

# FBCV-OR Series

## Sanitary Control Valves- OR Version

The FBCV O-Ring Series is designed to meet the rigid specifications for sanitary process control valves for customers who prefer an O-ring style stem seal. This valve series is suitable for a wide variety of applications in the cosmetic, dairy and food and beverage industries.

Conforming to 3A guidelines, the FBCV is ideally suited for a wide range of flowing media in both the utility and process areas of sanitary systems.

High rangeability, characterized trim, high capacities, superior temperature and pressure ratings along with a selection of sealing methods make the FBCV the sanitary control valve for liquid, gas and steam services.

Whether the need is to control pressure, temperature, flow, pH, or another variable, the FBCV is the right valve for your process.

### FEATURES

- FDA Buna-N to +225°F (+107°C)
- Self draining – Angle Body: when mounted in vertical (all sizes) or horizontal orientations
- Mechanically polished internal components – 32Ra finish – standard
- Maintenance-friendly – easy to perform sanitary maintenance with simple disassembly and reassembly
- Steel, baked corrosion resistant coated multi-spring actuators to meet a wide range of differential pressure requirements while providing excellent corrosion resistance during washdown



### AVAILABLE FINISHES

#### Body

- *Standard:* 32 Ra (.81 Ra  $\mu$ m) mechanical finish on internal wetted surfaces; as cast external

#### Stem

- *Standard:* 32 Ra (.81 Ra  $\mu$ m) mechanical finish

### APPLICATIONS

A wide variety of applications exist for the FBCV in the health care and food & beverage and other industries including:

#### Processes

- Fermenter
- SIP/CIP Systems
- Extrusion

#### Media

- Caustic
- Acids
- Buffer
- Clean Steam

**SPECIFICATIONS – O-RING STEM SEAL**

**Sizes:** 1" (DN25) through 3" (DN85)

**Body/Bonnet Connection:** sanitary clamp

**Body/Bonnet Seal**

- FDA EPDM
- FDA Viton
- FDA Silicon, Kalrez, Fluoraz
- Buna-N

**Body Material:** ASTM A351 CF3M 316L

**Stem Material:** ASTM A479 316L SST Barstock

**Bonnet Material:** ASTM A479 316L SST Barstock

**Stem Seal**

- FDA EPDM – to 120°F (+48°C)
- FDA Silicon – to +300°F (+148°C)\*
- FDA Viton® – to +300°F (+148°C)\*
- FDA Buna-N – to +225°F (+107°C)
- FDA Kalrez® – to +450°F (+232°C)  
(Not 3A Approved)
- FDA Fluoraz® – to +450°F (+232°C)  
(Not 3A Approved)

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

**Stem Bushing:** FDA PEEK (no process contact)

**Actuators**

Pneumatic

- 1" (DN25); 35M & 55M: Steel, baked corrosion resistant coating
- 1-1/2" – 2" (DN40 – DN50); 55M & 85M: Steel, baked corrosion resistant coating; 3" (DN80); 85M: Steel

**Soft Seat Option (Cv ≥ 3.5 only) (Not 3A Approved)**

- PTFE FDA to 252°F (122°C)  
continuous or 275°F (135°C) in intermittent (less than 15 min over 1 hour)
- PEEK FDA to 350°F (177°C)

**Electric**

- 1" – 3" (DN25 – DN80)  
MV1010 Cv 0.2 – 5.0 (Kv 0,17 – 4,3)  
MV1020 All other Cv's

**Shutoff**

- Standard: ANSI Class III with metal seat
- Optional: ANSI Class VI with soft seat (Cv ≥ 3.5 only)

**Ranges:** 3-15, 6-30, 3-9\*, or 9-15\* psi (0,2-1,0; 0,4-2,0; 0,2-0,6; or 0,6-1,0 bar) (\* positioner required)

**Maximum Pressure @ 100°F (38°C):** 450 (31 bar) High pressure versions available, contact factory for details

**Flow Characteristics:** Linear, equal percentage, or quick opening (consult factory for quick opening Cv's)

**Pressure/Temperature Rating**

- O-Ring: 450 psi up to +450°F (31 bar up to +232°C), temperature dependent upon stem seal and body/bonnet seal o-ring material

**Cv (Kv) Ratings**

Size	Cv (Kv) Ratings	
	Linear	Equal Percentage
1"	3.5 / 5.0 (3,01 / 4,30)	
	7.5 / 15.0 (6,45 / 12,90)	
1-1/2"	5.0 / 15 / 30 (4,3 / 12,9 / 25,0)	
2"	10 / 15 / 20 / 30 (8,6 / 12,9 / 17,20 / 25,80)	
	40 / 60 (34,40 / 51,60)	40 (34,40 / 60)
3"	70/100 (65/86)	60/80/90 (52,69,77)

**MAXIMUM Δ Ratings, PSI (BAR)**

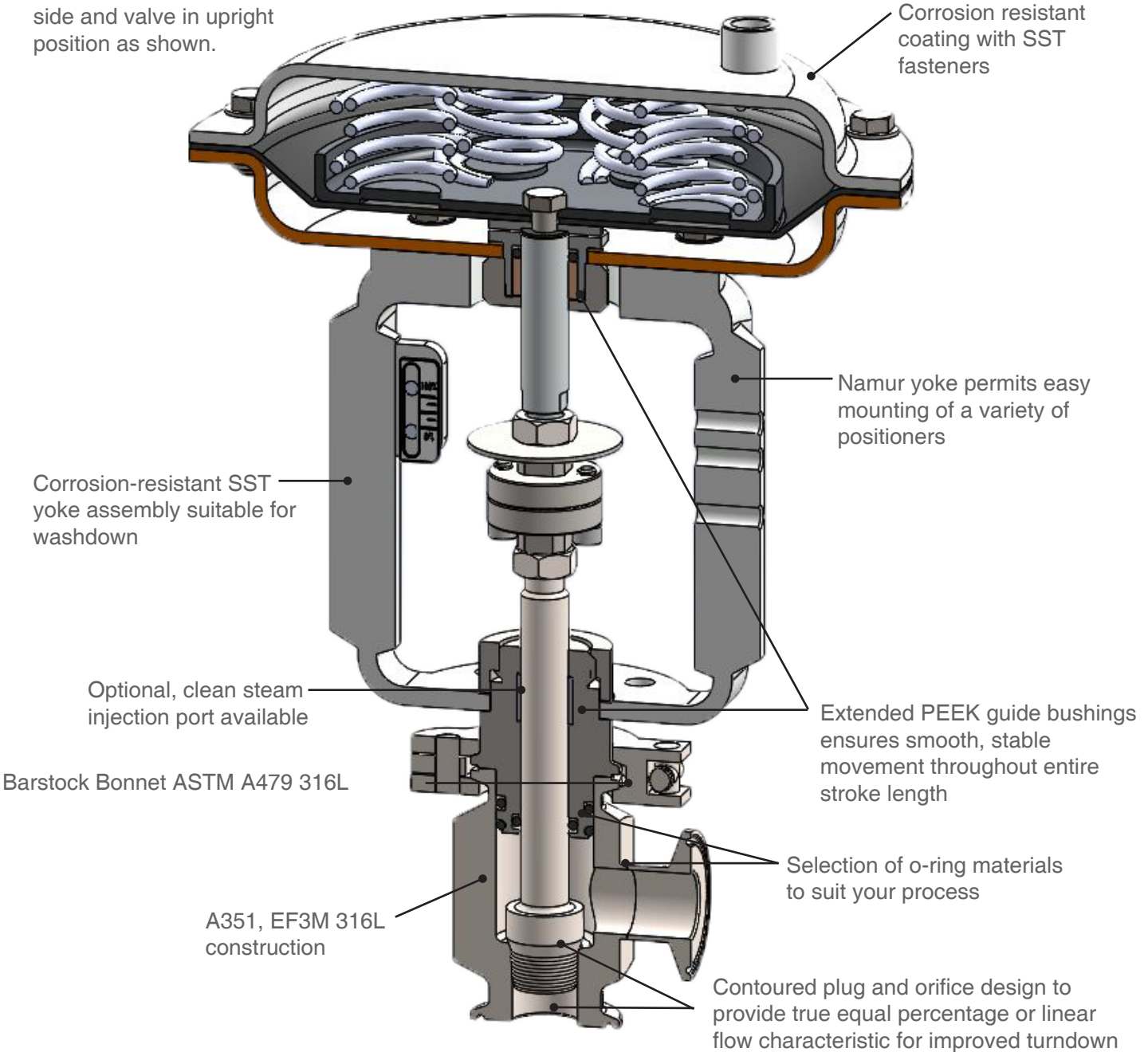
Valve Size	Valve Cv	Actuator Size	ATO 3-15	ATO 6-30 or with positioner @ 40 psi	ATC 3-15 or with positioner @ 20 psi	ATC 6-30 @ 40 psi
1"	3.5 / 5.0	35M	150 (10,3)	216 (14,9)	150 (10,3)	450 (31)
1"	3.5 / 5.0	55M	316 (21,8)	416 (28,7)	316 (21,8)	450 (31)
1"	7.5 / 15	35M	75 (5,2)	120 (8,3)	75 (5,2)	300 (20,7)
1"	7.5 / 15	55M	188 (13,0)	256 (17,7)	188 (13,0)	450 (31)
1-1/2"	5 / 10 / 15	55M	86 (5,9)	126 (8,7)	86 (5,9)	288 (19,9)
1-1/2"	5 / 10 / 15	85M	220 (15,2)	288 (19,9)	220 (15,2)	450 (31)
1-1/2"	20 / 30	55M	63 (4,3)	97 (6,7)	63 (4,3)	232 (16,0)
1-1/2"	20 / 30	85M	176 (12,1)	232 (16,0)	176 (12,1)	450 (31)
2"	10/15/20/30/40/60	55M	15 (1,0)	34 (2,3)	15 (1,0)	111 (7,7)
2"	10/15/20/30/40/60	85M	79 (5,4)	111 (7,7)	79 (5,4)	238 (16,4)
3"	70/85/100	85M	63 (4,3)	111 (7,7)	63 (4,3)	232 (16,0)

Note: for pressure drop capabilities of electric actuators, please consult factory

Note: 1/2" – 4" with positioner ATO actuator is bench set @ 6-30 psi/ ATC actuator is bench set @ 3-15 psi

### O-RING STEM SEAL (ANGLE STYLE (1"))

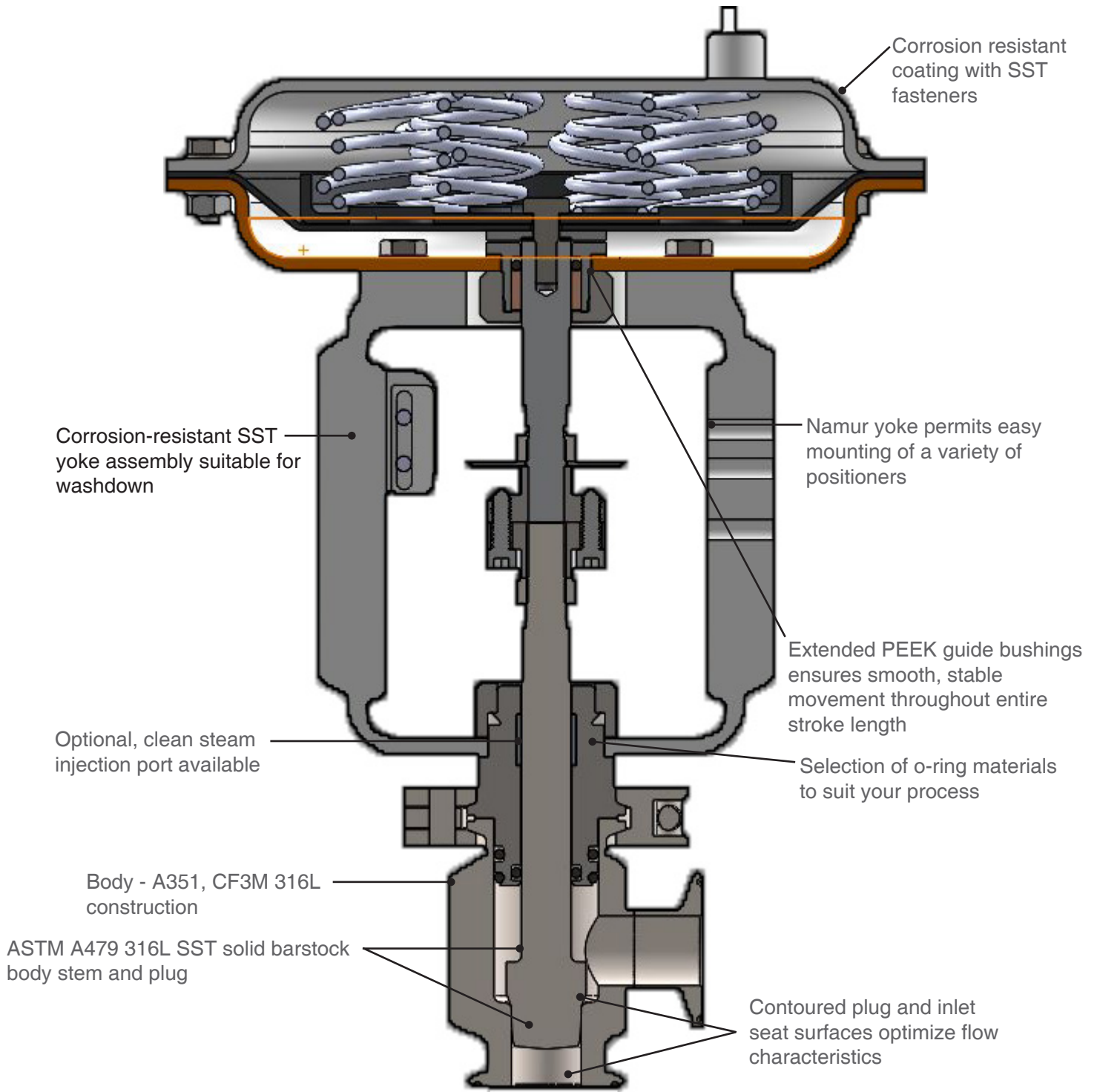
**NEW Bi-direction flow capability.** Valve can be installed with inlet on side or bottom. Self draining when valve is installed with inlet on side and valve in upright position as shown.



#### SPECIFICATION

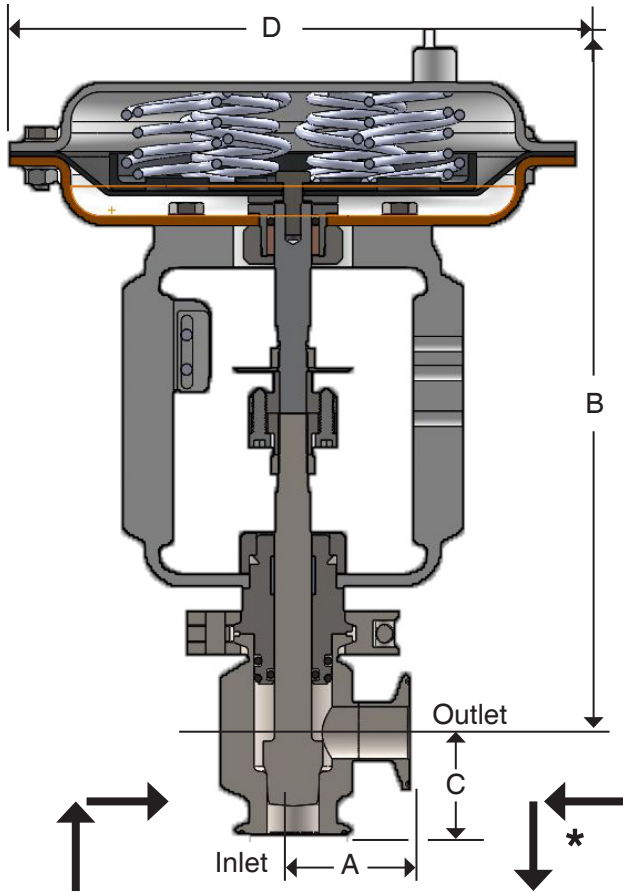
Stainless steel sanitary control valve offers a cast ASTM A351, CF3M, 316L body with ASTM A479 316L barstock material, for all wetted metal parts. The valve stem shall be supported by a one piece, SS NAMUR Yoke with two extended PEEK™ Guide bushings to provide structural rigidity and true guiding in any installation orientation. Guiding of valve stem/plug shall be outside of the wetted process areas of valve above stem o-ring. Control valve shall have extended guide bushing to provide additional support for multiple installation orientations. Valve shall be self draining in at least one orientation.

O-RING STEM SEAL (1-1/2" – 3")



Stainless Steel sanitary control valve offers a cast ASTM A351, CF3M, 316L body with ASTM A479 barstock material for all wetted parts. Valve stem sealed by FDA approved material o-ring. Guiding of valve stem/plug shall be outside of the wetted process areas of the valve above the o-ring. The control valve shall be free of threads within the wetted process area. Valve shall have one piece SS Namur Yoke enabling Namur positioner bracketing and providing stem stabilization for Horizontal mounting. Valve is self draining in any orientation.

**DIMENSIONS**



**INCHES**

Valve Size	Dimensions				Weight Lbs
	A	B	C	D	
1"	1.95	11.80	1.70	9.50 (35M)	27 (35M)
				12.50 (55M)	42 (55M)

**METRIC**

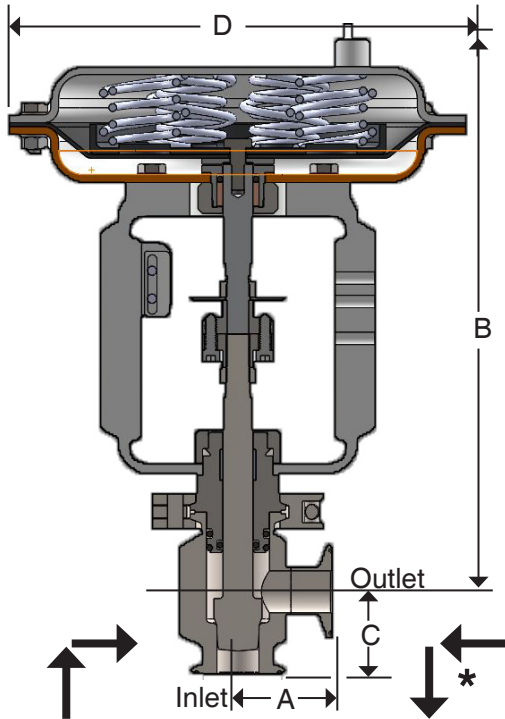
Valve Size	Dimensions				Weight Kgs
	A	B	C	D	
DN25	53	303	49	241 (35M)	12 (35M)
				318 (55M)	19 (55M)

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

**Installation and Drainability:**

- Valve is bi-directional, flow can enter either connection
- When valve is open, there is no hold up volume
- \* For gravity drainage from inlet to outlet, install as shown above.

**DIMENSIONS**



**INCHES**

Valve Size	Dimensions				Weight Lbs
	A	B	C	D	
1-1/2"	3.08	11.05	2.70	12.50 (55M)	47 (35M)
				15.00 (85M)	57 (55M)
2"	3.08	11.05	2.70	12.50 (55M)	47 (35M)
				15.00 (85M)	57 (55M)

**METRIC**

Valve Size	Dimensions				Weight Kgs
	A	B	C	D	
DN40	78	381	84	318 (55M)	21 (35M)
				381 (85M)	26 (55M)
DN50	78	381	84	318 (55M)	21 (35M)
				381 (85M)	26 (55M)

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

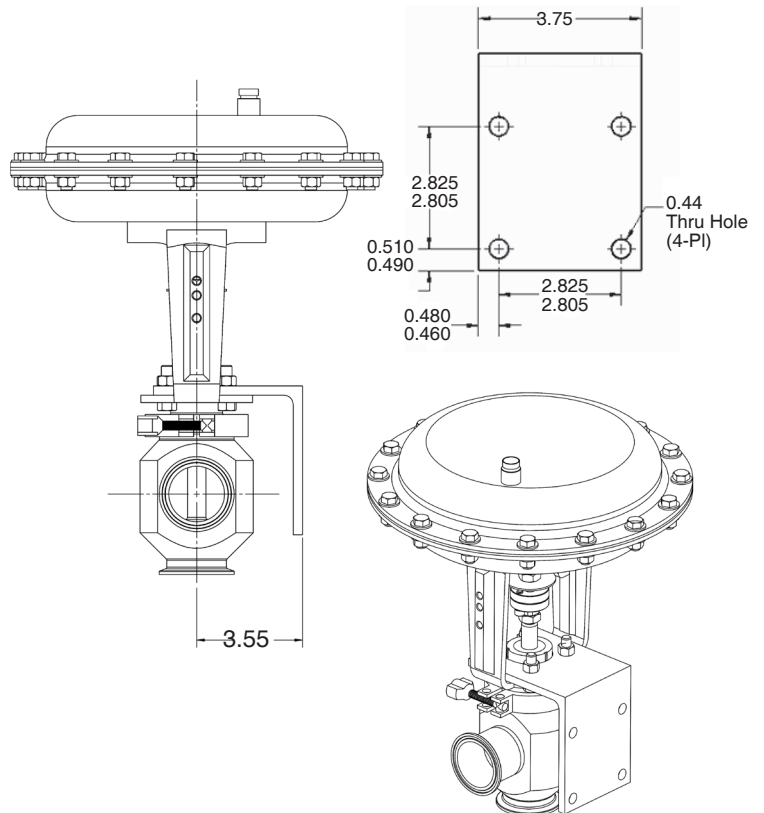
**Installation and Drainability:**

- Valve has no hold-up when installed as shown above, but must be drained below inlet.
- Valve will gravity drain from inlet to outlet when installed with inlet horizontal (outlet facing down)

**NEW FBCV-OR CONTROL VALVE OPTION: MOUNTING BRACKET**

We now have a Stainless Steel Bracket Kit for all of our 1" – 3" FBCV-OR angle style, and 1" Inline style Control Valves.

- The bracket (shown to the right) mounts to the base of the Namur Yoke and provides exceptional support for mounting to a 2" pipe stand (Hardware included), wall or panel.
- **Specifications:**
  - **Materials:**
    - Bracket, HHCS: 316SS
    - Ubolts, Nut (for mounting to pipe stand): 304SS
    - Washers: 18/8 SS
  - **Surface Finish:**
    - 316SS Angle Standard Material Finish
- See the bottom of the FBCV-OR pricing pages in the Steriflow F&B Valve Price List for Kit FBCV-OR-BRKT-KIT Pricing.



**Kit Model Number:** FBCV-OR-BRKT-KIT

ORDERING SCHEMATIC- FBCV-OR 1"

Model	Size	Body Material	1, 2, 3, 4, 5, 6	7 & 8	9 & 10	11 & 12	13 & 14	15
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FBCV	Model
SP	Side Mounted Positioner
TP	Top Mounted Positioner

	Size
100	1"

	Stem Seal O-Ring Seal
OR	

1, 2, 3, 4, 5, 6	1" Tri-C Body, Cv, Char., Finish
DALN1A	1" LIN Cv 3.5 32Ra Int./Cast Ext. (Std)
DAEPA1	1" EQP Cv 3.5 32Ra Int./Cast Ext. (Std)
DALN2A	1" LIN Cv 5.0 32Ra Int./Cast Ext. (Std)
DAEPA2	1" EQP Cv 5.0 32Ra Int./Cast Ext. (Std)
EALN3A	1" LIN Cv 7.5 32Ra Int./Cast Ext. (Std)
EAEPA3	1" EQP Cv 7.5 32Ra Int./Cast Ext. (Std)
EALN4A	1" LIN Cv 15 32Ra Int./Cast Ext. (Std)
EAEPA4	1" EQP Cv 15 32Ra Int./Cast Ext. (Std)
ZZZZZZ	Non-Standard

7 & 8	Stem Seal O-Ring Seal
EP	EPDM/FDA/USP CL6/3A 0010
VI	Viton/FDA/USP CL6/3A 0020
BN	Buna-N/FDA 0030
FZ	Flouraz/FDA/USP CL6 0040
SI	Silicone/FDA 0050
KZ	Kalrez/FDA/USP CL6 0060

9 & 10	Actuator/Range
3D	35M ALL DIR STL/PAINTED
3R	35M ALL REV STL/PAINTED
5D	55M ALL DIR STL/PAINTED
5R	55M ALL REV STL/PAINTED
D3	35M ALL DIR 304 SST
R3	35M ALL REV 304 SST
D5	55M ALL DIR 304 SST
R5	55M ALL REV 304 SST

11 & 12	Action
DD	Direct
RR	Reverse
ZZ	Non-Standard

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M/3-15P
2A	Air Reg. w/ Gage
3A	I/P Trans 4-20M/6-30P
ZZ	Non-Standard

15	SMP
0	None
A	SMP DIR/REV 3-15
B	SMP DIR/REV 3-9
C	SMP DIR/REV 9-15
D	SMP/IP DIR/REV 4-20
E	SMP/IP DIR/REV 4-12
F	SMP/IP DIR/REV 12-20
G	MK16IQ DIR/REV
H	MK16IQ-B DIR/REV
J	MK16IQ-FF DIR/REV
Z	Non-Standard

ORDERING SCHEMATIC - FBCV-OR 1 1/2" & 2"

Model	Size	Body Material	1, 2, 3, 4, 5, 6	7 & 8	9 & 10	11 & 12	13 & 14	15

FBCV	Model
SP	Side Mounted Positioner
TP	Top Mounted Positioner

	Size
150	1 1/2"
200	2"

	Stem Seal
OR	O-Ring Seal

1 2,3,4,5,6	1-1/2" Tri-C Body, Cv, Char., Finish
FALN1A	1-1/2" LIN Cv 5 32Ra Int./Cast Ext. (Std)
FAEPA1	1-1/2" EQP Cv 5 32Ra Int./Cast Ext. (Std)
FALN2A	1-1/2" LIN Cv 10 32Ra Int./Cast Ext. (Std)
FAEPA2	1-1/2" EQP Cv 10 32Ra Int./Cast Ext. (Std)
FALN3A	1-1/2" LIN Cv 15 32Ra Int./Cast Ext. (Std)
FAEPA3	1-1/2" EQP Cv 15 32Ra Int./Cast Ext. (Std)
GALN4A	1-1/2" LIN Cv 20 32Ra Int./Cast Ext. (Std)
GAEPA4	1-1/2" EQP Cv 20 32Ra Int./Cast Ext. (Std)
GALN5A	1-1/2" LIN Cv30 32Ra Int./Cast Ext. (Std)
GAEPA5	1-1/2" EQP Cv30 32Ra Int./Cast Ext.(Std)
ZZZZZZ	Non-Standard

1 2,3,4,5,6	1-1/2" Tri-C Body, Cv, Char., Finish
HALN1A	2" LIN Cv 10 32Ra Int./Cast Ext. (Std)
HAEPA1	2" EQP Cv 10 32Ra Int./Cast Ext. (Std)
HALN2A	2" LIN Cv 15 32Ra Int./Cast Ext. (Std)
HAEPA2	2" EQP Cv 15 32Ra Int./Cast Ext. (Std)
HALN3A	2" LIN Cv 20 32Ra Int./Cast Ext. (Std)
HAEPA3	2" EQP Cv 20 32Ra Int./Cast Ext. (Std)
HALN4A	2" LIN Cv 30 32Ra Int./Cast Ext. (Std)
HAEPA4	2" EQP Cv 30 32Ra Int./Cast Ext. (Std)
IALN5A	2" LIN Cv40 32Ra Int./Cast Ext. (Std)
IAEPA5	2" EQP Cv40 32Ra Int./Cast Ext.(Std)
IALN6A	2" LIN Cv60 32Ra Int./Cast Ext. (Std)
JAML7A	2" MOD LIN Cv70 32Ra Int./Cast Ext.(Std)
ZZZZZZ	Non-Standard

7 & 8	Stem Seal
O-Ring Seal	
EP	EPDM/FDA/USP CL6/3A
VI	Viton/FDA/USP CL6/3A
BN	Buna-N/FDA
FZ	Flouraz/FDA/USP CL6
SI	Silicone/FDA
KZ	Kalrez/FDA/USP CL6

9 & 10	Actuator/Range
5D	55M ALL DIR STL/PAINTED
5R	55M ALL REV STL/PAINTED
8D	85M ALL DIR STL/PAINTED
8R	85M ALL REV STL/PAINTED
D5	55M ALL DIR 304 SST
R5	55M ALL REV 304 SST
D8	55M ALL DIR 304 SST
R8	55M ALL REV 304 SST

11 & 12	Action
DD	Direct
RR	Reverse
ZZ	Non-Standard

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M/3-15P
2A	Air Reg. w/ Gage
3A	I/P Trans 4-20M/6-30P
ZZ	Non-Standard

15	SMP
0	None
A	SMP DIR/REV 3-15
B	SMP DIR/REV 3-9
C	SMP DIR/REV 9-15
D	SMP/IP DIR/REV 4-20
E	SMP/IP DIR/REV 4-12
F	SMP/IP DIR/REV 12-20
G	MK16IQ DIR/REV
H	MK16IQ-B DIR/REV
J	MK16IQ-FF DIR/REV
Z	Non-Standard



### ORDERING SCHEMATIC - FBCV-OR 3"

Model	Size	Body Material	1, 2, 3, 4, 5, 6	7 & 8	9 & 10	11 & 12	13 & 14	15

FBCV	Model
SP	Side Mounted Positioner

Size	
300	3"

Stem Seal	
OR	O-Ring Seal

1, 2, 3, 4, 5, 6	3" Tri-C Body, Cv, Char., Finish
JALN1A	3" LIN Cv 70 32Ra Int./Cast Ext. (Std)
JAEP A1	3" EQP Cv 70 32Ra Int./Cast Ext. (Std)
JALN2A	3" LIN Cv 85 32Ra Int./Cast Ext. (Std)
JAEP A2	3" EQP Cv 85 32Ra Int./Cast Ext. (Std)
JAEP A3	3" EQP Cv 100 32Ra Int./Cast Ext. (Std)
ZZZZZZ	Non-Standard

7 & 8	Stem Seal
EP	EPDM/FDA/USP CL6
VI	Viton/FDA/USP CL6
BN	Buna-N/FDA
FZ	Flouraz/FDA/USP CL6
SI	Silicone/FDA
KZ	Kalrez/FDA/USP CL6
ZZ	Non-Standard

9 & 10	Actuator/Range
8D	85M ALL DIR STL/PAINTED
8R	35M ALL REV STL/PAINTED
D8	85M ALL DIR 304 SST
R8	85M ALL REV 304 SST
ZZ	Non-Standard

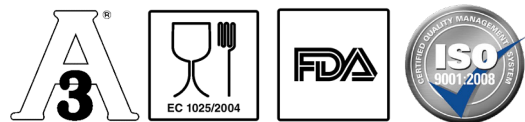
11 & 12	Action
DD	Direct
RR	Reverse
ZZ	Non-Standard

13 & 14	Accessories
00	None
1A	I/P Trans. 4-20M/3-15P
2A	Air Reg. w/ Gage
3A	I/P Trans 4-20M/6-30P
ZZ	Non-Standard

15	SMP
0	None
A	SMP DIR/REV 3-15
B	SMP DIR/REV 3-9
C	SMP DIR/REV 9-15
D	SMP/IP DIR/REV 4-20
E	SMP/IP DIR/REV 4-12
F	SMP/IP DIR/REV 12-20
G	MK16IQ DIR/REV
H	MK16IQ-B DIR/REV
J	MK16IQ-FF DIR/REV
Z	Non-Standard

### DOCUMENTATION

A Certificate of Compliance is available at no charge when requested at time of order. The "Unicert" is a chargeable document. If needed, a "Unicert" must be requested at time of order.



Richards Industrials reserves the right to make revisions to its products, specifications, literature, and related information without notice.