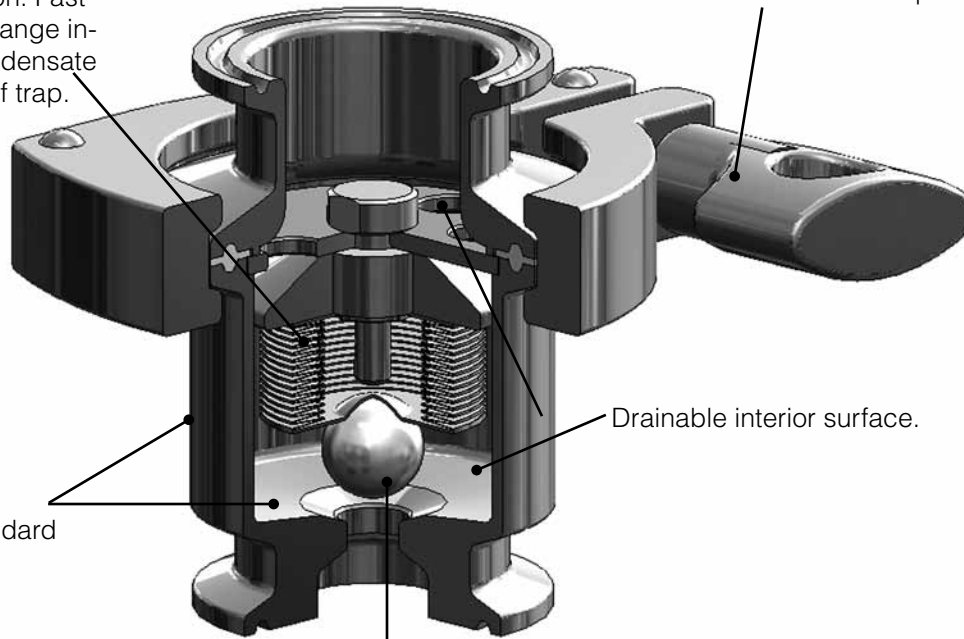
**DIMENSIONS**



## FEATURES & BENEFITS

Proprietary fill and bellows construction insures low subcooling operation. Fast reaction to temp change insures minimum condensate backup upstream of trap.

Choice of traditional or bolted Tri-clamp standard



20 Ra (.5 Ra  $\mu\text{m}$ )  
surface finish standard

Drainable interior surface.

Ball type tip helps insures low subcooling operation by providing maximum flow with minimum lift. Helps insure minimum condensate backup upstream of trap.

## SPECIFICATION

Fully drainable, high capacity sanitary steam trap with body and plug components made from ASTM A479 316L. Ball type stem tip pulls completely out of orifice flow path allowing full flow between 1355 #/hr of 5oF subcooled condensate at SIP vessel maintenance temperature, to 14410 #/hr max cool water flow during SIP heat up.

ORDERING SCHEMATIC

Model	Body	—	Size	—	End Connections	—	Special Options
94	C	—	075	—	C	—	K

Model/Body Joint	
94C	Tri-Clamp Standard

End Connections		
Inlet	Outlet	
C		Inch Tri-Clamp Vertical Inlet/Outlet
S		ISO Tri-Clamp Vertical Inlet/Outlet
D		DIN Tri-Clamp Vertical Inlet/Outlet
T		Inch Tube Vertical Inlet/Outlet
M		Metric Tube Vertical Inlet/Outlet
Z		Non-Standard

Size		
075	3/4"	DN20
100	1"	DN25
150	1-1/2"	DN40

Options	
K	Bolted Clamp
S	Silverback Gasket (FDA, USP Class VI)
Z	Non-Standard

Note: TFE/Viton gasket is standard

*Steriflow Valve reserves the right to make revisions to its products, specifications, literature, and related information without notice. Please visit our website at [www.steriflowvalve.com](http://www.steriflowvalve.com) for the latest information on our products.*