Baumann™ 87000 Flexsleev Sanitary Control Valve

The Baumann 87000 control valve is excellent for throttling high purity liquid or gaseous media commonly found in the food and beverage, pharmaceutical, film, and biotechnology industries.

The valve is suitable for repeated steam sterilization cycles with 2.4 bar (35 psi) maximum steam pressures.

Assembly of valve body sections using only two bolts allows for ease of cleaning and inspection. A lower telltale port is provided. The valve will drain either horizontally or vertically with the actuator in the horizontal position. In contrast to diaphragm valves, the operation is not affected by vacuum.

W9823

Baumann 87000 Valve Shown in Recommended Mounting Position for Self-Draining

Features

- Unique flow pattern allows for self-draining in both vertical and horizontal pipelines
- Streamlined low shear flow contours make it ideal for sensitive biomedia
- Electropolished, wetted interior finishes to ≤ 30 R_a microinch (≤ 20 R_a microinch optional)
- Flow area between tubing O.D. and valve body seating is suitable for fine particulate media
- Full and reduced port orifices available to optimize sizing
- Foolproof bolting method assists with ease of valve body disassembly and reassembly
- Epoxy powder-coated actuator with stainless steel yoke and fasteners for maximum corrosion resistance
- Fisher® FIELDVUE™ digital valve controller available for remote calibration and diagnostics in facilities utilizing the PlantWeb™ architecture

W9824

Baumann 87000 Valve with FIELDVUE DVC2000 Digital Valve Controller

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Figure 1. Baumann 87000 Flexsleev Valve Assembly

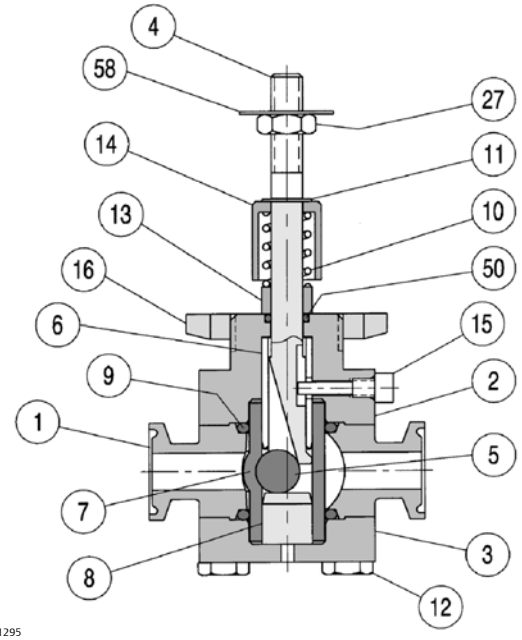


Table 1. Materials of Construction

Key Number	Description	Material
1	Valve Body	ASTM SA479 (S31600/S31603)
2	Bonnet, Upper	ASTM SA479 (S31600/S31603)
3	Bonnet, Lower	ASTM SA479 (S31600/S31603)
4	Shaft	S21800 SST
5	Ceramic Ball	Grade 25 Ceramic
6	Sleeve Bushing	S30300 Stainless Steel
7	Sleeve	Silicone, fluorocarbon (FKM), EPDM, Perfluoroelastomer (FFKM)
8	Anvil	S21800
9	O-Ring	Silicone, fluorocarbon (FKM), EPDM, Perfluoroelastomer (FFKM)
10	Spring Stem	Passivated Stainless Steel
11	Retaining Ring	S15700
12	Hex Head Cap Screw	18-8 Stainless Steel
13	Spring Seat	PA Nylon 6/6
14	Protecting Cap	S30300 Stainless Steel
15	Alignment Pin	18-8 Stainless Steel
16	Drive Nut, (Yoke)	S31600 SST (ASTM A194 Grade 8M)
27	Jam Nut (locknut)	B8 Stainless Steel
50	O-Ring	Fluorocarbon (FKM)
58	Travel Indicator	ASTM A240 S30400

Mode of Operation

As shown in figure 2, a flexible sleeve is inserted through the length of the valve and sealed between the valve body and bonnet by O-rings. The actuator-motivated valve stem has a tapered groove that pushes a ceramic ball against the inside of the sleeve and, thereby, the sleeve against a valve seat.

Figure 2. Mode of Operation

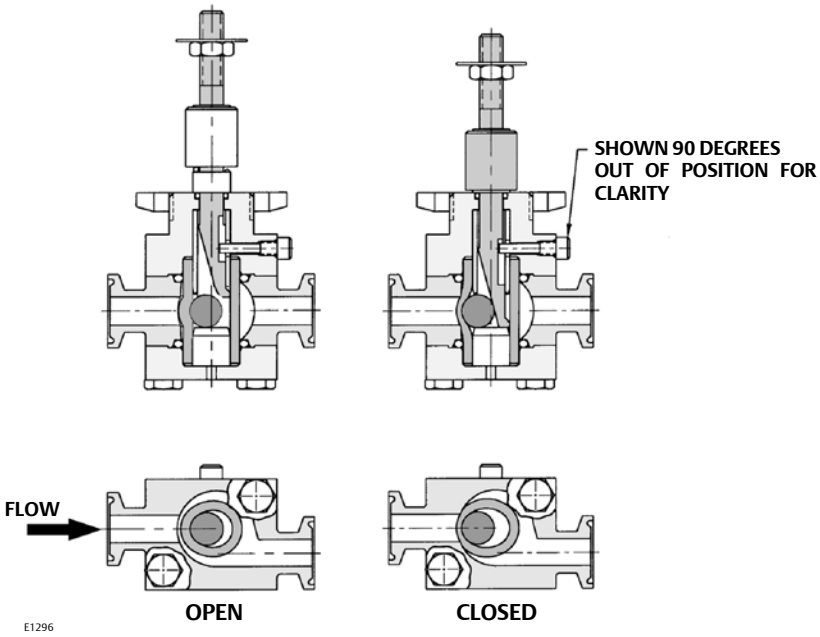


Table 2. Technical Specifications

Valve Body Rating	18.9 bar CWP (275 psi CWP)
Nominal Size	17.7 mm (NPS 1/2)
Connections	17.7 mm (0.5 inch), Tri-Clover / Tri-Clamp (Welded Ends Optional)
Seat Leakage	Class VI
Bonnet	Bolted
Characteristic	Modified Linear
Internal Valve Body Finish (Wetted Interior)	< 30 Ra Microinch / 0.76 Ra Micron (standard) < 20 Ra Microinch / 0.51 Ra Micron (optional - or as required)
Maximum Operating Temperature	Refer to table 3
Available Certificates(1)	USP CL VI, 21CFR 177(1)

1. Consult your Emerson Process Management sales office for applicable materials.

Table 3. Sleeve Material Temperature Chart

SLEEVE MATERIAL(1)	TEMPERATURE RANGE(3)	SEAT LEAKAGE	FLOW DIRECTION	MAXIMUM SHUTOFF PRESSURE	
				psi	bar
Silicone	-62 to 232°C (-80 to 450°F)	VI	To Open	150	10.35
Silicone (steam)	-17 to 135°C (0 to 275°F)				
Fluorocarbon (general service)	-17 to 204°C (-0 to 400°F)				
Fluorocarbon (water or steam service)	-17 to 37°C (-0 to 100°F)				
EPDM	-40 to 148°C (-40 to 300°F)				
Perfluoroelastomer(2)	-17 to 248°C (-0 to 480°F)				

1. Medical grade in compliance with FDA 21CFR 177.
2. Please consult your Emerson Process Management sales office before ordering perfluoroelastomer.
3. Sleeve material temperature limitations may reduce allowable shutoff pressures.

Table 4. Actuator Specifications

Type	16 Multi-Spring Diaphragm (Single Acting)
Nominal Size	103 cm^2 / 16 in^2
Air Failure	Open or Closed (Field Reversible)
Bench Spring Range	0.3- 0.9 bar (4-13 psi), fail open / 0.3-1.0 bar (4-15 psi) fail closed
Travel	7.93 mm / 0.3125 inch
Ambient Temperature Range	-29 to 71°C (-20 to 160°F)
Maximum Air Pressure	2.4 barg / 35 psig
Diaphragm Material	Neoprene, Polyester
Spring Cases	Steel, Powder Epoxy-Coated Appliance White per FDA 21 CFR 175.300 with Stainless Steel Fasteners
Yoke	CF8M stainless steel
Weight	2.1 kg (4.6 lbs)

Table 5. Flow Coefficients (ASME/ISA/IEC) and ISA Sizing Factors

PLUG TRAVEL mm (INCH)	ORIFICE DIAMETER mm (INCH)	C_v AT VALVE OPENING - PERCENT OF PLUG TRAVEL											F_L	F_d	X_T	K_C
		5	10	20	30	40	50	60	70	80	90	100				
7.9 (0.3125)	3.18 (0.125)	0.0025	0.005	0.0125	0.033	0.065	0.125	0.18	0.19	0.215	0.22	0.25	0.87	0.56	0.63	0.66
	9.40 (0.370)	0.0030	0.020	0.12	0.24	0.40	0.532	0.69	0.85	1.0	1.15	1.25	0.87	0.40	0.63	0.66

Table 6. Weights

VALVE						ACTUATOR		POSITIONER(1)			
Size		Travel		Weight		Baumann 16		FIELDVUE DVC2000		FIELDVUE DVC6010	
DN	NPS	mm	Inch	kg	lb	kg	lb	kg	lb	kg	lb
15	1/2	7.9	0.3125	3.6	8	4.5	10	1.5	3.3	3.5	7.7

1. Not available with Fisher 3660/3661 positioner.

Figure 3. Dimensions

87000 WITH BAUMANN 16 ACTUATOR AND FIELDVUE DVC2000 SHOWN IN RECOMMENDED MOUNTING POSITION FOR SELF-DRAINING (TOP VIEW SHOWN AT RIGHT)

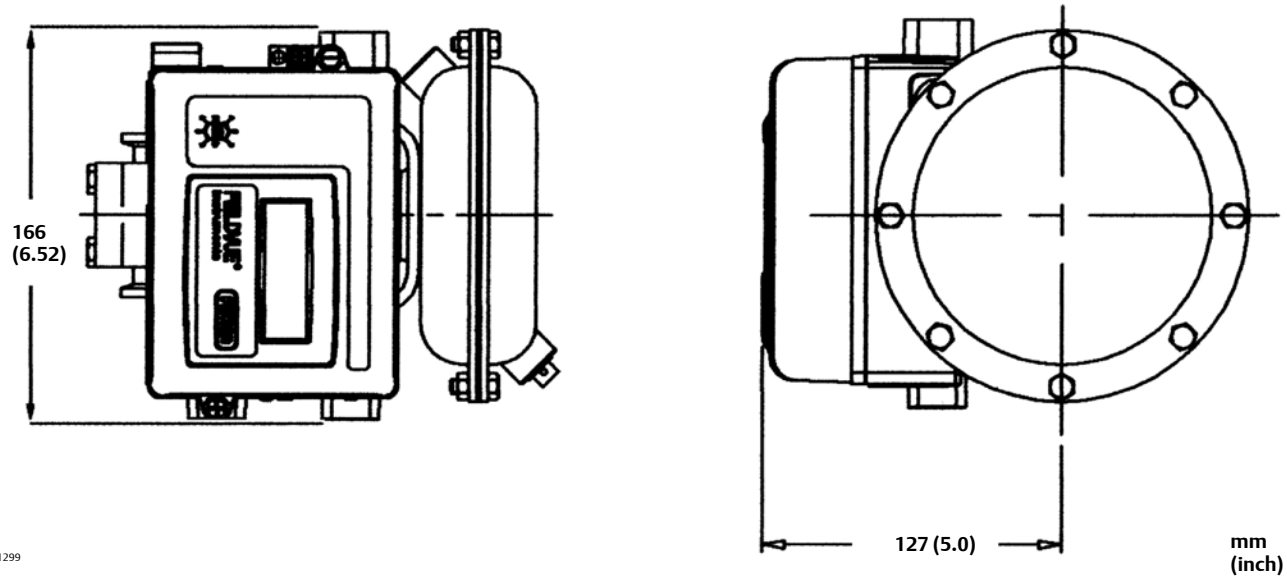
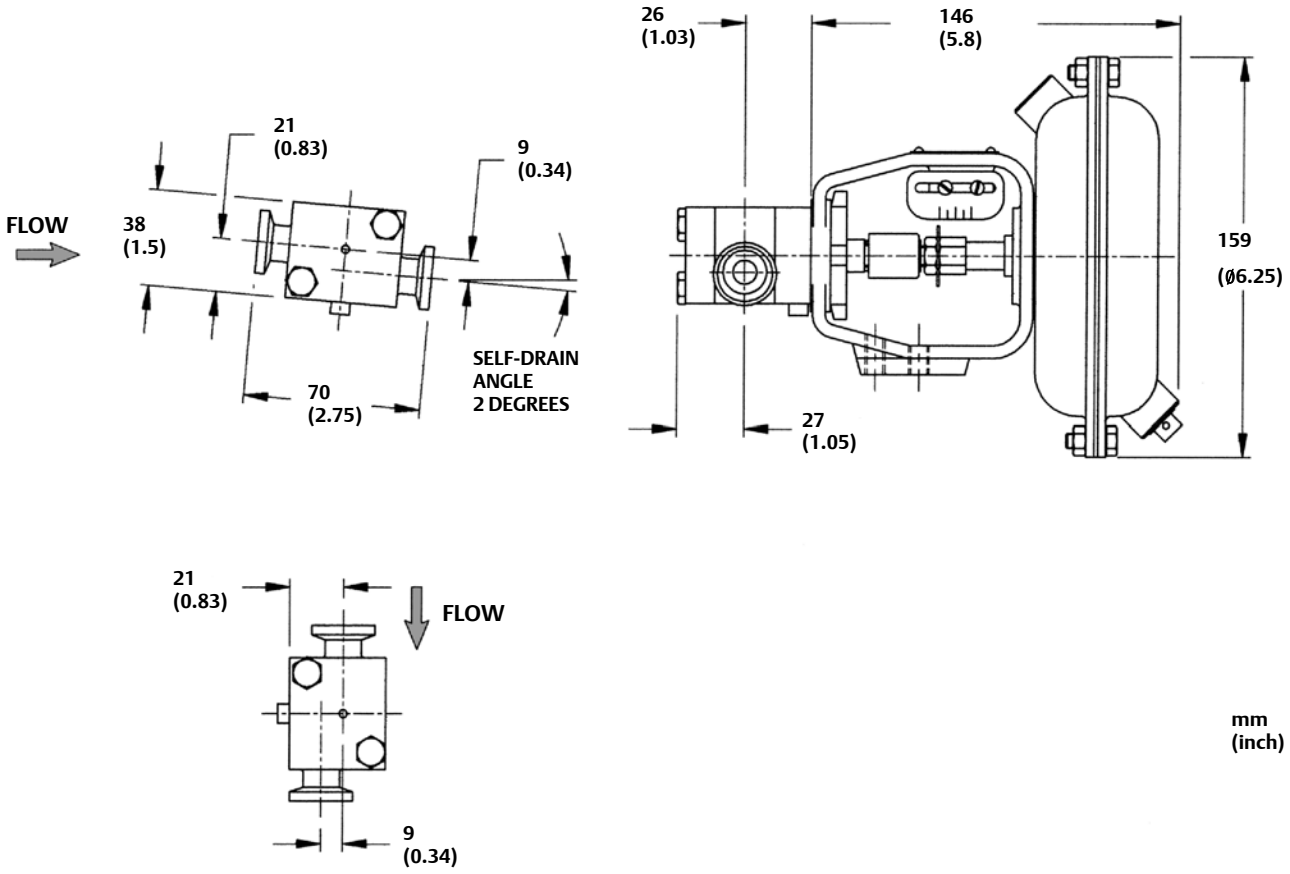


Figure 4. Dimensions

87000 WITH BAUMANN 16 ACTUATOR SHOWN IN RECOMMENDED MOUNTING POSITION FOR SELF-DRAINING



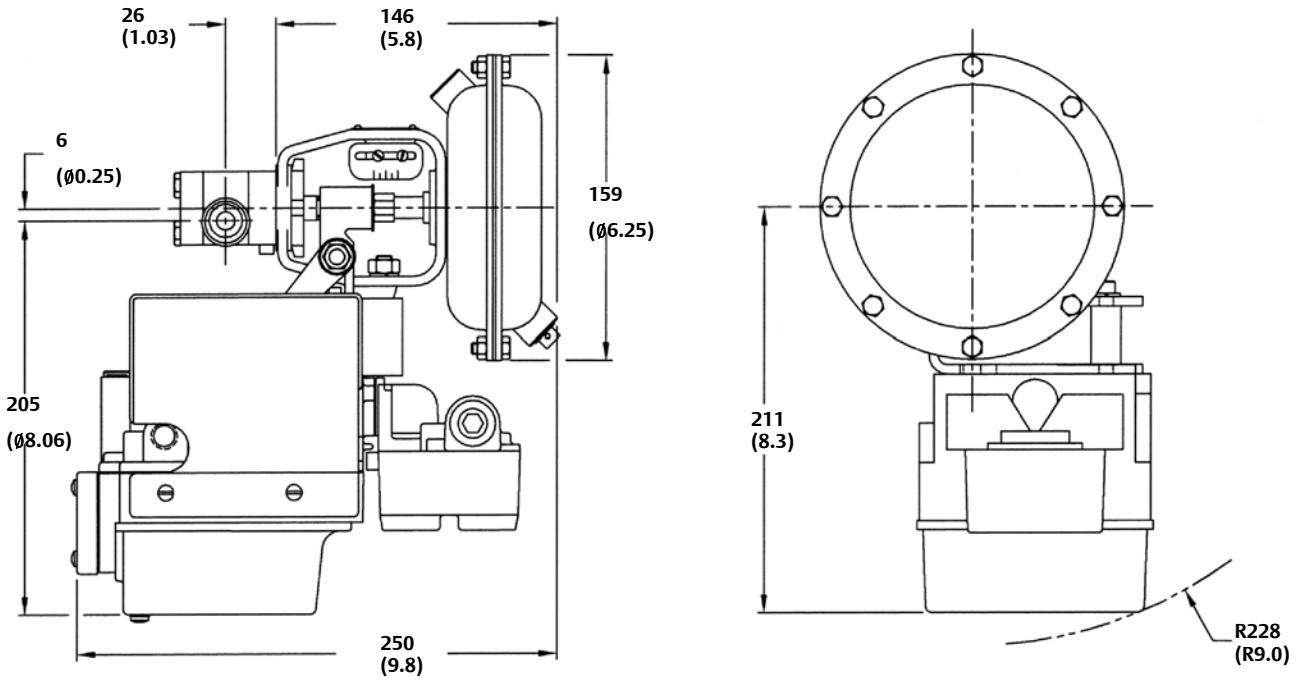
RECOMMENDED MOUNTING FOR SELF-DRAINING (ACTUATOR SHOULD BE MOUNTED HORIZONTALLY)

E1297

NOTE: ACTUATOR REQUIRES 115mm (4.5 INCHES) VERTICAL CLEARANCE.

Figure 5. Dimensions

87000 WITH BAUMANN 16 ACTUATOR AND FIELDVUE DVC6000 SHOWN IN RECOMMENDED MOUNTING POSITION FOR SELF-DRAINING (TOP VIEW SHOWN AT RIGHT)



mm
(inch)

E1298

RECOMMENDED MOUNTING FOR SELF-DRAINING (ACTUATOR SHOULD BE MOUNTED HORIZONTALLY)

NOTE: ACTUATOR REQUIRES 115mm (4.5 INCHES) VERTICAL CLEARANCE.

Table 7. Model Numbering System

16	87							
ACTUATOR	**87000**	**MAX C_v**			**END CONNECTIONS**		**SLEEVE MATERIAL**	
			C_v	**K_v**				
16		00	0.25	0.22	1	Tri-Clamp	S	Silicone
		01	1.25	1.08	3	Special	E	EPDM
							V	Fluorocarbon
							K	Perfluoroelastomer(1)

1. Consult your Emerson Process Management sales office.