

# FB6C Series

## Sanitary Pressure Regulators

The FB6C Sanitary Pressure Regulator is designed to regulate pressure in systems requiring the maintenance of sanitary conditions.

The FB6C operates by sensing pressure under the diaphragm on the downstream side of the seat. 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. 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

- No guiding surfaces in the fluid - prevents particulate generation
- 316L investment cast body; wetted parts made from 316L
- Self-draining
- Great Accuracy (large diaphragm yields less droop)  
Ask your rep for a FB6C performance calculator demonstration
- Clean-in-Place, Steam-in-Place – dome lock pin to allow CIP/SIP
- Jorlon diaphragm: Provides excellent chemical resistance and is FDA and 3A approved.

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



### AVAILABLE FINISHES

#### Body:

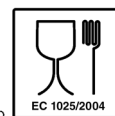
- Standard: 32 Ra (.81 Ra  $\mu\text{m}$ ) mechanical finish on inside wetted surfaces; as cast finish on exterior.

#### Spring Housing:

- Standard: investment cast finished 316SST

#### Adjusting Screw and Handle:

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



SPECIFICATIONS - 3A VALVES (FB6C)\*

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

**End Connections:** Sanitary Clamp

**Body Connections:** Sanitary Clamp – Standard for all sizes

**Body Materials:** ASTM A351, CF3M 316L

**Trim Materials:**

- ASTM A479, 316L (other materials upon request)

**Seat Materials:**

- Standard hard seat – integral 316L SST seat

**Spring Housing Materials:**

- 1/2" - 3" - Material: A351 CF8M 316SS Investment casting

**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:**

Valve Size	Set Point Ranges, PSI (bar)
1/2" - 1" DN20 & DN25	3-8* (0,2-0,5), 5-25 (0,37-1,7), 15-50 (1,0-3,4), 40-90 (2,7-6,2), or 75-135 (5,2-9,3)
1-1/2", DN40	10-25 (0,7-1,7), 15-50 (1,0-3,4) or 35-100 (2,4-6,9)
2", DN50	10-25 (0,7-1,7) or 15-60 (1,0-4,1)
3", DN80	15-25 (1,0-1,7) or 15-60 (1,0-4,1)

\* Maximum pressure drop 40 psi, EPDM diaphragm only

**Cv (Kv) Ratings:**

Valve Size	Available Cv (Kv)	Cv for Relief Valve Sizing
1/2"DN15	0.6 (0,5)	2.4 (2,0)
3/4"DN20	2.9 (2,5)	3.8 (3,3)
1"DN25	4.7 (4,1); 8.0 (7,0)	10.7 (9,2)
1-1/2"DN40	14.8 (12,8)	26.3 (22,6)
2"DN50	26.3 (22,8)	56.5 (48,6)
3"DN80	29.4 (25,4)	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

Call factory for optional trim (not specified); Maximum pressure drop is 40PSI for 0.6Cv

\*For info on FB6C High Temp valves (FB6CHT), see page 3

SPECIFICATIONS - HIGH TEMP VALVES (FB6CHT)\*

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

**End Connections:** Sanitary Clamp

**Body Connections:** Sanitary Clamp – Standard for all sizes

**Body Materials:** ASTM A351, CF3M 316L

**Trim Materials:**

- ASTM A479, 316L (other materials upon request)

**Seat Materials:**

- Standard hard seat – integral 316L SST seat
- Optional Soft seats
  - Jorlon (FDA & USP Class VI) for steam ad 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:**

- 1/2" - 3" - Material: A351 CF8M 316SS Investment casting

**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:**

Valve Size	Set Point Ranges, PSI (bar)
1/2" - 1" DN20 & DN25	3-8* (0,2-0,5), 5-25 (0,37-1,7), 15-50 (1,0-3,4), 40-90 (2,7-6,2), or 75-135 (5,2-9,3)
1-1/2", DN40	10-25 (0,7-1,7), 15-50 (1,0-3,4) or 35-100 (2,4-6,9)
2", DN50	10-25 (0,7-1,7) or 15-60 (1,0-4,1)
3", DN80	15-25 (1,0-1,7) or 15-60 (1,0-4,1)

\* Maximum pressure drop 40 psi, EPDM diaphragm only

**Cv (Kv) Ratings:**

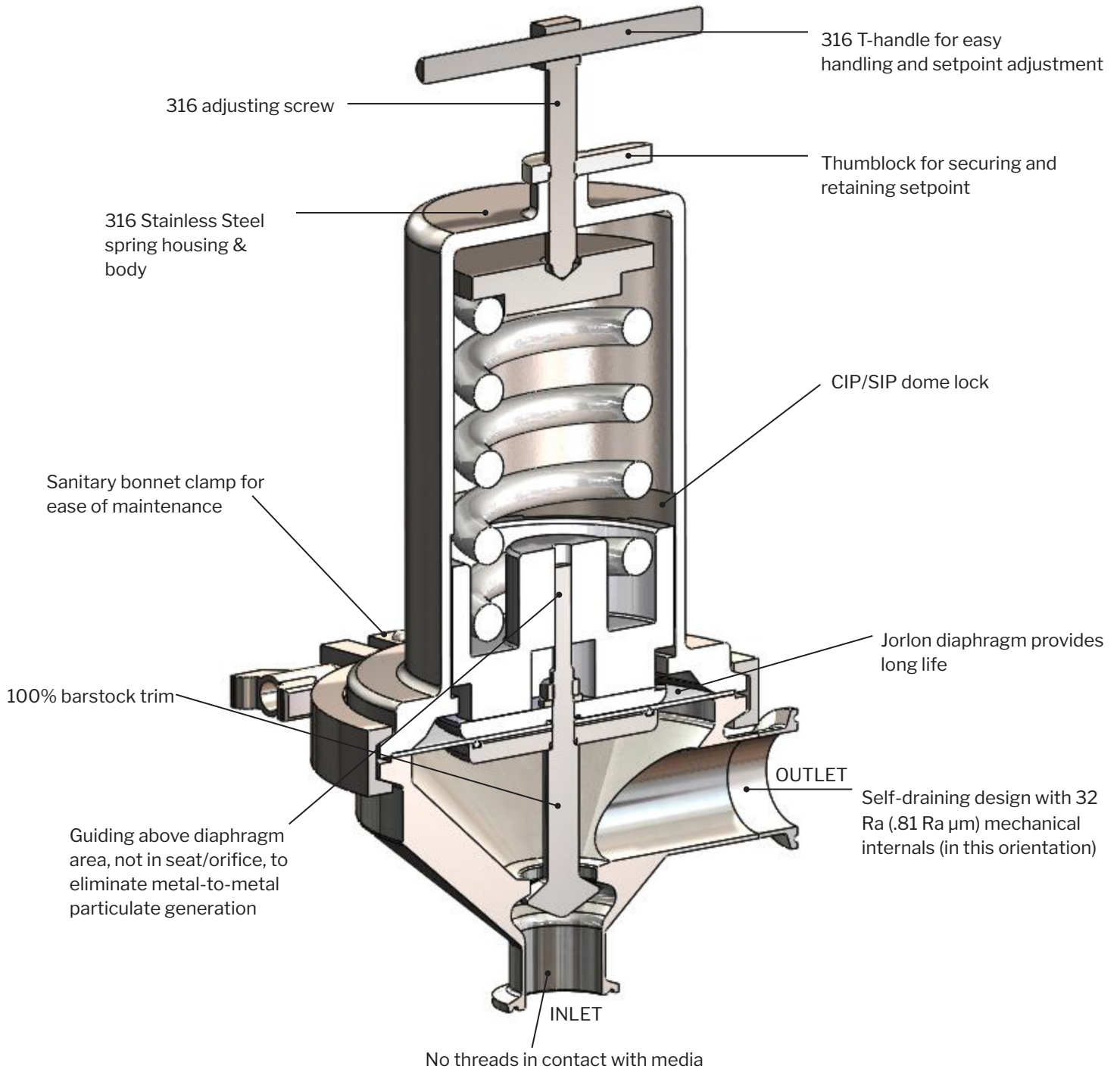
Valve Size	Available Cv (Kv)	Cv for Relief Valve Sizing
1/2"DN15	0.6 (0,5)	2.4 (2,0)
3/4"DN20	2.9 (2,5)	3.8 (3,3)
1"DN25	4.7 (4,1); 8.0 (7,0)	10.7 (9,2)
1-1/2"DN40	14.8 (12,8)	26.3 (22,6)
2"DN50	26.3 (22,8)	56.5 (48,6)
3"DN80	29.4 (25,4)	67.1 (57,7)

**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 FB6C 3A valves (FB6C), see page 2

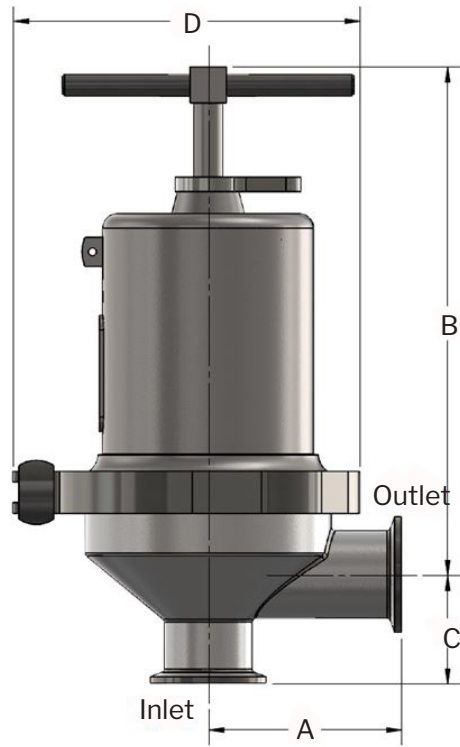
FEATURES & BENEFITS



APPLICATIONS

The FB6C 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



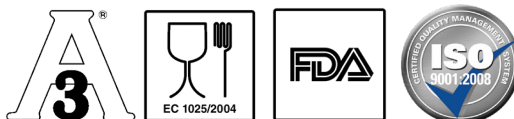
F & B Valve	Dimensions (inches)				Weight Lbs
	A	B	C	D	
1/2", 3/4" Regulator	3.29	8.33	1.50	5.95	9.60
1" Regulator, Ø0.540 Orifice	3.31	8.74	1.87	5.95	11
1" Regulator, Ø0.758 Orifice	3.31	8.74	1.87	5.95	11
1-1/2" Regulator	4.20	10.98	2.57	8.78	23.5
2" Regulator	5.75	17.76	2.68	10.95	62
3" Regulator	6.00	17.81	3.23	10.95	68

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	28
DN80 Back Pressure Regulator	152,4	452,3	82	278	31

SAMPLE SPECIFICATION



Stainless steel sanitary pressure regulator shall be made from 316L material, which includes body and all wetted metal parts. Regulator shall be activated by 3A and FDA approved, EPDM or Jorlon diaphragm. Guiding of valve stem/plug shall be outside of the wetted, process areas of valve internal, above the diaphragm only. Regulator shall be free of threads or crevices within wetted, process areas of valve internal and shall be self draining when installed with inlet vertical and below valve assembly.



ORDERING SCHEMATIC FB6C (3A)

Model	Size	Body Material	1 & 2	3 & 4	5 & 6	7 & 8	9 & 10	11 & 12
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Model	
FB6C	Sanitary Pressure Regulator (3A)

Size	
050	1/2" (DN15)
075	3/4" (DN 20)
100	1" (DN25)
150	1-1/2" (DN40)
200	2" (DN50)
300	3" (DN80)

Body Material	
6L	316L SST

1 & 2 Body			
Finish		Cv	
A	32 Ra (.81 Ra µm) Interior / Cast Exterior (Standard)	B	0.6 (0,5)
		A	2.9 (2,5)
		D	4.7 (4,1)
		K	8.0 (7,0)
		M	14.8(12,8)
		N	26.3 (22,8)
		P	29.4 (25,4)
ZZ	Non- Standard		

3 & 4 Trim			
Finish		Cv & Seat	
A	32 Ra (Std) (.81 Ra µm)	3	Cv 0.6 (0,5) Hard Seat
		A	Cv 2.9 (2,5) Hard Seat
		B	Cv 4.7 (4,1) Hard Seat
		L	Cv 8.0 (7,0) Hard Seat
		P	Cv 14.8 (12,8) Hard Seat
		S	Cv 26.3 (22,8) Hard Seat
		V	Cv 29.4 (25,4) Hard Seat
ZZ	Non-Standard		

5 & 6 O-Ring / Diaphragm	
EE	EPDM / EPDM Diaph. (1/2", 3/4" & 1" only)
TY	Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only)
EJ	EPDM / Jorlon Diaph.
VJ	Viton / Jorlon Diaph (1/2" only)
ZZ	Non-Standard

7 & 8 Range			
Adjusting Screw Finish		Range (PSI)	
A	Standard	A	3-8 (0,2-0,6)
		C	5-25 (0,3-1,7)
		E	10-25 (0,7-1,7)
		P	15-25 (0,3-1,7)
		H	15-50 (0,3-3,4)
		J	15-60 (0,3-4,1)
		M	35-100 (2,4-6,9)
		R	40-90 (2,8-6,2)
T	75-135 (5,2-9,3)		
ZZ	Non-Standard		

9 & 10 Diaphragm	
EP	EPDM (1/2", 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.



FB6C SERIES SANITARY PRESSURE REGULATORS

ORDERING SCHEMATIC FB6CHT (HIGH TEMP)

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

Model	
FB6CHT	Sanitary High Temp Pressure Reg (Not 3A)

Size	
050	1/2" (DN15)
075	3/4" (DN 20)
100	1" (DN25)
150	1-1/2" (DN40)
200	2" (DN50)
300	3" (DN80)

Body Material	
6L	316L SST

1 & 2 Body			
Finish		Cv	
A	32 Ra (.81 Ra µm) Interior / Cast Exterior (Standard)	B	0.6 (0,5)
		A	2.9 (2,5)
		D	4.7 (4,1)
		K	8.0 (7,0)
		M	14.8(12,8)
		N	26.3 (22,8)
		P	29.4 (25,4)
ZZ	Non- Standard		

3 & 4 Trim			
Finish		Cv & Seat	
A	32 Ra (Std) (.81 Ra µm)	3	Cv 0.6 (0,5) Hard Seat
		4	Cv 0.6 (0,5) PEEK Seat
		A	Cv 2.9 (2,5) Hard Seat
		9	Cv 2.9 (2,5) PEEK Seat
		B	Cv 4.7 (4,1) Hard Seat
		C	Cv 4.7 (4,1) TeflonSeat
		D	Cv 4.7 (4,1) Jorlon Seat
		5	Cv 4.7 (4,1) PEEK Seat
		L	Cv 8.0 (7,0) Hard Seat
		M	Cv 8.0 (7,0) Teflon Seat
		N	Cv 8.0 (7,0) Jorlon Seat
		8	Cv 8.0 (7,0) PEEK Seat
		P	Cv 14.8 (12,8) Hard Seat
		Q	Cv 14.8 (12,8) Teflon Seat
		R	Cv 14.8 (12,8) Jorlon Seat
		6	Cv 14.8 (12,8) PEEK Seat

3 & 4 Trim, Continued.			
Finish		Cv & Seat	
A	32 Ra	S	Cv 26.3 (22,8) Hard Seat
		T	Cv 26.3 (22,8) Teflon Seat
		U	Cv 26.3 (22,8) Jorlon Seat
		4	Cv 26.3 (22,8) PEEK Seat
		V	Cv 29.4 (25,4) Hard Seat
		W	Cv 29.4 (25,4) Teflon Seat
		X	Cv 29.4 (25,4) Jorlon Seat
		Y	Cv 29.4 (25,4) PEEK Seat
		ZZ	Non-Standard
ZZ	Non-Standard		

5 & 6 O-Ring / Diaphragm	
EE	EPDM / EPDM Diaph. (1/2", 3/4" & 1" only)
TY	Teflon Encaps. Viton / Jorlon Diaph. (3/4" - 3" only)
EJ	EPDM / Jorlon Diaph.
VJ	Viton / Jorlon Diaph (1/2" only)
ZZ	Non-Standard

7 & 8 Range			
Adjusting Screw Finish		Range (PSI)	
A	Standard	A	3-8 (0,2-0,6)
		C	5-25 (0,3-1,7)
		E	10-25 (0,7-1,7)
		P	15-25 (0,3-1,7)
		H	15-50 (0,3-3,4)
		J	15-60 (0,3-4,1)
		M	35-100 (2,4-6,9)
		R	40-90 (2,8-6,2)
		T	75-135 (5,2-9,3)
ZZ	Non-Standard		

9 & 10 Diaphragm	
EP	EPDM (1/2", 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.