

SVC/SHC Series

CRN13987.5

Sanitary Check Valves

The patented SVC/SHC Series are vertical and horizontal check valves designed specifically for use in biopharmaceutical and parenteral drug manufacturing applications. They are the first check valves to follow the valve design guidelines of ASME BPE 2009. Since no spring, hinge, mechanical return mechanism or stem is used, they are crevice free, have no areas for particle entrapment, minimize particulate shedding, and are fully drainable.

How it Works:

As soon as inlet pressure exceeds the weight of the disc plus the outlet pressure, the disc will lift. Process media flows under the seat and through the disc perimeter holes to the outlet side of the valve. As flow begins to reverse, the differential pressure across the valve drops and the disc returns to the seat, closing the valve.



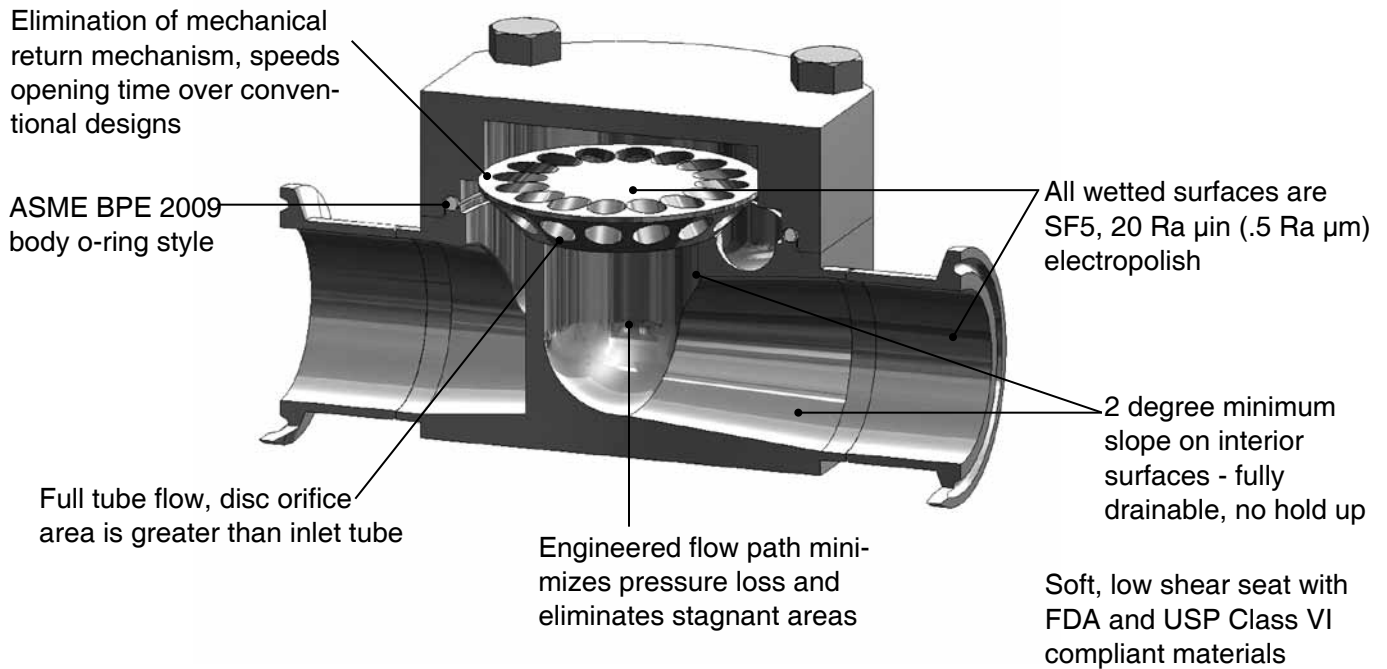
Features

- Applicable for gas or liquids, and suitable for CIP and SIP. The 316L/elastomer disc units are autoclavable
- Elimination of springs or hinges speeds opening time and eliminates particle entrapment areas
- High flow rates with minimal pressure loss compared with mechanical return check valves
- Low particle shedding properties compared with sliding disc type or spring return check valves
- Unique design eliminates dead space and crevices associated with spring check valves
- Self-draining flow path
- Body and metallic disc are mechanically polished and electropolished to SF5, 20 Ra μm (.5 Ra μm)
- Sanitary tube weld ends and Tri-clamp ends available
- Positive shutoff without the use of a spring

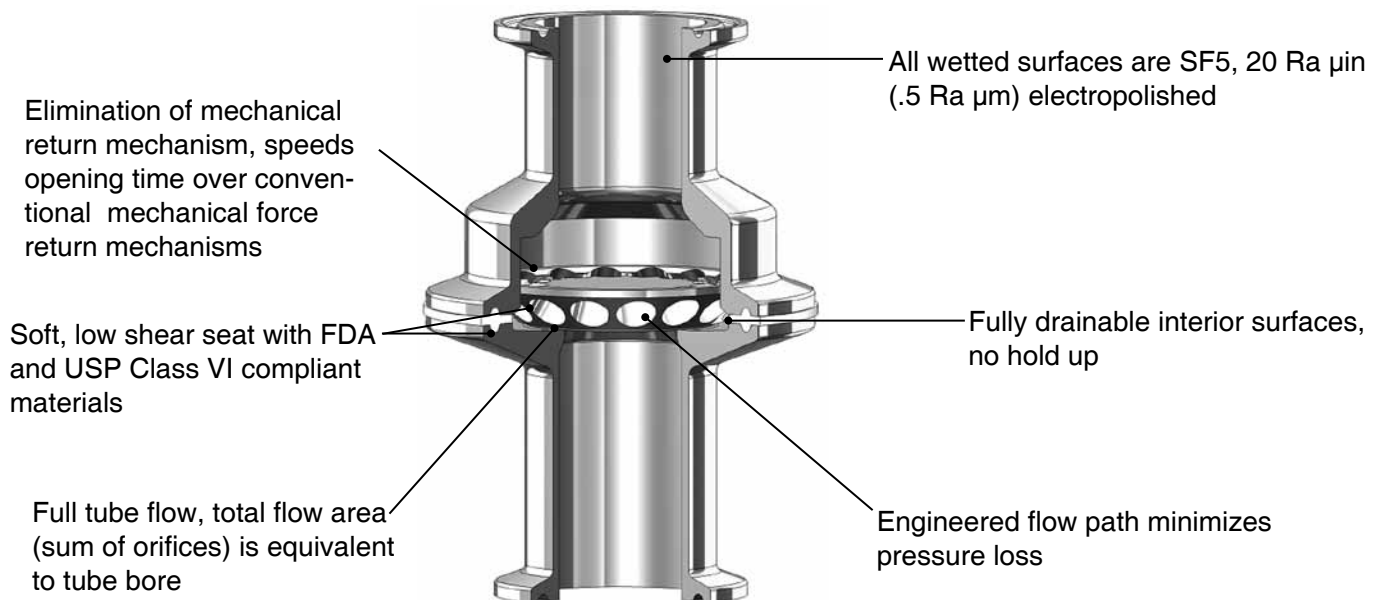
Applications

- WFI, USP PW: Pump outlet back flow prevention, POU back flow prevention
- Condensate drainage from clean steam distribution loops
- Condensate drainage from process systems using clean steam – fermenters, bioreactors, SIP systems and sterilizers
- Guard for sanitary pumps in case of pressure surges
- Sampling systems in WFI and clean water supply systems
- Air pressure supply systems and pressure rinse systems in pharmaceutical piping
- To replace actuated diaphragm valves on some liquid mixing lines
- Gas (O_2 , N_2 , CDA..) sparge, purge or blanket applications
- Vacuum breaker (with filter) on vent line for vessels or equipment

SHC Series – Features & Benefits



SVC Series – Features & Benefits



Specification

Steriflow Sanitary Check Valve, Model SVC for Vertical installation, Model SHC for Horizontal Installation. Body and end shall be constructed of bar stock material ASTM SA479 316L SF5, 20 Ra μin (0.5 Ra μm) electropolished or better. Check valve shall use no internal springs or be guided, or slide in the wet (horizontal or vertical) by any means, to prevent particulate generation. Disc shall be constructed of ASTM SA479 316L, or other acceptable material with an EPDM seal, or manufactured out of solid Teflon®, Peek, or Polypropylene. All materials must be FDA and USP <88> Class VI. Vertical and horizontal valves shall be completely drainable with no flat horizontal interior body wetted surfaces. Body sealing methods shall be bolted, or clamped and acceptable by ASME BPE 2009. All gasket materials, o-rings and seals shall be FDA and USP <88> Class VI compliant. Valve body shall be marked as per ASME BPE 2009.

Specifications

Sizes

- SVC: 1/2" – 3" (DN15 – DN80)
- SHC: 1/2" – 2" (DN15 – DN50)

End Connections

- Standard: Tube Weld Ends, Tri-clamp (ASME BPE, DIN, ISO)

Materials of Construction

- Body: ASTM SA479 316L
- Disc: ASTM SA479 316/EPDM, solid Teflon, PEEK, or Polypropylene (All FDA and USP Class VI); 316/Silicon available but not standard
- SHC Body O-Ring: EPDM, Silicone, Viton (All FDA and USP Class VI)
- SVC Body Gasket: Silverback®, Tuf-Steel®, TFE/Viton, TFE/EPDM, Viton-600S (All FDA and USP Class VI)

Pressure/Temperature Rating

- Max Pressure: 230 psi @ 100°F (16 bar @ 38°C)
- Max Temperature²: is dependent upon options selected

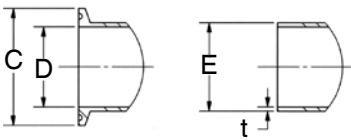
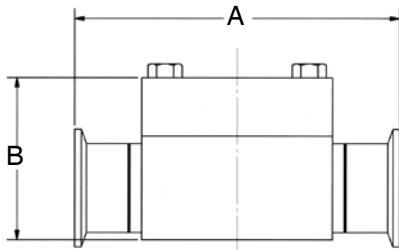
Applications: Bio or parenteral process, WFI, Clean Gases, Clean Steam², Clean Condensate, CIP Fluids

Opening Pressure

- Polymer Discs: 0.04 psid (2,76 millibar)
- 316, 316/Elastomer: 0.13 psid (8,96 millibar)

² Operation above 250°F (121°C) requires Option BC (Bolted Clamp for SVC) refer to Options 9 & 10 in the Ordering Schematic of the SVC on page 4. Maximum Pressure & Temperature is dependent upon gasket, or o-ring options selected. See order grids on page 4 for high temperature ratings at pressure for specific materials.

SHC Series Physical Data

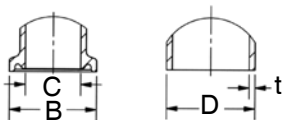
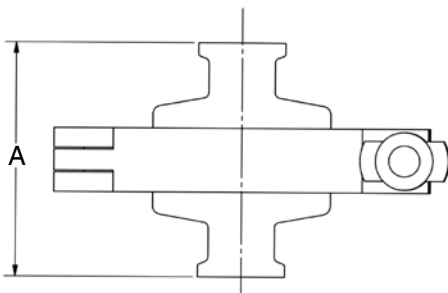


Valve Size	Dimensions (inches)						¹ Polymer discs Rev. Flow Leakage* 3 psi water ml/min	Max Cv	Wt Lbs
	A	B	C	D	E	t			
1/2"	4.00	2.09	0.984	0.375	0.50	0.065	0.6	3.4	3.3
3/4"	4.00	2.09	0.984	0.625	0.75	0.065	0.6	5.1	3.3
1"	4.00	2.09	1.984	0.870	1.00	0.065	1	6.6	3.4
1-1/2"	5.50	2.74	1.984	1.370	1.50	0.065	1	21.8	4.0
2"	6.30	3.25	2.516	1.870	2.00	0.065	0.8	23.1	4.1

* Leakage is bubble-tight under same conditions at 30 psi

¹ 316/Elastomer disc leakage less than 0.1 ml/min

SVC Series Physical Data



Valve Size	Dimensions (inches)					¹ Polymer discs Rev. Flow Leakage* 3 psi water ml/min	Max Cv	Wt Lbs
	A	B	C	D	t			
1/2"	2.67	0.984	0.375	0.50	0.065	1	3.5	2.0
3/4"	2.67	0.984	0.625	0.75	0.065	1	5.1	2.0
1"	2.67	1.984	0.870	1.00	0.065	1	7.1	2.1
1-1/2"	2.97	1.984	1.370	1.50	0.065	1	22.7	2.6
2"	3.27	2.516	1.870	2.00	0.065	0.8	23.1	2.7
3"	5.03	3.580	2.875	3.00	0.065	1.1	58.06	9.1

* Leakage is bubble-tight under same conditions at 30 psi

¹ 316/Elastomer disc leakage less than 0.1 ml/min

SHC (Horizontal) Series Ordering Schematic

Model	—	Size	—	Body Mat'l	/	1	2	3	4	5	6

Model Number	
SHC	Standard

Size	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
150	1-1/2" (DN40)
200	2" (DN50)

Body Material	
6L	ASTM A479, 316L

1 & 2	Body
TC	Tri-Clamp
TE	Tube End

3 & 4	Disc
TF	Teflon (FDA and USP Class VI)
S6	316L SST
SE	316L/EPDM (FDA and USP Class VI)
SS	316L/Silicone (FDA and USP Class VI)
PK	PEEK (FDA and USP Class VI)
ZZ	Non-Standard

5 & 6	O-Ring
EP	EPDM ¹
SL	Silicone ²
VT	Viton ³
ZZ	Non-Standard

¹ Rated to 275°F (135°C) at 230 psi (16 bar) with any disc

² Rated to 350°F (176°C) with TFE disc, 400°F (204,4°C) with PEEK or 316SS disc, 275°F (135°C) with 316/EPDM disc. All ratings @ 230 psi (16 bar)

³ Rated to 350°F (176°C) with TFE disc, 400°F (204,4°C) with PEEK or 316SS Disc, 275°F (135°C) with 316/EPDM disc. All ratings @ 230 psi (16 bar)

SVC (Vertical) Series Ordering Schematic

Model	—	Size	—	Body Mat'l	/	1	2	3	4	5	6

Model Number	
SVC	Standard

Size	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
150	1-1/2" (DN40)
200 *	2" (DN50) bolted clamp (BC) only
300 *	3" (DN80) bolted clamp (BC) only

Body Material	
6L	ASTM A479, 316L

1 & 2	Inlet Body
TC	Tri-Clamp to ASME BPE
TE	Tube End to ASME BPE
TA	Tube End to DIN 11866 Row A
TB	Tube End to DIN 11866 Row B (ISO)

3 & 4	Outlet Body
TC	Tri-Clamp to ASME BPE
TE	Tube End to ASME BPE
TA	Tube End to DIN 11866 Row A
TB	Tube End to DIN 11866 Row B (ISO)

5 & 6	Disc
TF	Teflon (FDA and USP Class VI) ¹
S6	316L SST ²
SE	316L/EPDM (FDA and USP Class VI) ³
SS	316L/Silicone (FDA and USP Class VI)
PK	PEEK (FDA and USP Class VI) ⁴
PP	Polypropylene (FDA and USP Class VI) ⁵
ZZ	Non-Standard

¹ Rated 350°F (176°C), @ 230 psi (16 bar) for all gaskets, except TFE/EPDM, which is rated at 275°F (135°C) @ 230 psi (16 bar).

² Rated 400°F (204°C) @ 230 psi (16 bar) for all gaskets except TFE/EPDM, which is rated at 275°F (135°C) @ 230 psi (16 bar)

³ Rated 275°F (135°C), @ 230 psi (16 bar), for all gasket materials

⁴ Rated 450°F (232°C) @ 230 psi (16 bar) with Tuf Steel or Silverback gaskets; rated 400°F (204°C) @ 230 psi (16 bar); with any Viton gasket; Rated 275°F (135°C) @ 230 psi (16 bar); with TFE/EPDM gasket.

⁵ Rated 176°F (80°C) @ 230 psi (16 bar) for all gaskets. Note: For SIP service, rated to 275°F (135°C) @ 30 psi (2 bar) for all gaskets.

7 & 8	Gasket
01	Silverback (FDA and USP Class VI)
02	TFE/Viton (FDA and USP Class VI)
03	TFE/EPDM (FDA and USP Class VI)
04	Viton-600S (FDA and USP Class VI)
05	TUF-Steel (FDA and USP Class VI)
ZZ	Non-Standard

9 & 10	Tri-Clamp
2P	2-Piece
3P	3-Piece
BC*	Bolted Clamp required for operation above 250°F (121°C)
ZZ	Non-Standard

*2" & 3" size option BC only