

Mark 93 Series

Sanitary Steam Traps

The Mark 93 is a thermostatic steam trap designed specifically for use in clean steam systems demanding that sanitary conditions 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 improved configuration of the MK93 has been specifically designed to provide higher flow rates at low pressures and low subcooling levels. In lab testing, the MK93 consistently exhibited excellent flow rates at subcooling levels of less than 3°F or less.

Two designs are featured in the MK93 – the standard MK93 good for differential pressures up to 65 psi (4,5 bar), and the MK93HP, for differential pressures ranging from 50 – 90 psi (3,4 – 6,2) bar. Both designs are rated to 90 psi (6,2 bar) operating pressure (hydrostatically tested to 450 psi (31 bar)) but provide best performance when used within their differential pressure rating.

During start-up, 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

- CRN Registration Number Available
- Thermostatic steam trap in 316L stainless steel that is designed for clean steam tracing, drip-leg and process applications
- All 316L stainless steel housing and internals
- 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

CRN Registration Number Available



- Self draining when installed vertically (outlet side down)
- New design provides excellent flow rates with low subcooling
- FDA, USP Class VI gasket standard

Applications

- Typical applications are: fermentors, bioreactors, sterilizers/autoclaves, SIP/CIP systems, process piping equipment and steam barriers
- Condensate drainage from clean steam distribution loops
- Condensate drainage from process systems using clean steam – fermenters, bioreactors, SIP systems and sterilizers

SPECIFICATIONS

Sizes: 1/2" (DN15), 3/4" (DN20), 1" (DN25)

End Connections

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

Material

- Body Inlet/Outlet: 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): 90 psig (6,2 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

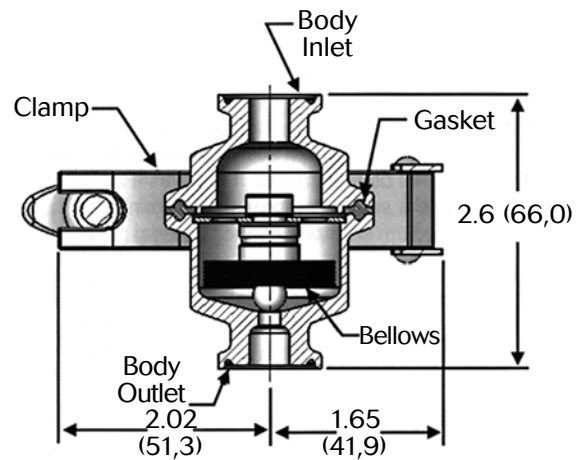
- MK93: 5 – 65 psi (0,34 – 4,5 bar)
- MK93HP: 55 – 90 psi (3,8 – 6,2 bar)

FLOW CAPACITY TABLE

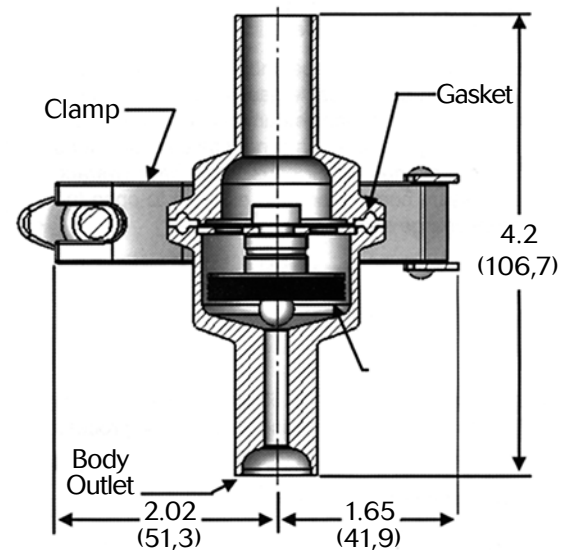
Condensate Temp. Below Saturation (psi/bar)	Capacity Table					
	10 (0,69)	20 (1,38)	30 (2,07)	50 (3,45)	75 (5,17)	90 (6,21)
5°F lbs/hr	195	373	549	870	1012	1165
10°F lbs/hr	490	813	1142	1715	2207	2437
20°F lbs/hr	1127	1697	2202	3074	3932	4139
Cold Water lbs/hr	2580	3648	4468	5768	6944	7504

DIMENSIONS

Tri-Clamp Ends

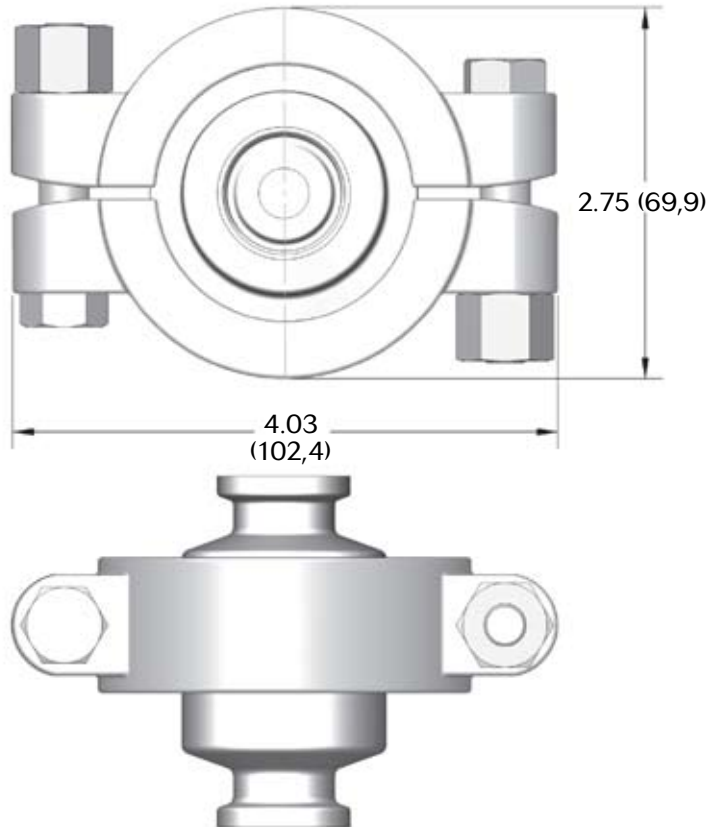


Tube Weld Ends



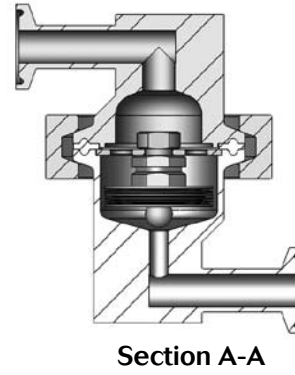
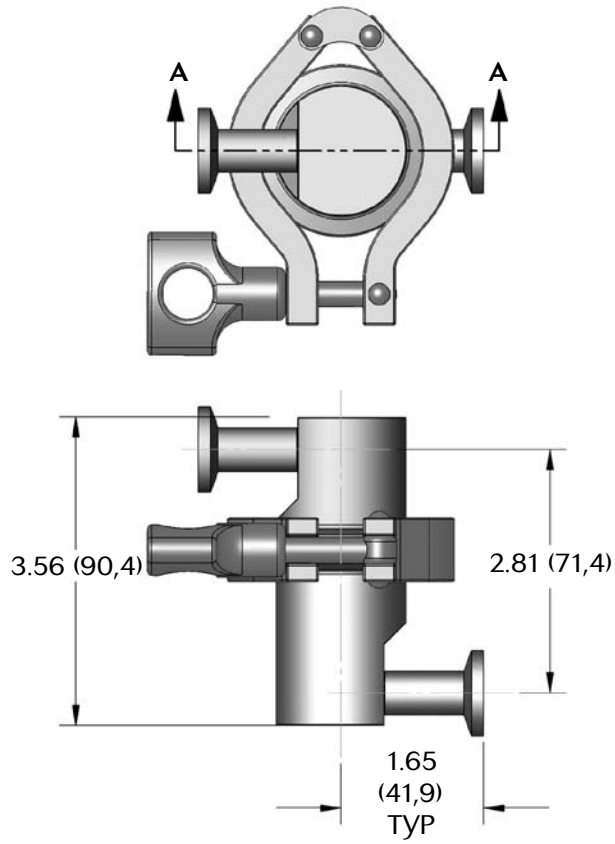
DIMENSIONS

Bolted Tri-Clamp

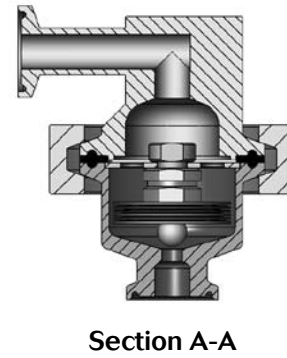
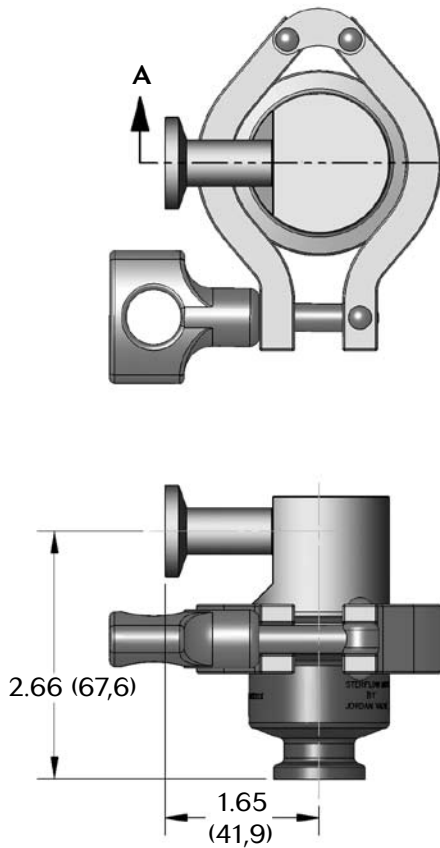


DIMENSIONS

Horizontal Inlet/Outlet

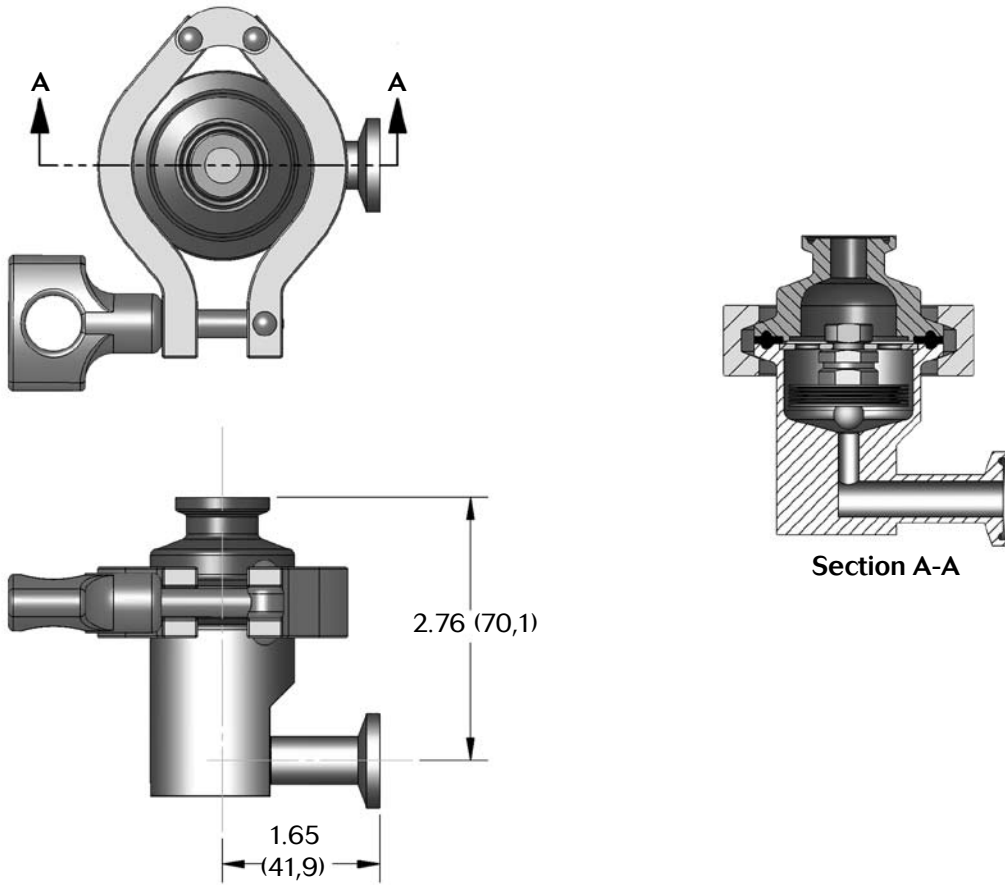


Horizontal Inlet/Vertical Outlet

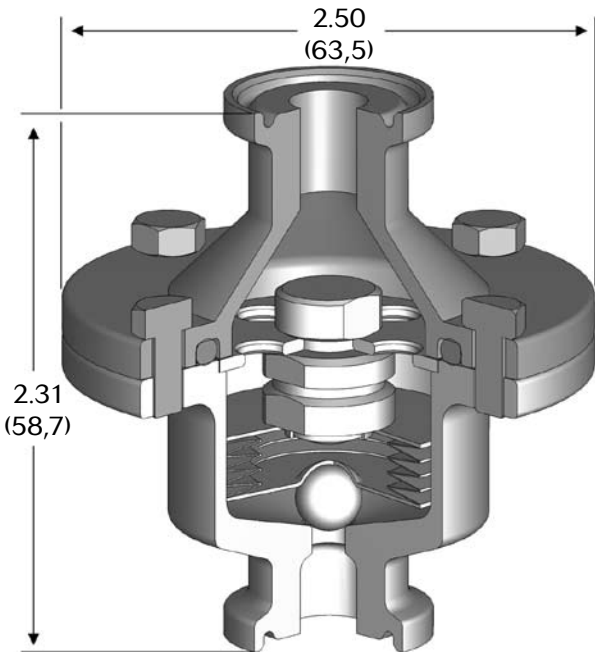


DIMENSIONS

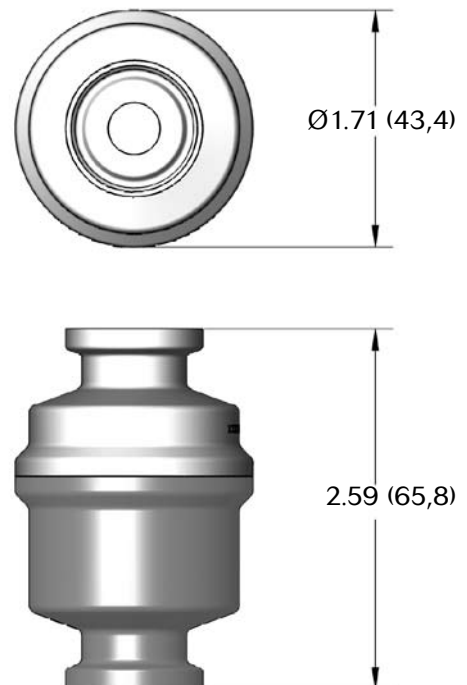
Tri-Clamp Vertical Inlet/Horizontal Outlet



Bolted Body

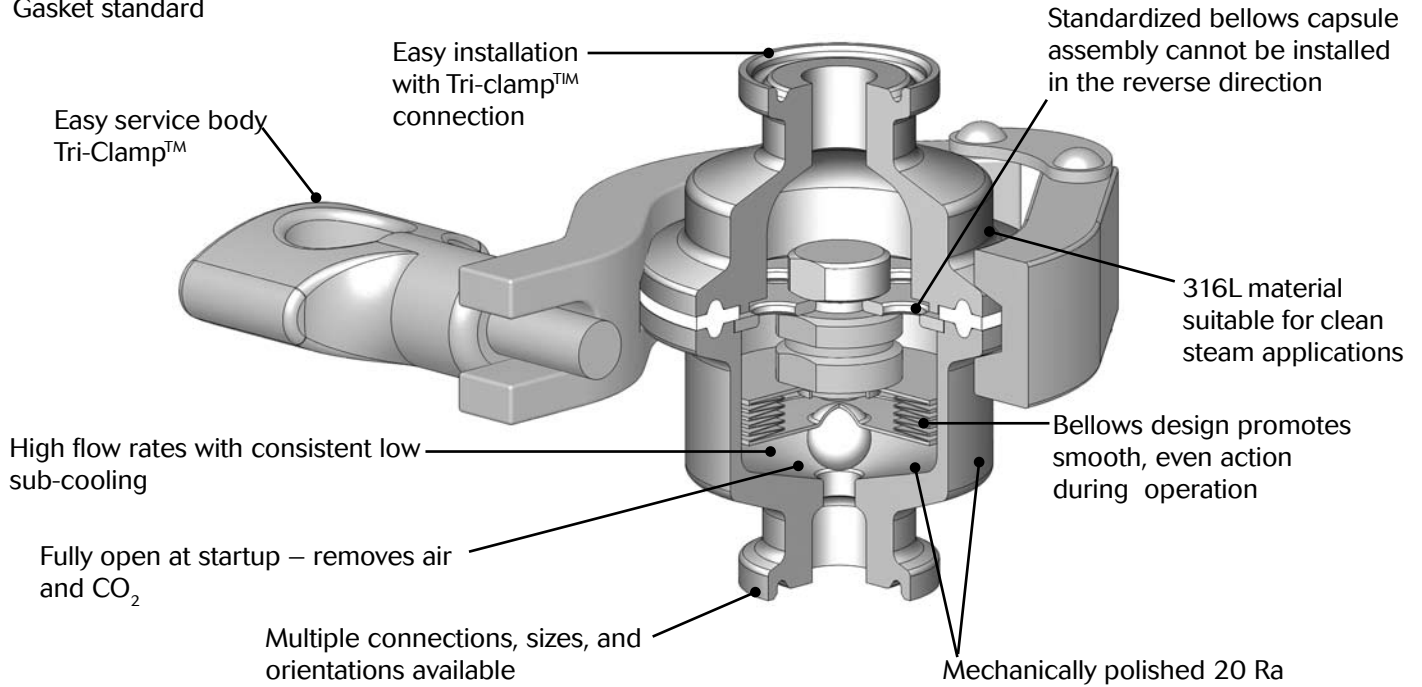


Welded Joint



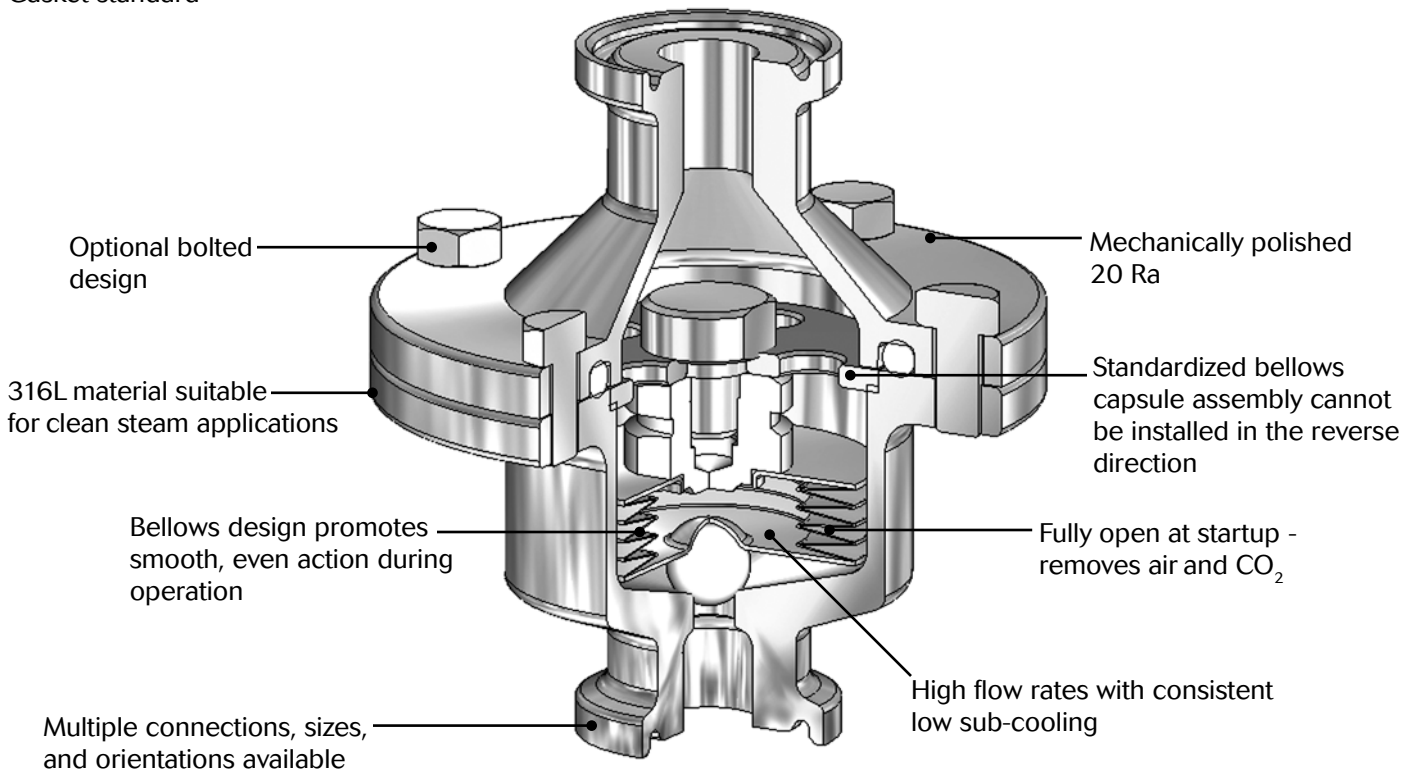
FEATURES & BENEFITS – MK93 WITH TRI-CLAMP ENDS

FDA, USP Class VI
Gasket standard



FEATURES & BENEFITS – MK93 WITH BOLTED BODY WITH TRI-CLAMP ENDS

FDA, USP Class VI
Gasket standard



ORDERING SCHEMATIC

Model	Body		Size		End Connections		Special Options
93	C	–	050	–	C	–	P

1	Model/Body Joint
93C	Tri-Clamp Standard
93B	Bolted Flange
93K	Bolted Tri-Clamp
93W	Welded

2	Size	
050	1/2"	DN15
075	3/4"	DN20
100	1"	DN25

3		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		
N		NPT Threaded Inlet/Outlet		
B		BSPT Threaded Inlet/Outlet		
T		Inch Tube Vertical Inlet/Outlet		
M		Metric Tube Vertical Inlet/Outlet		
C	H	C	H	Inch Tri-Clamp Horizontal Inlet/Outlet
C	H	C	V	Inch Tri-Clamp Horizontal Inlet/Vertical Outlet
C	V	C	H	Inch Tri-Clamp Vertical Inlet/Horizontal Outlet

4		Options
P		High Pressure Bellows
	G	TFE/SST Body Gasket
	S	Silverback Gasket

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 for the latest information on our products.