

# MODELS BA1/BL1 BIO-SANITARY

## BACK PRESSURE REGULATORS

### OVERVIEW

The Models BA1 and BL1 are stainless steel back pressure relief regulators designed to handle small to mid-capacity flow rates in sanitary biotechnical process piping systems. These units are capable of controlling inlet pressure to a level between 2 and 135 psig (.13 and 9.3 Barg).

### BA1 & BL1 FEATURES

<b>Adjustment Ease:</b>	Adjusting knob for frequent set point changes.
<b>Wetted Materials Construction:</b>	All metallic parts are 316L SST. Unit is cleaned to Cashco Spec. #S-1576.
<b>Surface Finish:</b>	Interior of body mechanically polished per ASME BPE (SFV-4). Interior and exterior surfaces are electro-polished.
<b>Top Guided:</b>	A "non-wetted" guide in the topworks above the diaphragm provides stability at all set points.

### BA1 FEATURES

<b>Self-Draining:</b>	Self-draining angle style body with side inlet and bottom outlet.
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### APPLICATIONS

Used in pharmaceutical industry in production of many health care products for both human and animal consumption. Widely applied for processed food production — candy, beverages, nutritional supplements and artificial sweeteners. May also be used in cosmetics production and specialty chemicals.

Would be found supporting fermenters, batching tanks, cookers, autoclaves, dryers and other similar equipment.



MODEL BA1



MODEL BL1



**LINE SIZES AVAILABLE**  
1/2" (DN15), 3/4" (DN20)



**END CONNECTIONS**  
SANITARY TRI-CLAMP



**COMMON APPLICATIONS**  
PHARMACEUTICAL INDUSTRY,  
PROCESSED FOOD PRODUCTION,  
COSMETICS PRODUCTION, SPECIALTY  
CHEMICALS



**DESIGN PRESSURE**  
MAXIMUM INLET PRESSURE:  
UP TO 135 psig (9.3 Barg)

## STANDARD/GENERAL SPECIFICATIONS

**Body Size:** 1/2", 3/4" (DN15, 20.)

**Cleaning:** All units cleaned per Cashco Spec. #S-1576.

**Body & Spring Chamber Materials:** Wrought Barstock; ASTM A479, Type 316L SST.

**Body Connection:** Standard - Sanitary "Tri-Clamp®". Designed to seal against weld-type clamp liners per ISO 2852.  
Alternate - Tube end connections 1/2" size for BL1 design only.

**Trim:**

PART	LE
Diaphragm *	EPDM
Piston	316L SST
Seat <sup>1</sup> *	316L SST
Plug	316L SST
Pusher Plate	316L SST
Body Cap **	316L SST
Temperature Range °F (°C)	-20 to +275 (-29 to +135)
* Parts conforms with FDA Code of Federal Regulations Title 21, Part 177	
** Not required on BA1	
<sup>1</sup> The fixed portion of the seat is integral to the body. Indicated seat is the moving portion and is attached or integral with the plug.	

**Seals:** TFE o-ring at pusher plate and body cap locations. All seals meet USP Class VI requirements.

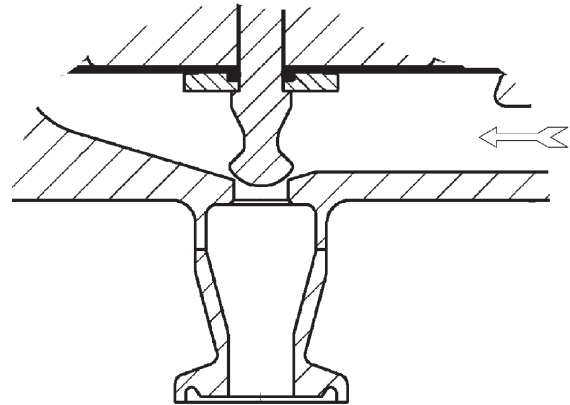
**Operating Temperature:** -20 to +275°F (-29° to +135°C)

**Inlet Pressure:** 135 psig (9.3 Barg) maximum

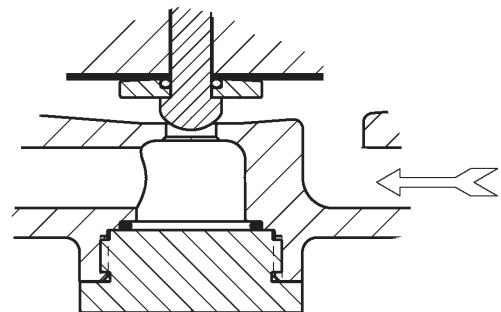
**Operating Pressure / Range Springs:** Standard: SST

Range Spring	
psig	(Barg)
2-25	(.34-1.7)
20-50	(1.4-3.4)
40-100	(2.7-6.9)
80-135	(5.5-9.3)

**Cv's/Capacities:** BL1 - Inline Wide Open Cv: 1.22  
BA1 - Angle Wide Open Cv: 1.86  
See Tables 1a-1d, 2a, 2b for flow curves



**Figure 1**  
Metal Seat  
Shown with  
Angle Design



**Figure 2**  
Metal Seat  
Shown with  
In-Line Design

**Opt-1:** CLOSING CAP. A removable cap discourages tampering with spring setting. Covers the adjusting screw threads to enhance cleanability.

**Opt-33:** THIRD BODY CONNECTION. BA1 design only. Two side inlets, bottom outlet.

**Opt-41:** EXTENDED TUBE END CONN. Body sizes 1/2" (DN15), BL1 design only. SST extension tube diameter with 0.065 inch (1.65 mm) wall thickness.

TABLE 1a

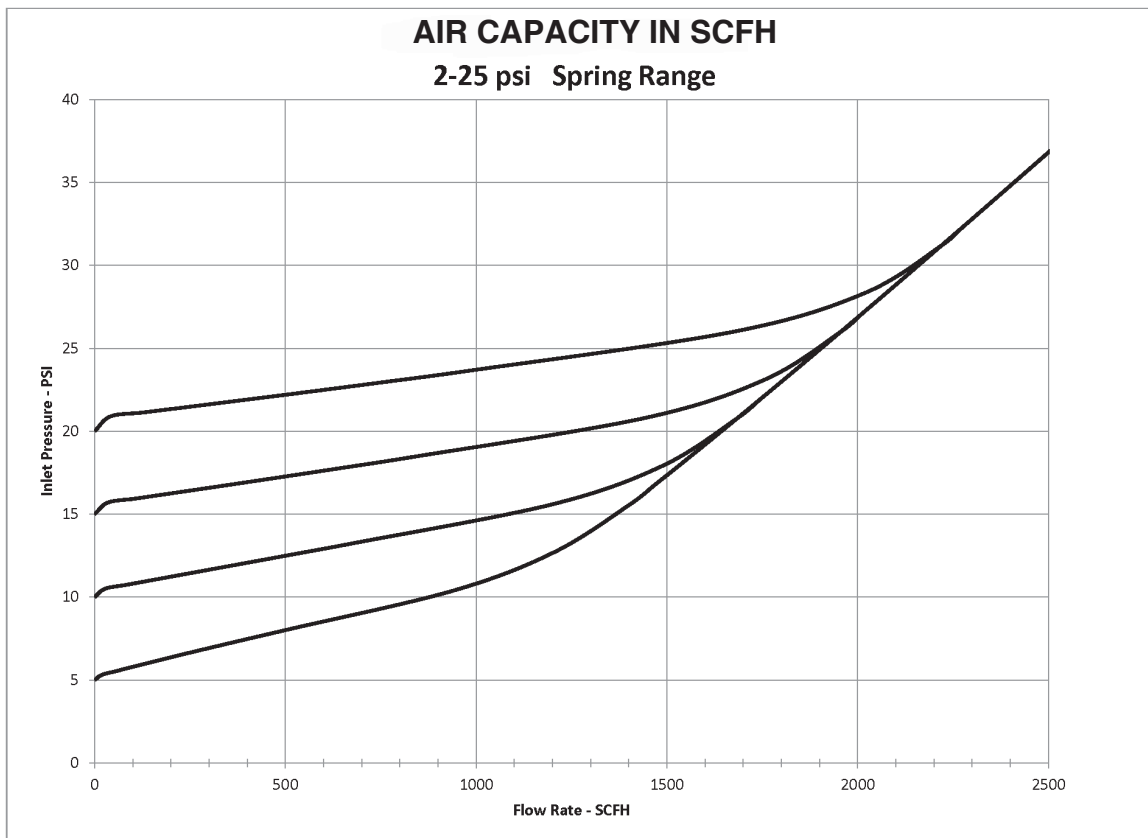


TABLE 1b

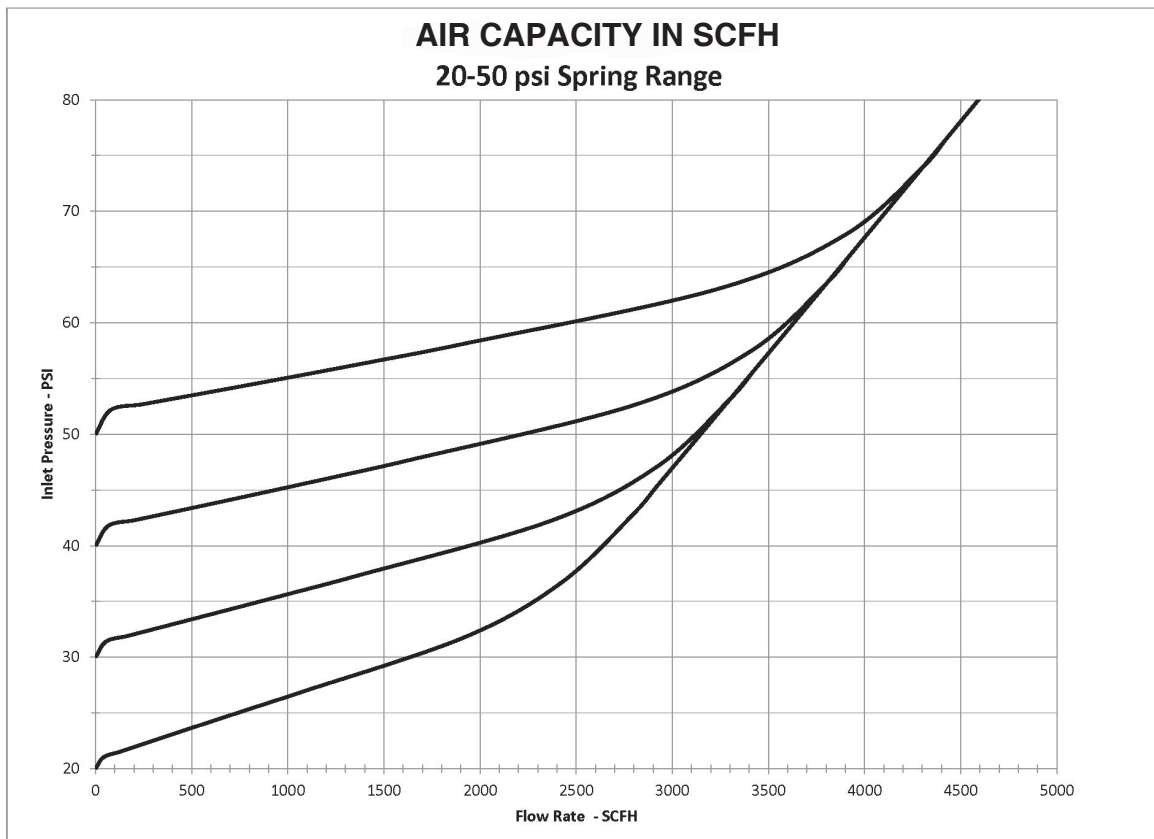


TABLE 1c

### AIR CAPACITY IN SCFH

40-100 psi Spring Range

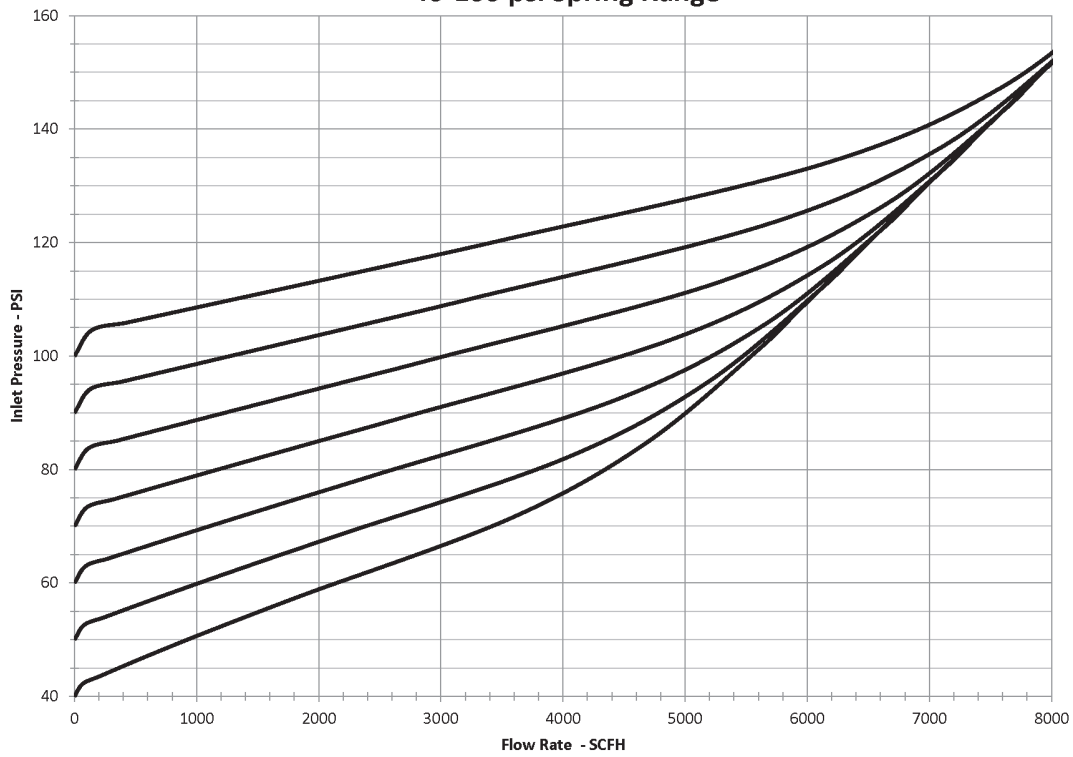


TABLE 1d

### AIR CAPACITY IN SCFH

85-140 psi Spring Range

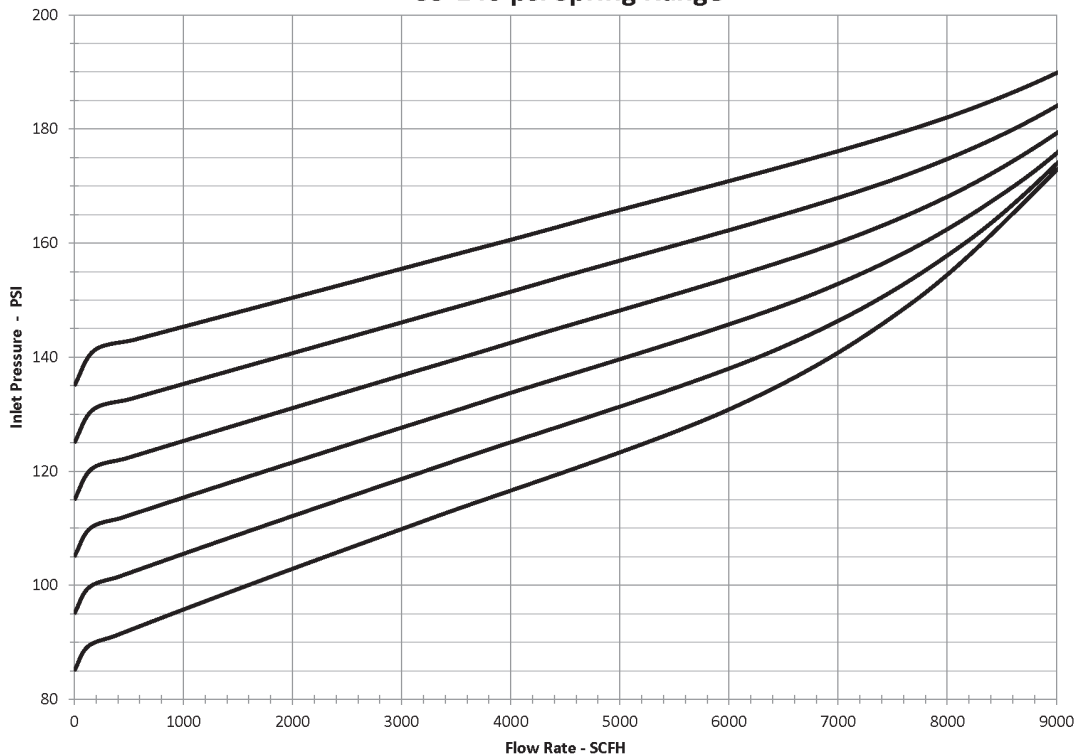


TABLE 2a

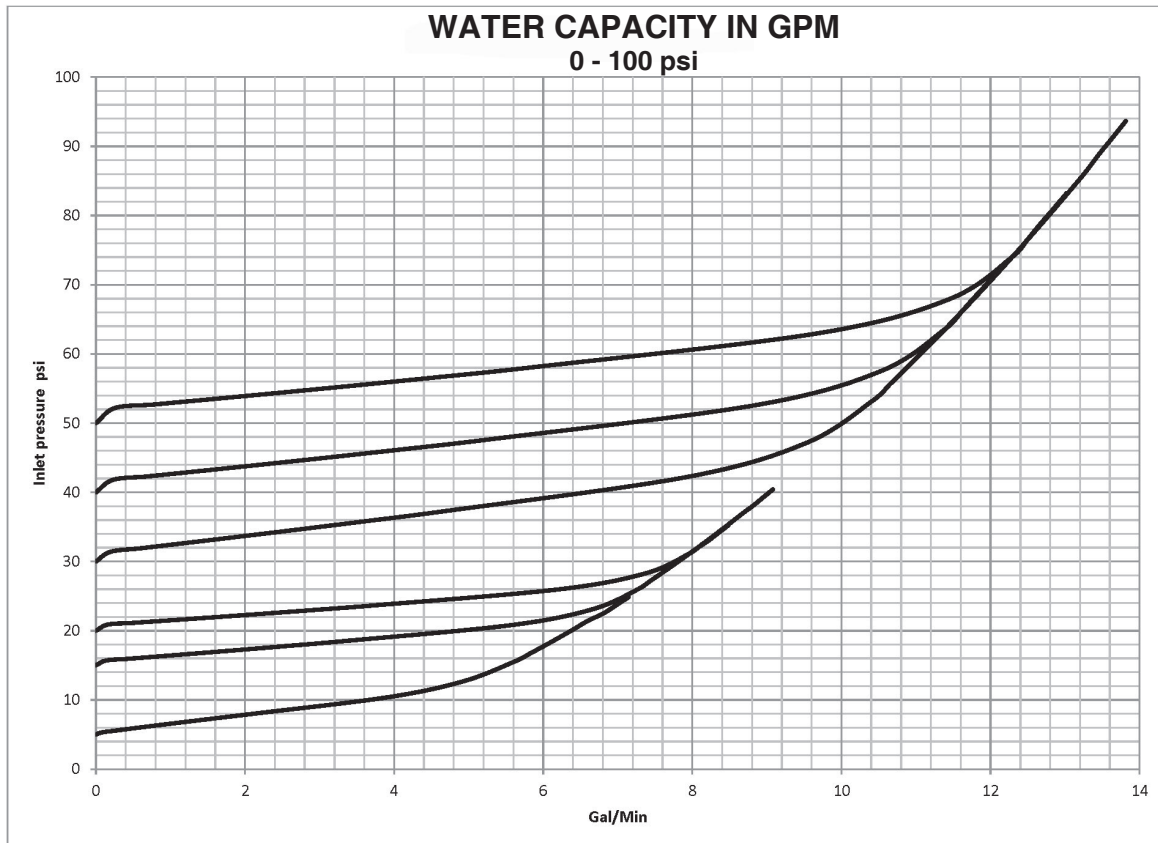
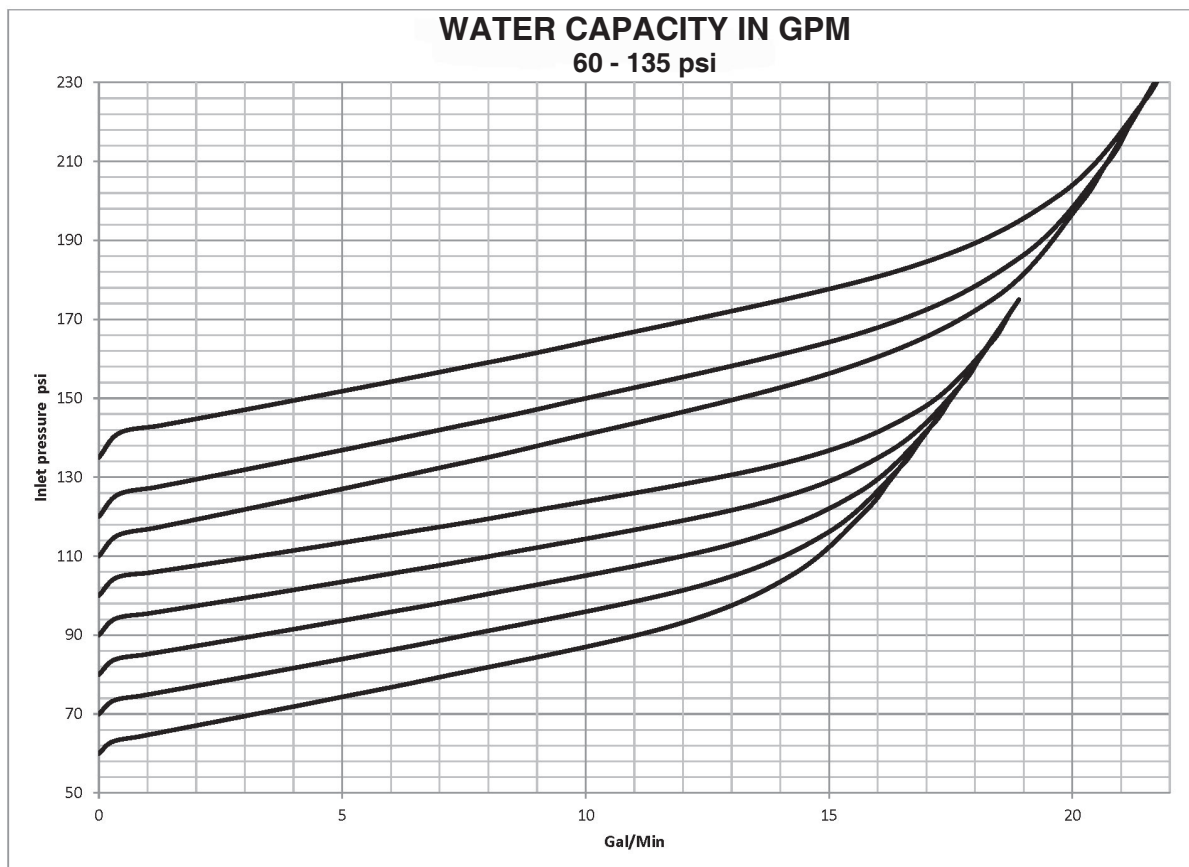
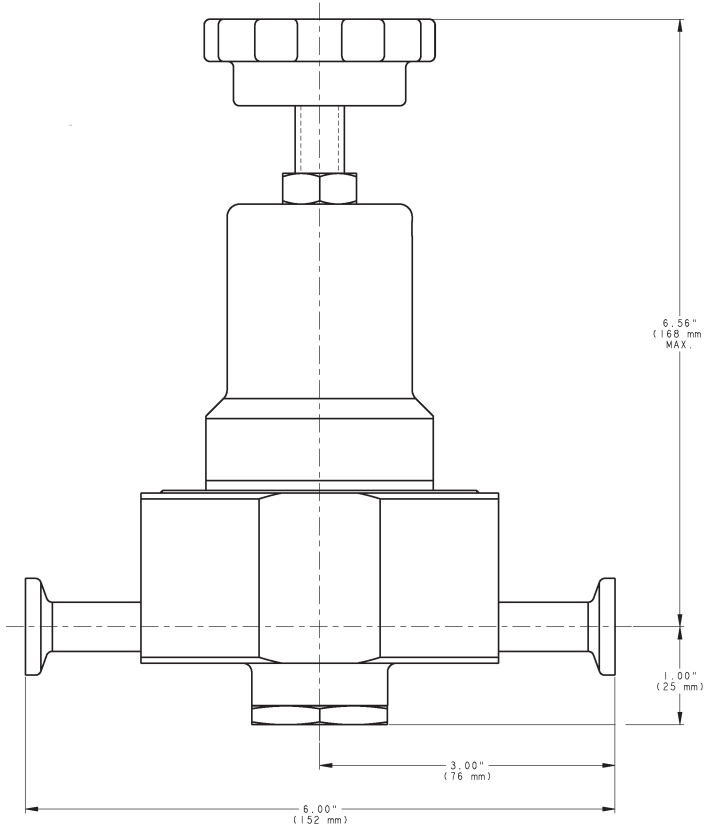


TABLE 2b



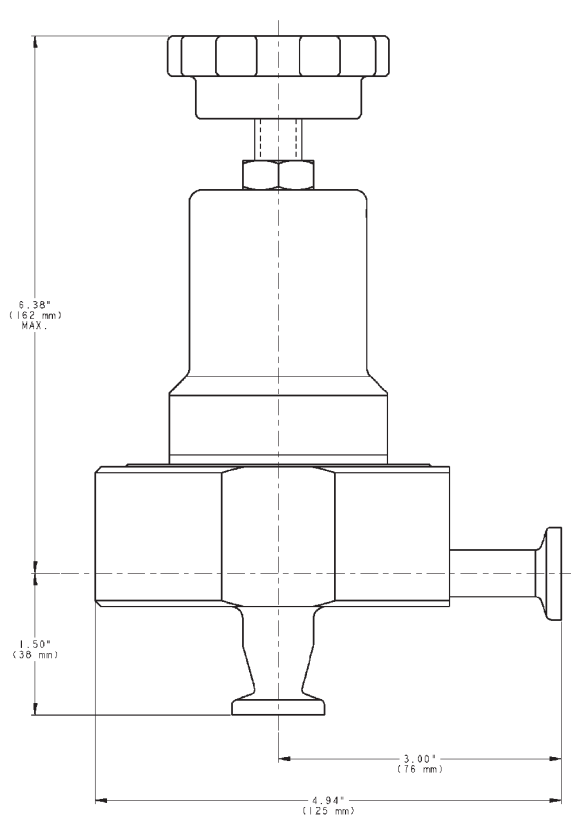
## DIMENSIONS AND WEIGHTS

**MODEL BL1**

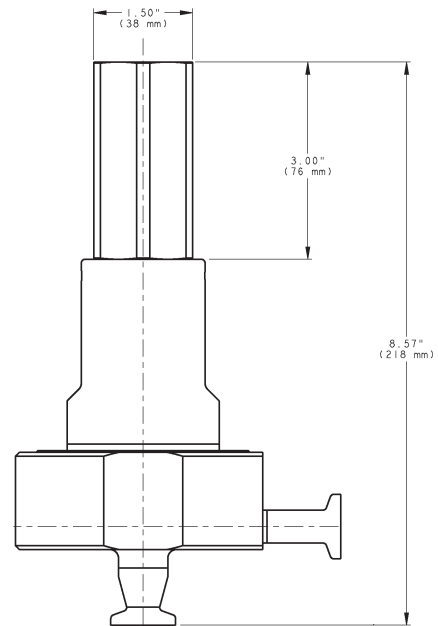
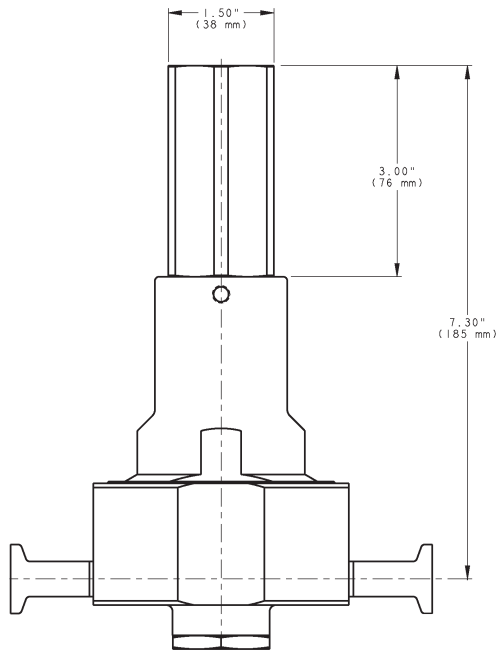


**Weight = 7 Lbs. (3.18 kgs)**

**MODEL BA1**



**Weight = 6 Lbs. (2.72 kgs)**



**Opt-1 CLOSING CAP**

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# MODELS BA1/BL1 PRODUCT CODER 02/07/20

FOR THE BIO / SANITARY INDUSTRY



POSITION 3 - SIZE				
Model	Connection Orientation	Size	ASME	ISO 2852
		in (DN)	CODE	CODE
BL1	In-Line — side inlet / side outlet	1/2" (15)	4	G
BA1	Angle — side inlet / bottom outlet *		5	J
BL1	In-Line — side inlet / side outlet	3/4" (20)	6	K
BA1	Angle — side inlet / bottom outlet		7	L

\* Bottom Outlet is bored to 3/4" size.

POSITION 6 & 7 – TRIM DESIGNATION NUMBERS	
Desig.	CODE
LE	LE

Comply w/ FDA 21 CFR 177. & USP Class VI material classification.

POSITION 10 - END CONNECTIONS		
Description	Option	CODE
Sanitary Tri-Clamp End Connections	-	1
Third Body Conn. Sanitary Tri-Clamp (2 side inlets (flow thru), 1 bottom outlet)	-33	4
Tube End Connections - 1/2" size BL1 only	-41	T

POSITION 11 – RANGE SPRINGS		
SST Range Spring		CODE
psig	(Barg)	
2-25	(.13-1.7)	1
20-50	(1.4-3.4)	2
40-100	(2.7-6.9)	3
80-135	(5.5-9.3)	4

\* For information on ATEX see pages 8 & 9 on the IOM.

POSITION 13 - OPTIONS		
Description	Option	CODE
None	-	0
Closing Cap	-1	1

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