

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 hygienic 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 set-point, 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

***CRN Registration Number Available For Specific Models – Contact Factory**



AVAILABLE FINISHES

Body

- Standard: 32Ra (.81 Ra μm) 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 μm) (Note: adjusting screw is a threaded part)



SPECIFICATIONS – 3A VALVES (FB5C)*

Sizes: 1/2", 3/4", 1", 1-1/2" 2", 3" (DN15-DN80)

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

Spring Housing Materials

- CF8M cast SST (1/2" – 3")

Diaphragm Materials for 3A Valves

- EPDM (to 120°F, 49°C), 3A spec. (1/2" - 1" only)
- Jorlon (to 250°F, 121°C), 3A & FDA

O-Ring Materials for 3A Approved Valves

- EPDM (to 120°F, 49°C)
- Teflon-Encapsulated Viton (to 250°F, 121°C)

Shutoff: ANSI Class III hard seat

Set Point Spring Ranges:

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

*EPDM Diaphragm Only

Cv (Kv) Ratings:

Valve Size	Available Cv (Kv)	Cv for Relief Valve Sizing
1/2"	0.5 (0,4)	0.6 (0,5)
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)

Body Pressure Temperature Rating for 3A Approved Valves

Valve Size	PSIG @ 100F	PSIG @ 120F	PSIG @ 100F	PSIG @ 120F	PSIG @ 100F	PSIG @ 250F	ΔP
	EPDM Dia/ EPDM O-ring	EPDM Dia/ EPDM O-ring	Jorlon Dia/ EPDM O-ring	Jorlon Dia/ EPDM O-ring	Jorlon Dia/ TFE-Vit Encap O-ring	Jorlon Dia/ TFE-Vit Encap O-ring	
1/2", 3/4", 1"	200	175	200	175	200	175	150
1-1/2"	N/A	N/A	125	100	125	100	100
2", 3"	N/A	N/A	100	75	100	75	75

*For info on FB5C High Temp valves (FB5CHT), see page 3

SPECIFICATIONS – HIGH TEMP VALVES (FB5CHT)*

Sizes: 1/2", 3/4", 1", 1-1/2" 2", 3" (DN15-DN80)

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
- Optional Soft seats
 - Jorlon (FDA & USP Class VI) for steam and hot fluid service to 338°F (170°C), Cv 3.0 and larger only
 - PEEK (FDA & USP Class VI) for steam and hot fluid service to 350°F (177°C), Cv 0.5 and larger
 - PTFE 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, Cv 0.5 and larger

Spring Housing Materials

- CF8M cast SST (1/2" – 3")

Diaphragm Materials for High Temp Valves

- EPDM/Nylon (to 275°F, 135°C), FDA (1/2" - 1" only)
- Jorlon (to 350°F, 176°C)

O-Ring Materials for High Temp Valves

- EPDM (to 275°F, 135°C)
- Teflon-Encapsulated Viton (to 350°F, 176°C)

Shutoff: ANSI Class III hard seat

ANSI Class VI Soft Seat

Set Point Spring Ranges:

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

*EPDM Diaphragm Only

Cv (Kv) Ratings:

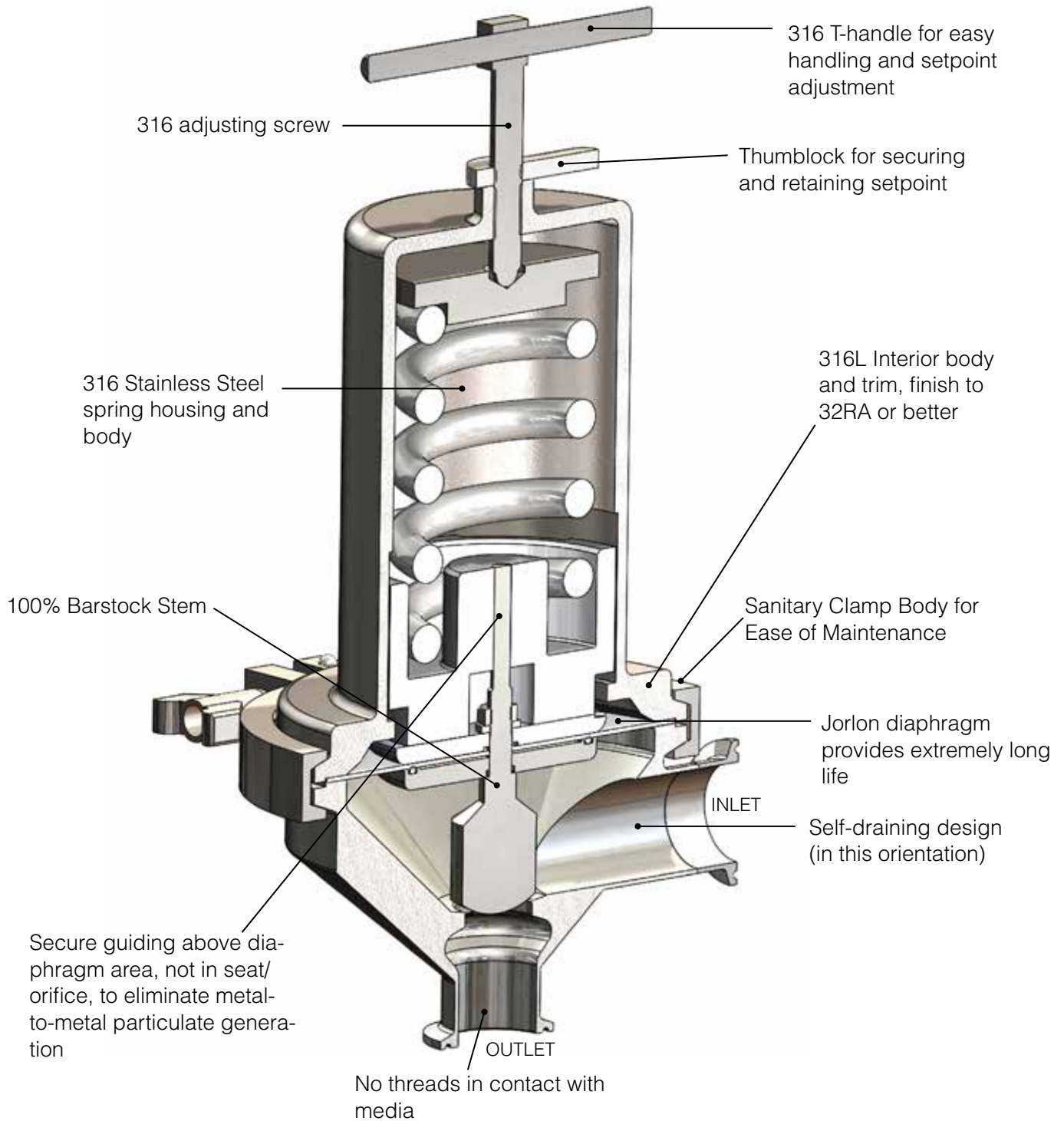
Valve Size	Available Cv (Kv)	Cv for Relief Valve Sizing
1/2"	0.5 (0,4)	0.6 (0,5)
3/4"	1.5 (1,3)	4.5 (3,9)
1"	3.0 (2,6); 5.5 (4,7)	10.7 (9,2)
1-1/2"	10.0 (8,6)	26.3 (22,6)
2"	19.0 (16,3)	56.5 (48,6)
3"	28.0 (24,1)	67.1 (57,7)

Body Pressure Temperature Rating for High Temperature Valves

Valve Size	PSIG @ 100F	PSIG @ 275F	PSIG @ 100F	PSIG @ 350F	ΔP
	EPDM Dia/ EPDM O-ring	EPDM Dia/ EPDM O-ring	Jorlon Dia/ TFE-Vit Encap O-ring	Jorlon Dia/ TFE-Vit Encap O-ring	
1/2", 3/4", 1"	200	100	200	150	100
1-1/2"	N/A	N/A	125	80	80
2", 3"	N/A	N/A	100	50	50

*For info on FB5C 3A valves (FB5C), see page 2

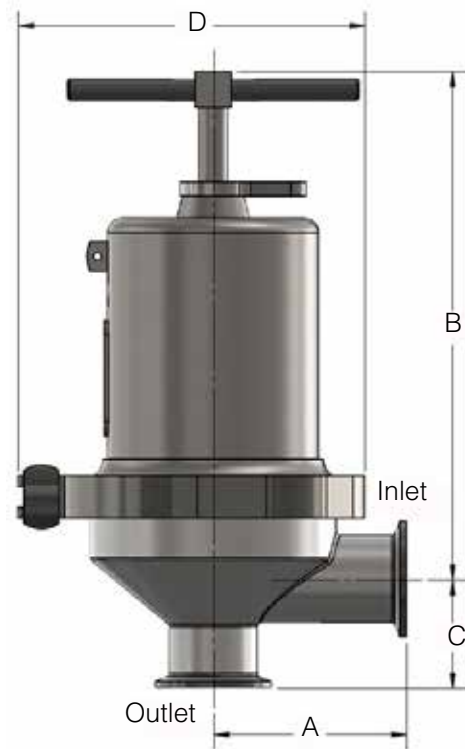
FEATURES & BENEFITS



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	
1/2"/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	
DN15/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 FB5C (3A)

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

	Model
FB5C	Sanitary Back Pressure Regulator (3A)

	Size
050	1/2" (DN15)
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)	B 0.5 (0,4)
		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)
		Q 30 (26)
ZZ	Non- Standard	

3 & 4	Finish	Trim	
		Cv (Kv) & Seat	
A	32 Ra (.81 Ra µm)(Standard)	5 Cv 0.5 (0,4) Hard Seat	
		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 Diaph.
TY	Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only)
EJ	EPDM / Jorlon Diaph.
ZZ	Non-Standard

7 & 8		Range	
Adjusting Screw Finish		Range (PSI/Bar)	
A	Standard	A	3-8 (0,2-0,6)
		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)
		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 (3/4" & 1" only)
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.



FB5C SERIES SANITARY BACK PRESSURE REGULATORS

ORDERING SCHEMATIC FB5CHT (HIGH TEMP)

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

Model	Sanitary Back Pressure High Temp Regulator (Not 3A)
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Size	
050	1/2" (DN15)
075	3/4" (DN20)
100	1" (DN25)
150	1-1/2"(DN40)
200	2" (DN50)
300	3" (DN80)

Body Material	316L SST
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1 & 2	Body	
	Finish Cv (Kv)	
A	32 Ra (.81 Ra µm) Interior / Cast Exterior (Standard)	B 0.5 (0,4)
		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)
	Q 30 (26)	
ZZ	Non- Standard	

3 & 4	Trim	
	Finish Cv (Kv) & Seat	
A	32 Ra (.81 Ra µm)(Standard)	5 Cv 0.5 (0,4) Hard Seat
		8 Cv 0.5 (0,4) Teflon Seat
		6 Cv 0.5 (0,4) PEEK Seat
		A Cv 1.5 (1,3) Hard Seat
		9 Cv 1.5 (1,3) Teflon Seat
		7 Cv 1.5 (1,3) PEEK Seat
		B Cv 3.0 (2,6) Hard Seat
		F Cv 3.0 (2,6) Teflon Seat
		G Cv 3.0 (2,6) Jorlon Seat
		B Cv 3.0 (2,6) PEEK Seat
		L Cv 5.5 (4,6) Hard Seat
		M Cv 5.5 (4,6) Teflon Seat
		N Cv 5.5 (4,6) Jorlon Seat
		O Cv 5.5 (4,6) PEEK Seat
		P Cv 10 (8,7) Hard Seat
		Q Cv 10 (8,7) Teflon Seat
		R Cv 10 (8,7) Jorlon Seat
		3 Cv 10 (8,7) PEEK Seat
		S Cv 19 (16,4) Hard Seat
		T Cv 19 (16,4) Teflon Seat

3 & 4	Trim, Cont.	
	Finish Cv (Kv) & Seat	
A	32 Ra (.81 Ra µm)(Standard)	U Cv 19 (16,4) Jorlon Seat
		4 Cv 19 (16,4) PEEK Seat
		V Cv 28 (24,2) Hard Seat
		W Cv 28 (24,2) Teflon Seat
		X Cv 28 (24,2) Jorlon Seat
	Y Cv 28 (24,2) PEEK Seat	
ZZ	Non-Standard	

5 & 6	O-Ring / Diaphragm
EE	EPDM / EPDM Diaph.
TY	Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only)
EJ	EPDM / Jorlon Diaph.
ZZ	Non-Standard

7 & 8	Range	
	Adjusting Screw Finish Range (PSI/Bar)	
A	Standard	A 3-8 (0,2-0,6)
		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)
		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 (3/4" & 1" only)
JL	JORLON
ZZ	NON - STANDARD

11 & 12	Actuator
AA	Standard

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



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