

# FB5C Series

## 3A Sanitary Back Pressure Regulators

The FB5C is available with a hard seat and a variety of diaphragm and o-ring materials, making the valve well-suited for virtually any sterile back pressure application.

The FB5C operates by sensing the inlet pressure, or back pressure, beneath the diaphragm, as flow enters from inlet port on the side. As the back pressure exceeds the setpoint, the diaphragm force compresses the range spring permitting the stem to move from the seat toward the open position. As the flow increases, the back pressure is relieved and the spring and diaphragm relax, allowing the stem to return to the normally closed position. If a different set point is desired, a simple turn of the adjusting screw will increase or decrease the setting to any set point within the range covered by the regulator's spring.

### FEATURES

- No guiding surfaces in the fluid – prevents particulate generation
- 100% 316L body and trim
- Self-draining
- No threads to disassemble for cleaning
- Clean-in-Place, Steam-in-Place – dome features spring arrangement to allow CIP/SIP



### AVAILABLE FINISHES

#### Body

- Standard: 32Ra (.81 Ra  $\mu\text{m}$ ) mechanical finish on all wetted surfaces; as cast finish on exterior.

#### Spring Housing

- Standard: as cast finished 316SST

#### Adjusting Screw and Handle

- Standard: 32Ra (.81 Ra  $\mu\text{m}$ ) (Note: adjusting screw is a threaded part)



**SPECIFICATIONS – O-RING DIAPHRAGM**

Sizes: 3/4", 1", 1-1/2" 2", 3" (DN20-DN85)

End Connections: Sanitary Clamp

Trim Materials: 316L Stainless Steel (ASTM A479, S31603)

Body Materials: ASTM A351, CF3M 316L

Seat Materials

- Standard hard seat – integral 316L SST seat
- Soft seats are available, consult the factory for more information.

Spring Housing Materials

- CF8M cast SST (3/4" – 3")

Diaphragm Materials

- EPDM/Nylon (to 275°F, 135°C), FDA
- EPDM (to 120°F, 49°C), 3A spec.
- Jorlon (to 400°F, 204°C), 3A & FDA

O-Ring Materials

- EPDM (to 275°F, 135°C) - 3A & FDA
- Teflon-Encapsulated Viton (to 400°F, 204°C) - 3A & FDA

Shutoff: ANSI Class III hard seat

Body Pressure Temperature Rating: EPDM/Jorlon (dependent upon construction)

Valve Size	PSIG @ 100°F	PSIG @ 250°F	ΔP
3/4", 1"	200 (13,7)	150 (10,3)	150
1-1/2"	125 (8,6)	100 (6,9)	100
2", 3"	100 (6,9)	75 (5,2)	75

Note: Max temp for 3A/EDPM is 120°F (49°C); 3-8 spring range has a max of 40psi.

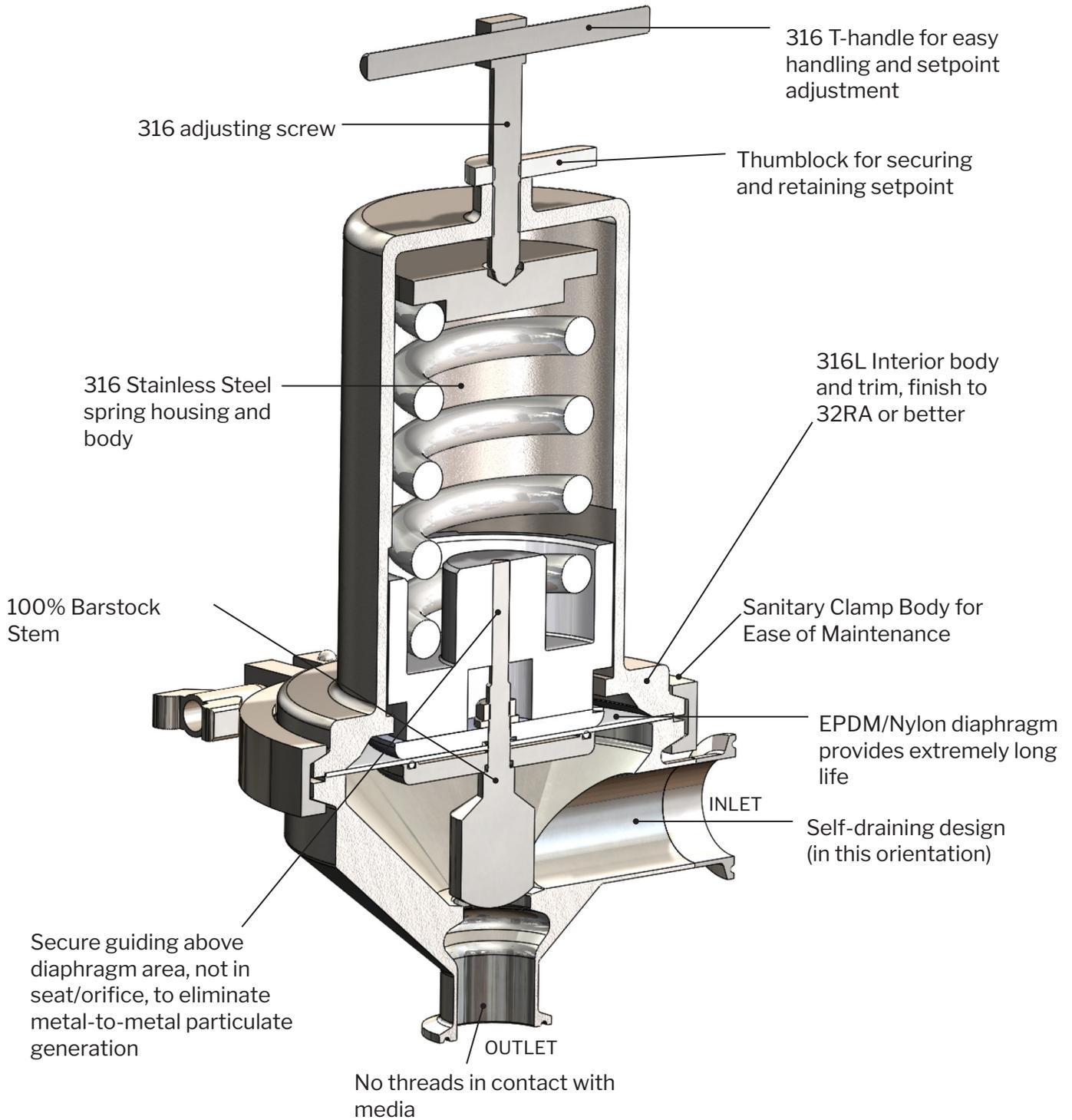
Set Point Spring Ranges PSI (Bar)		
1/2"-1"	1-1/2"	2"-3"
3-8 (0,2-0,5)	3-25* (0,2-1,7)	5-25 (0,34-1,7)
5-30 (0,34-2,1)	10-25 (0,7-1,7)	10-25 (0,7-1,7)
15-50 (1,0-3,4)	15-40 (1,0-2,7)	15-60 (1,0-4,1)
35-90 (2,4-6,2)	35-85 (2,4-5,8)	
50-105 (3,4-7,2)		

\*EPDM Diaphragm only

Cv (Kv) Ratings:

Valve Size	Available Cv (Kv)	Cv for Relief Valve Sizing
3/4"	1.5 (1,3)	4.5 (3,9)
1"	3.0 (2,6); 5.5 (4,7)	10.7 (9,2)
1-1/2"	10.0 (8,6)	26.3 (22,6)
2"	19.0 (16,3)	56.5 (48,6)
3"	28.0 (24,1)	67.1 (57,7)

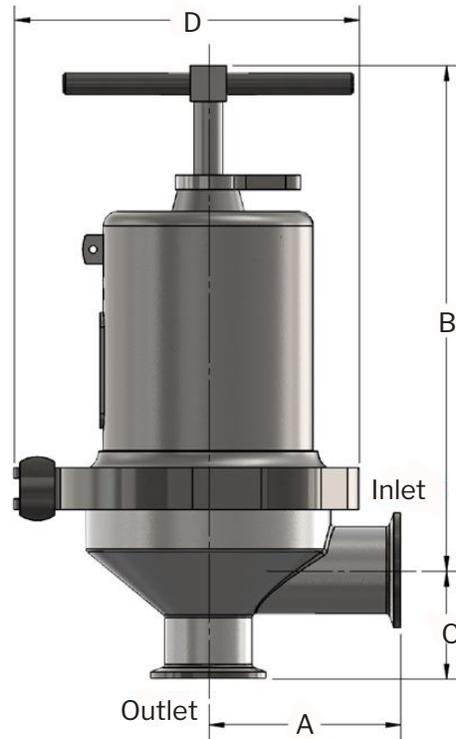
FEATURES & BENEFITS



APPLICATIONS

The FB5C is suitable for a variety of process and clean utility applications in the food, beverage, dairy and health and beauty industries including: CIP, SIP, centrifuges, autoclaves, culinary equipment, sterilizers, process tanks, nitrogen blanketing, etc.

DIMENSIONS



F & B Valve	Dimensions (inches)				Weight Lbs
	A	B	C	D	
3/4" Back Pressure Regulator	3.29	8.33	1.50	5.95	9.64
1" Back Pressure Regulator, Ø0.540 Orifice	3.31	8.74	1.87	5.95	11.44
1" Back Pressure Regulator, Ø0.758 Orifice	3.31	8.74	1.87	5.95	11.39
1-1/2" Back Pressure Regulator	4.20	10.98	2.57	8.78	23.83
2" Back Pressure Regulator	5.75	17.76	2.68	10.95	64.39
3" Back Pressure Regulator	6.00	17.81	3.23	10.95	70.97

F & B Valve	Dimensions (mm)				Weight Kgs
	A	B	C	D	
DN20 Back Pressure Regulator	83,5	211,5	38	151	4
DN25 Back Pressure Regulator, Ø0.540 Orifice	84	222	47,5	151	5
DN25 Back Pressure Regulator, Ø0.758 Orifice	84	222	47,5	151	5
DN40 Back Pressure Regulator	106,6	279	65,2	223	11
DN50 Back Pressure Regulator	146	451	68	278	29
DN80 Back Pressure Regulator	152,4	452,3	82	278	32

**FB5C SERIES SANITARY BACK PRESSURE REGULATORS**

ORDERING SCHEMATIC

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

Model	
FB5C	Sanitary Back Pressure Regulator

Size	
075	3/4" (DN20)
100	1" (DN25)
150	1-1/2"(DN40)
200	2" (DN50)
300	3" (DN80)

Body Material	
6L	316L SST

1 & 2		Body	
		Finish	Cv (Kv)
A	32 Ra (.81 Ra µm) Interior / Cast Exterior (Standard)	A	1.5 (1,3)
		D	3.0 (2,6)
		K	5.5 (4,6)
		M	10 (8,7)
		N	19 (16,4)
		P	28 (24,2)
ZZ	Non- Standard		

3 & 4		Trim	
		Finish	Cv (Kv) & Seat
A	32 Ra (.81 Ra µm) (Standard)	A	Cv 1.5 (1,3) Hard Seat
		B	Cv 3.0 (2,6) Hard Seat
		L	Cv 5.5 (4,6) Hard Seat
		P	Cv 10 (8,7) Hard Seat
		S	Cv 19 (16,4) Hard Seat
		V	Cv 28 (24,2) Hard Seat
ZZ	Non-Standard		

5 & 6		O-Ring / Diaphragm	
EE	EPDM / EPDM Diaphragm		
TY	Teflon Encaps. Viton / Jorlon Diaph.		
ZZ	Non-Standard		

7 & 8		Range	
		Adjusting Screw Finish	Range (PSI/Bar)
A	Standard	A	3-8 (0,2-0,6)
		B	3-25 (0,2-1,7)
		C	5-25 (0,3-1,7)
		D	5-30 (0,3-2,1)
		E	10-25 (0,7-1,7)
		F	5-25 (0,3-1,7)
		P	15-25 (0,3-1,7)
		G	15-40 (0,3-2,8)
		H	15-50 (0,3-3,4)
		J	15-60 (0,3-4,1)
		K	35-85 (2,4-5,9)
L	35-90 (2,4-6,2)		
Q	50-105 (0,3-7,2)		
ZZ	Non-Standard		

9 & 10		Diaphragm	
EP	EPDM		
JL	JORLON		
ZZ	NON - STANDARD		

11 & 12		Actuator	
AA	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.

