

CRN Registration Number Available

# Mark 96C Series

## Sanitary Pressure Regulators (1/2"–1")

The Mark 96C is a clamped body pressure reducing valve designed to regulate downstream pressure of process and utility applications in sanitary and aseptic systems.

The Mark 96C operates by sensing pressure under the diaphragm after the medium has entered the valve from the bottom inlet port. As the downstream pressure approaches the set point, the force caused by the pressure acting on the diaphragm overcomes the force of the range spring, and the plug begins to move up toward closed. This reduces the downstream pressure and maintains the set point as the flow exits the valve from the side port. If the pressure underneath the diaphragm begins to fall, the spring forces the plug to move down towards open, to allow the set point to be maintained.

### FEATURES

- CRN Registration Number Available
- Soft seat capability for ANSI Class VI shutoff
- No guiding surfaces in the fluid – prevents particulate generation
- 100% 316L barstock body and metal trim
- Self-draining design
- No threads in contact with service media – prevents accumulation of contaminants
- Easy to disassemble for cleaning
- Clean-in-Place, Steam-in-Place – dome lock pin to allow CIP/SIP
- Jorlon diaphragm: A USP Class VI, FDA approved PTFE based material which provides excellent chemical resistance, extremely long life in steam service. Far superior to other elastomer or metal diaphragm metals.

### DOCUMENTATION

The following documentation is kept in an electronic data base, and included with each order at no charge:

- Steriflow Unicert - Certificate of Compliance for:
  - Material, including MTR's
  - Surface Finish
  - FDA/USP Class VI

Each Unicert document lists the orders individual valve Serial/Suffix numbers and wetted component Heat numbers. MTR's for each Heat number follow on attached pages. The Serial numbers and Heat numbers are directly traceable to each individual valve.



### AVAILABLE FINISHES

#### Body

- *Standard:* 20 Ra  $\mu$  in (.5 Ra  $\mu$ m) mechanical finish and electropolish on inside wetted surfaces; machine finish and electropolish on exterior

#### Stem

- *Standard:* 20 Ra  $\mu$  in (.5 Ra  $\mu$ m) mechanical finish and electropolish
- *Optional:* 8 Ra  $\mu$  in (.2 Ra  $\mu$ m) finish

#### Spring Housing

- *Standard:* as cast, and electropolished

#### Adjusting Screw

- *Standard:* machine finish and electropolish

### APPLICATIONS

A wide variety of applications exist for the MK96C in the pharmaceutical, biotech, health-care, food & beverage and other industries. The Mark 96C is suitable for liquid, gas and steam service

SPECIFICATIONS

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

**End Connections**

- ASME BPE Tri-Clamp connections
- DIN/ISO sanitary connections available upon request

**Body/Spring housing Clamp:** 3 segment Tri-clamp, Bolted Clamp available as option

**Body & Trim Materials:** 316L Stainless Steel (ASTM A479)

**Spring Housing Materials:** CF8M Cast SST

**Seat Materials**

- Standard hard seat – integral 316L SST seat
- Optional soft seat
  - Jorlon (for 1" size Cv 2.5 and above) (FDA & USP Class VI) for steam and hot fluid service to 338°F (170°C)
  - PEEK (FDA & USP Class VI) for steam and hot fluid service to 350° (177°C)
  - Teflon (for Cv 1.5, 1" size and above) to 252°F (122°C) continuous or 275°F (135°C) intermittent [not to exceed 15 min. in a one hour period] FDA, USP Class VI

*Note: consult factory for 1/2" & 3/4" soft seat materials*

**Diaphragm Materials**

- Jorlon (recommended) – to 400°F (204°C) FDA, USP Class VI
- EPDM/Nylon – to 275°F (135°C), FDA only

**O-Ring Materials**

- EPDM (to 275°F, 135°C) – FDA, USP Class VI
- Buna-N (to 225°F, 107°C) – FDA
- Viton (to 400°F, 204°C) – FDA, USP Class VI\*\*
- Silicone (to 400°F, 204°C) – FDA, USP Class VI\*\*
- Teflon-Encapsulated Viton (to 400°F, 204°C) – FDA, USP Class VI\*

\* For Cv's ≤ 1.2, Teflon encapsulated o-rings not available

- Kalrez® (to 450°F, 232°C) – FDA, USP Class VI

\*\*While rated to exceed normal Clean Steam operating temperatures, Steriflow does not recommend the use of non-encapsulated Viton, or Silicon for continuous clean steam service. Contact the factory with questions.

**Shutoff:** ANSI Class III hard seat or Class VI soft seat

**Body Pressure Temperature Rating:** (dependent upon construction)

Valve Size	PSIG @ 100°F	PSIG @ 225°F
1/2", 3/4", 1"	250 (17,2 bar)	200 (13,8 bar)*
Valve Size	PSIG @ 100°F	PSIG @ 275°F
1/2", 3/4", 1"	250 (17,2 bar)	140 (9,6 bar)**

\* Optional 2 segment clamp

\*\* Standard 3 segment clamp

**Setpoint Spring Ranges**

Valve Size	Setpoint Ranges, PSI (BAR)
1/2", 3/4", 1"	3-8* (0,1-0,5*), 5-25 (0,4-1,7), 15-50 (1,0-3,4), 40-90 (2,7-6,2) or 75-135 (5,2-9,3)

\* Range available with EPDM/Nylon diaphragm only. Maximum pressure drop 40 psi.

**Cv (Kv) Ratings:**

Valve Size	Available Cvs (Kvs)	Cv for Relief Valve Sizing
1/2"	0.3*, 0.5*, 1.2 (0,3*, 0,4*, 1,0)	0.36, 0.6, 1.44 (0,36; 0,48; 1,2)
3/4"	0.5*, 1.2, 1.5 (0,4*; 1,0; 1,3)	0.6, 1.44, 1.8 (0,52; 1,2; 1,56)
1"	0.5*, 1.5, 2.5 or 5.5 (0,4*; 1,3; 2,2; 3,9 or 4,7)	0.6, 1.8, 3, 6.6 (0,5 52, 1, 56, 2, 64, 5, 64)

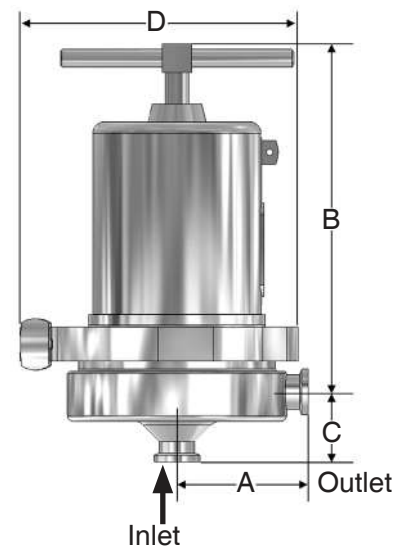
\* Maximum inlet pressure 40 psi over set point for Cv's 0.3 and 0.5  
Consult factory for additional size/Cv combinations

\*\*\* When using the 3-8 range spring with EPDM/Nylon diaphragm, the following sizing limits apply:

Set Point	Sizing Limit (of rated capacity)
8	50%
5	33%
3	25%

For example a 1" Cv5.5 valve with a 3-8 range spring, if the customer's set point is P2 = 8 psi, then the actual Cv sizing should not exceed 2.75Cv. If the customer's intended set point is P2 = 5 psi, then the actual Cv sizing should not exceed 1.8Cv and if their set point is P2 = 3 psi, then the actual Cv sizing should not exceed 1.38 Cv.

**DIMENSIONS**

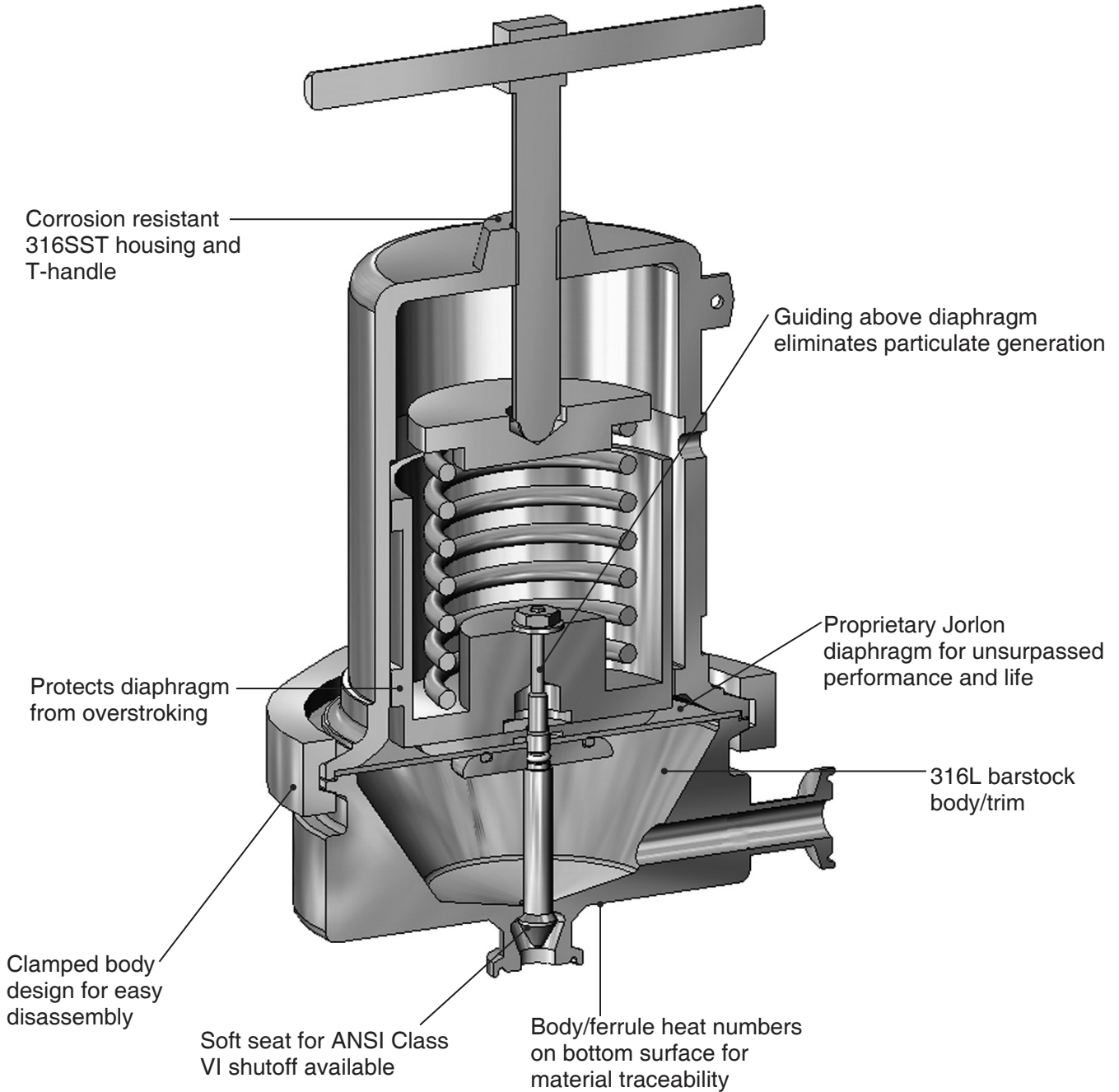


Valve Size	Dimensions (inches)				Weight Lbs
	A	B	C	D	
1/2"	3.29	8.30	1.08	5.2	18
3/4"	3.29	8.30	1.50	5.20	18
1"	3.50	8.44	1.64	5.20	20

Valve Size	Dimensions (mm)				Weight Kgs
	A	B	C	D	
DN15	84	211	27,4	132	8,1
DN20	84	211	38,1	132	8,1
DN25	89	214	41,7	132	9,1

Based on US tri-clamp ends. Consult factory for DIN and ISO tri-clamp end dimensions

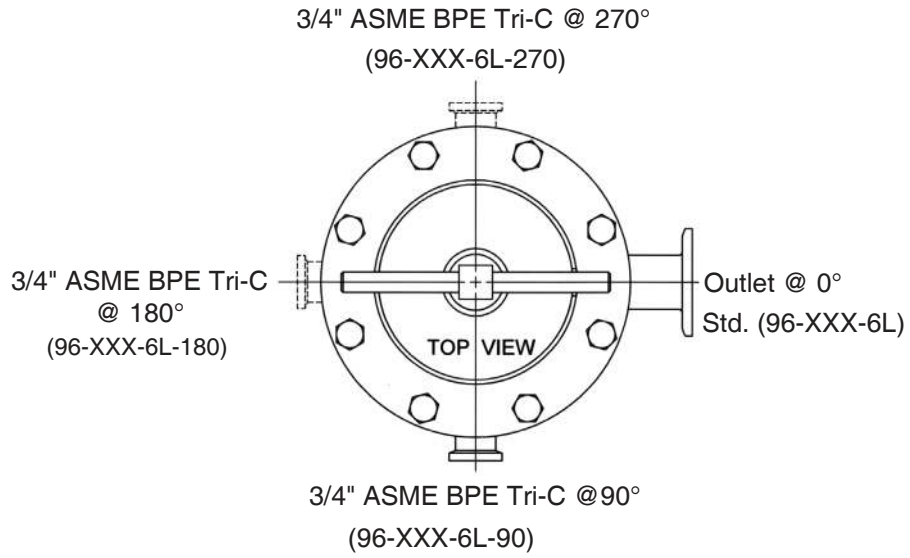
## FEATURES & BENEFITS



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Stainless Steel sanitary pressure regulator shall be made from ASTM A479 barstock material, mechanically finished to 20 Ra  $\mu$  in (.5 Ra  $\mu$ m), electropolished which includes body and all wetted metal parts. Regulator shall be activated by FDA approved, USP Class VI certified Jorlon diaphragm. Guiding of valve stem/plug shall be outside of the wetted, process areas of valve internal, above diaphragm. Regulator shall be free of threads within wetted, process areas of valve internal and shall be self-draining when installed with inlet vertical and below valve assembly.

**GAUGE PORT CONFIGURATION OPTIONS**



ORDERING SCHEMATIC

							1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12	13 & 14
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Model	
96C	Standard

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

Body Material	
6L	ASME SA479 316L (UNS 31603)
6E	EN 10272:2000 GR 1.4435

Body Configuration- Standard or Gauge Port*	
	Standard - no gauge port. Leave blank
90	3/4" ASME BPE Tri-Clamp gauge fitting @ 90°
180	3/4" ASME BPE Tri-Clamp gauge fitting @ 180°
270	3/4" ASME BPE Tri-Clamp gauge fitting @ 270°

\*Note: See Page 4 for Description of Gauge Ports

1 Body Finish	
A	20Ra EP (SF5) Interior/63RMS Exterior (Std)
C	8Ra Interior/63RMS Exterior

2 Body Cv (Kv)		
	Cv	Kv
B	All 1/2"	All 1/2"
A	0.5 (3/4" & 1")	0,43 (3/4" & 1")
C	1.5 (3/4" & 1")	1,3 (3/4" & 1")
F	2.5 (1")	2,15 (1")
L	5.5 (1")	4,7 (1")

3 Trim Finish	
A	20Ra (Standard)
B	8Ra

4 Trim – Cv (Kv) & Seat			
3	0.3 (0,24) Hard Seat	B	2.5 (2,15) Hard Seat
4	0.3 (0,24) PEEK Seat	C	2.5 (2,2) Teflon Seat
5	0.5 (0,43) Hard Seat	D	2.5 (2,15) Jorlon Seat
6	0.5 (0,43) PEEK Seat	L	5.5 (4,7) Hard Seat
Y	1.2 (1,03) Hard Seat	M	5.5 (4,7) Teflon Seat
1	1.2 (1,03) PEEK Seat	N	5.5 (4,7) Jorlon Seat
A	1.5 (1,3) Hard Seat		

5 & 6 O-Ring/Diaphragm	
EE	EPDM/EPDM Diaphragm 1.5-5.5Cv
JE	O-Ring EPDM/Jorlon Diaphragm 1.5-5.5Cv
JK	O-Ring Kalrez/Jorlon Diaphragm 1.5-5.5Cv
JS	O-Ring Silicon/Jorlon Diaphragm 1.5-5.5Cv
JV	O-Ring Viton/Jorlon Diaphragm 1.5-5.5Cv
TY	Teflon Encaps. Viton/Jorlon Diaphragm 1.5-5.5Cv
B5	Buna-N/Jorlon 0.3-1.2Cv
E5	EPDM/EPDM Diaphragm 0.3-1.2Cv
J5	O-Ring EPDM/Jorlon Diaphragm 0.3-1.2Cv
K5	O-Ring USP-Kalrez/Jorlon Diaphragm 0.3-1.2 Cv
S5	Silicon/Jorlon Diaphragm 0.3-1.2Cv
V5	Viton/Jorlon Diaphragm 0.3-1.2Cv

\* For Cv's ≤ 1.2, Teflon encapsulated o-rings not available

7 Adjusting Screw Finish (Except Threads)	
A	Electro-polished (Standard)

8 Range PSI (Bar) see chart on page 2	
A	3 - 8 (0,2 - 0,6)*
C	5 - 25 (0,3 - 1,7)
H	15-50 (1,0-3,4)
R	40-90 (2,8-6,2)
T	75-135 (5,2-9,3)

\* Must use EPDM/Nylon diaphragm

9 & 10 Diaphragm	
EP	EPDM 1.5-5.5 Cv
JL	Jorlon 1.5-5.5 Cv
E5	EPDM 0.3-1.2 Cv
J5	Jorlon 0.3-1.2 Cv

11 & 12 Actuator Finish	
AA	Standard

13 & 14 PED Compliance	
00	Not Required
0G	SEP Compliant
ZZ	Non-Standard

Note: Steriflow does not recommend using metal seated trim on any service where the flow will be deadheaded downstream of the pressure reducing regulator. Use an appropriate Teflon, Jorlon or Peek soft seat for the trim instead.



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