



ITT

Pure-Flo®

Bio-Pure™



Engineered for life

www.ittpureflo.com

The Bio-Pure is the compact solution for the most demanding Biopharm applications. Available in fractional sizes and a wide selection of body materials and end connections the Bio-Pure is the ideal choice for sampling and other low flow, high value processes. Bioreactors, chromatography systems, filtration skids are just a small number of applications that will benefit from the compact, reliable performance. Bio-Pure is capable of withstanding typical Steam in Place (SIP) and Clean in Place (CIP) protocols. For demanding Clean out of Place (COP) requirements the manual COP option is the solution for reliable trouble free operation. A standard 2 piece PTFE diaphragm prevents separation of the diaphragm, which is common in laminated diaphragm designs.



Typical Applications

- Sampling
- Bioreactors
- Chromatography systems
- Filtration skids
- Portable vessels

Size Range

.25", .375", .5" (DN 8, 10, 15)

Service Pressure/Temperature

150 psi at 220°F (10.34 bar at 104°C)

See sizing charts on pg. 6 for exact shutoff pressures

Standard Body Materials:

- ASTM A182 Grade 316, DIN 17440. 1.4435
- ASTM A479
- Other materials available upon request

Available End Connections:

- .5" (DN 15) 16 Gauge
- .25", .375" (DN 8, 10) 20 Gauge
- DIN/ISO
- Tri-Clover Tri-Clamp®

Corrosion Resistance:

Resists alcohol, chloride and most caustic wash-downs.

Diaphragms

Available Types

- PTFE Grade TM17 (two piece design)
- EPDM Grade 17
- EPDM Grade E1

Diaphragm Type		Size		Temperature Compliance			
Grade	Material	Inch	DN	°F	°C	FDA	USP
17, E1	EPDM ¹	.25-4	6-100	-4-194 ²	-20-90 ²	✓	✓
TM17	PTFE	.25-6	6-150	-4-329	-20-165	✓	✓

¹ For high temperature and/or high cycle applications, contact ITT.

² Temperature range is as follows:
 -4-194°F (-20-90°C) for liquid applications
 -22-285°F (-30-140°C) for continuous steam
 -22-302°F (-30-150°C) for intermittent steam

Interchangeability

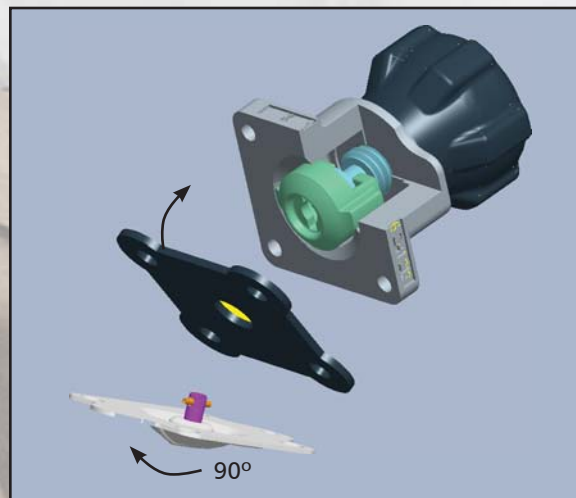
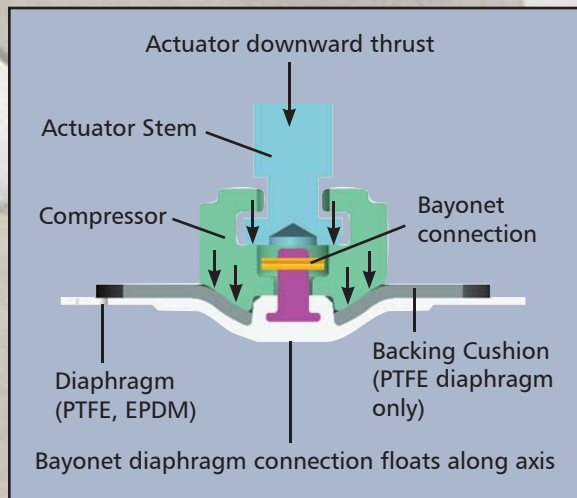
All Bio-Pure valves feature a common diaphragm connection. Elastomer and PTFE diaphragms can be interchanged as required on both the manual and actuated bonnets.

Regulatory Compliance to:

- FDA 21CFR Part 177
- US Pharmacopeia 31 Class VI
- Pressure Equipment Directive 97/23/EC
- EMEA/4 10/01 - TSE/BSE (Transmitting Animal Spongiform Encephalopathy)

Installation

Bio-Pure diaphragm installation is simplified by utilizing a bayonet diaphragm connection. The diaphragm is inserted into the compressor and turned 90°. The bayonet design provides float to eliminate point loading on PTFE diaphragms.



General Information

Flow Rates

Size (in)	Size (DN)	C _v (g/m)	K _v (m3/h)
.25	8	0.47	0,40
.375	10	1.10	0,95
.50	15	1.60	1,36

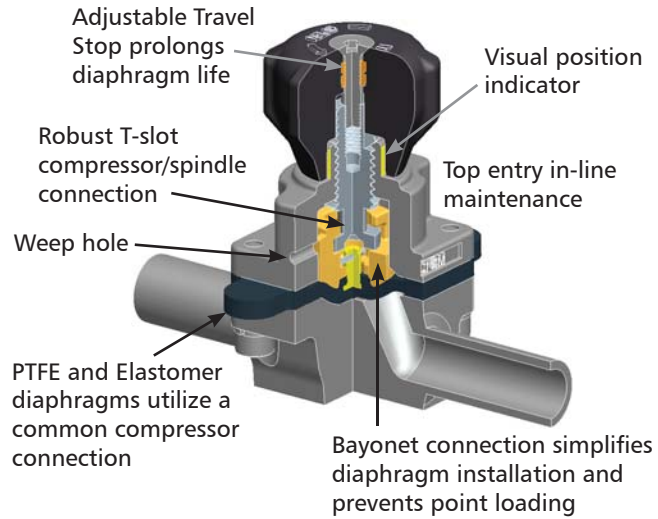
Note: C_v at 1 psi pressure drop, K_v at 1 bar pressure drop

Weights (Including Actuator and Forged Body)

Topworks	Lbs	Kg
Manual	0.6	0,3
Actuated	1.5	0,7

Drain Angle - 30°

Bio-Pure with Manual Handwheel (BPM)



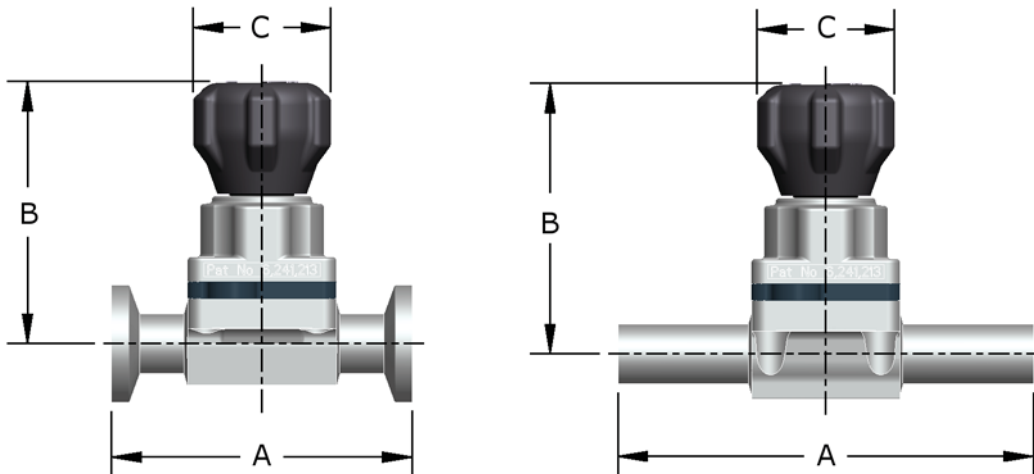
Standard Features

- Adjustable travel stop
- Autoclavable
- T-Slot compressor
- Common diaphragm connection (Elastomer, PTFE)
- Weep hole

Materials of Construction

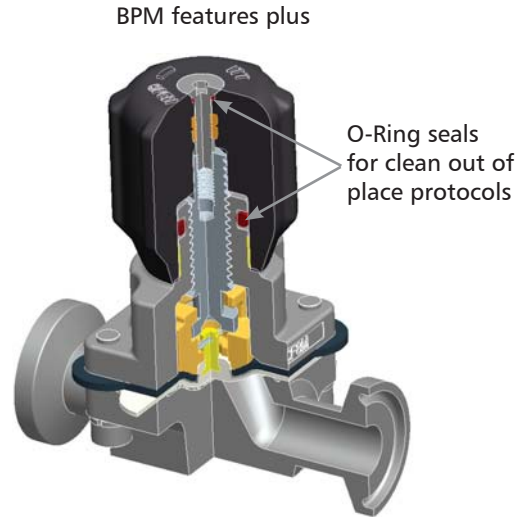
- Bonnet: Stainless steel
- Spindle: Stainless steel
- Compressor: Stainless steel
- Handwheel: PES (polyethersulfone)

Dimensions



	ANSI (USOD)		DIN/ISO	B Closed	B Open	C
	A Tri-Clamp	A Buttweld	A			
In.	2.53	3.50	3.50	2.23	2.39	1.25
mm	64,3	89,0	89,0	56,6	60,7	31,8

Bio-Pure with Manual COP Handwheel (BPMC)



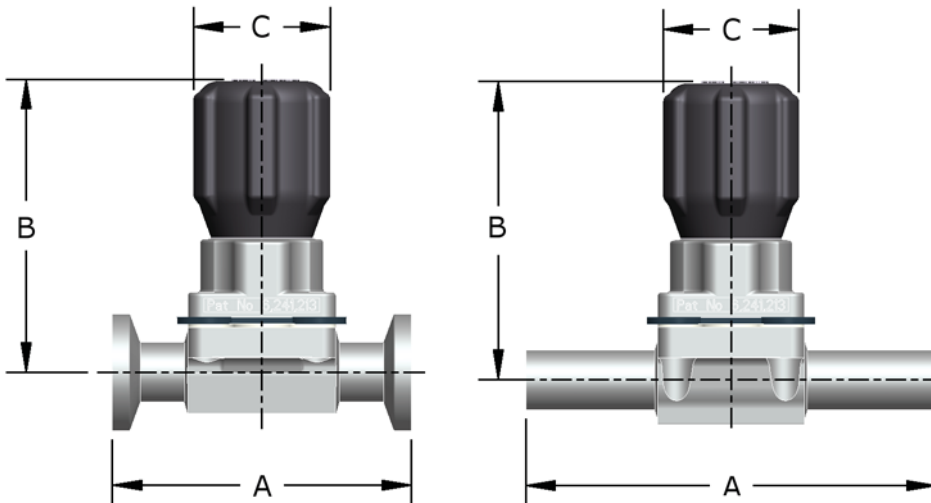
Standard Features

- Adjustable travel stop
- Autoclavable
- T-Slot compressor
- Common diaphragm connection (Elastomer, PTFE)
- O-ring seals

Materials of Construction

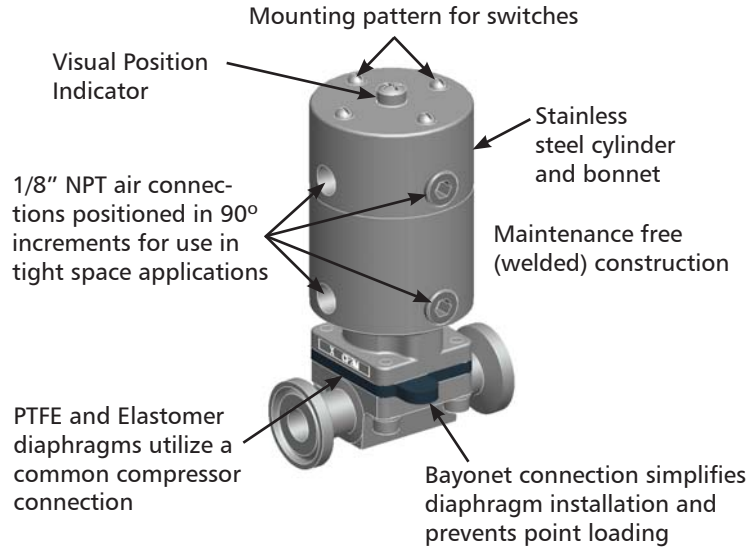
- Bonnet: Stainless steel
- Spindle: Stainless steel
- Compressor: Stainless steel
- Handwheel: PES (polyethersulfone)
- O-ring - FDA compliant FKM

Dimensions



	ANSI (USOD)		DIN/ISO	B Closed	B Open	C
	A Tri-Clamp	A Buttweld	A			
In.	2.53	3.50	3.50	2.61	2.77	1.25
mm	64,3	89,0	89,0	66,4	70,4	31,8

Bio-Pure with Advantage® Excel - Series S Actuator



Standard Features

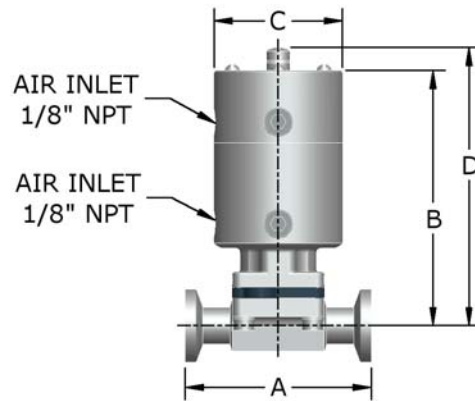
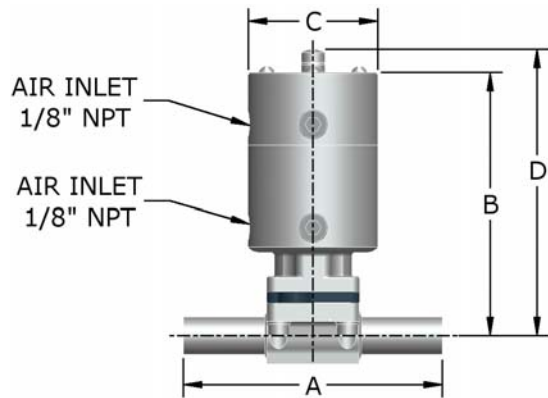
- Modes of operation
 - Fail close (reverse acting)
 - Fail open (direct acting)
 - Double Acting (air to open, air to close)
- Visual Position indicator
- Maintenance free design
- Switch mounting bolt pattern
- 1/8" NPT air port orientation: In line and perpendicular to flow
- T-Slot compressor
- Common diaphragm connection (Elastomer, PTFE)
- Weep hole

Materials of Construction

- Bonnet and housing: Stainless steel
- Spindle: Stainless steel
- Compressor: Stainless steel
- O-rings - FDA compliant FKM

	Fail Close		Fail Open		Double Acting	
	Upper	Lower	Upper	Lower	Upper	Lower
in ³	1.49	1.08	1.60	1.27	1.60	1.48
cm ³	24,47	17,70	26,24	20,86	26,24	24,20

Dimensions



	ANSI (USOD)		DIN/ISO	B	C	D Open
	A Tri-Clamp	A Buttweld	A			
In.	2.53	3.50	3.50	3.55	1.75	3.90
mm	64,3	89,0	89,0	90,2	44,5	99,1

Actuator Sizing (psi)

Fail Close Actuators - Air-To-Open, Spring-To-Close (Reverse Acting)				
	Spring Package	Maximum Line Pressure		Air pressure required to open for full stroke at 0 psi line pressure
		100% ΔP	0% ΔP	
Elastomer Diaphragm	60#	150	125	58
	90#	150	150	84
PTFE Diaphragm ¹	60#	-	-	-
	90#	150	140	87

		Fail Open Actuators - Air-To-Close, Spring-To-Open (Direct Acting)	Double Acting Actuators - Air-To-Close, Air-To-Open		
	Line Pressure	Air Pressure Required to Close			
		100% ΔP	0% ΔP	100% ΔP	0% ΔP
Elastomer Diaphragm	20	46	43	21	15
	40	49	48	24	20
	60	52	52	27	24
	80	54	57	29	29
	100	57	61	32	33
	125	60	67	35	39
PTFE Diaphragm ¹	20	72	61	47	36
	40	75	66	50	41
	60	77	70	52	45
	80	79	74	54	49
	100	81	78	56	53
	125	84	83	59	58
150	86	88	61	63	

¹ The exposure of the diaphragm to steam may increase the air requirements to close by as much as 30%.

Actuator Sizing (bar)

Fail Close Actuators - Air-To-Open, Spring-To-Close (Reverse Acting)				
	Spring Package	Maximum Line Pressure		Air pressure required to open for full stroke at 0 psi line pressure
		100% ΔP	0% ΔP	
Elastomer Diaphragm	4 bar	10,34	8,62	4,00
	6 bar	10,34	10,34	5,79
PTFE Diaphragm ¹	4 bar	-	-	-
	6 bar	10,34	9,65	6,00

		Fail Open Actuators - Air-To-Close, Spring-To-Open (Direct Acting)	Double Acting Actuators - Air-To-Close, Air-To-Open		
	Line Pressure	Air Pressure Required to Close			
		100% ΔP	0% ΔP	100% ΔP	0% ΔP
Elastomer Diaphragm	1,38	3,17	2,96	1,45	1,03
	2,76	3,38	3,31	1,65	1,38
	4,14	3,59	3,59	1,86	1,65
	5,52	3,72	3,93	2,00	2,00
	6,89	3,93	4,21	2,21	2,28
	8,62	4,14	4,62	2,41	2,69
PTFE Diaphragm ¹	10,34	4,34	4,96	2,62	3,03
	1,38	4,96	4,21	3,24	2,48
	2,76	5,17	4,55	3,45	2,83
	4,14	5,31	4,83	3,59	3,10
	5,52	5,45	5,10	3,72	3,38
	6,89	5,58	5,38	3,86	3,65
8,62	5,79	5,72	4,07	4,00	
10,34	5,93	6,07	4,21	4,34	

¹ The exposure of the diaphragm to steam may increase the air requirements to close by as much as 30%.

How to Order

Body Type

Code	Description
BP	Forging

Diaphragm Types

Code	Description
17	EPDM
E1	EPDM Pure-Life NGE
TM17	PTFE

Note: See PFORD brochure for complete figure number definitions.

Manual Bonnets

Code	Description
BPM	Manual bonnet
BPMC	Manual bonnet sealed (COP)

Actuated Bonnets

Code	Description
AXS29	Fail Closed 90# spring package
AXS26	Fail Closed 60# spring package
AXS1	Fail Open
AXS3	Double Acting

Example

.5" Bio-Pure body with Tri-clamp ends 25 μ -in. ID, electropolish ID and OD, modified PTFE diaphragm with EPDM backing cushion. Standard manual bonnet.

Figure Number: .5-BP-419-6-0-3-TM17-BPM

Main Valve	Configuration Example	.5	BP	419	6	0	3	TM17	BPM
	Valve Size	.5							
	Body Type		BP						
	Body Ends			419					
	Mechanical Polish - Interior				6				
	Mechanical Polish - Exterior					0			
	Electropolish						3		
	Diaphragm							TM17	
	Manual Bonnet								BPM

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