

Air Operated 2 & 3 Way Valves

Thermoplastic Valves for Automatic Shutoff or Diverting of Highly Corrosive and Ultra-Pure Liquids



Series BLT – Liquid line pressure to open; air pressure to close.

Series BAT – Air pressure to open; air pressure to close.

Series BST – Fail-Safe valves. Air pressure to actuate; automatic spring return. Normally-closed or normally-open designs.

Series F & BFS – 3-way “diverter” valves. Air pressure to actuate 3rd port; automatic spring return to normal flow pattern.

Features:

- Million cycle design with bubble-tight shutoff.
- Visual position indicator; clear acrylic wall to show if valve is open or closed.
- Inlet pressure rating 125 PSI (BST-NC rated to 100 PSI).
- Designed for pressure or vacuum service (except Series BLT).
- Patented Fail-Safe® safety vent.
- Non-sticking Teflon® shaft standard on most models.
- Optional limit stop for throttling.
- Exacting quality: 100% inspection and individual testing of every valve.
- Operate pneumatically or hydraulically.

- Rugged designs have proven successful in corrosive and high purity liquid applications for over 30 years.
- Globe pattern permits high flow, bubble-tight shutoff.

Operation & Design:

Each air operated 2-way or 3-way valve requires a solenoid valve to control the air or hydraulic pressure that actuates the valve. Series BAT, the air x air actuated design, requires a 4-way air solenoid valve; all others use a 3-way solenoid valve.

Caution: Use air flow rate valves to slow down valve closing speed in applications where water hammer is present. Especially important in larger pipe sizes with high flow rates.

Materials of Construction:

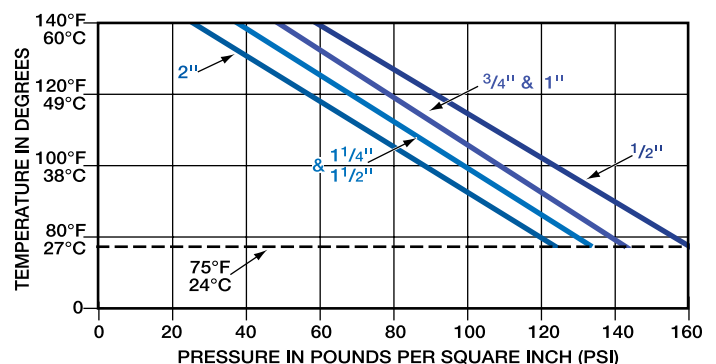
Bodies – Standard material is Type 1 Grade 1 Geon® PVC. For polypropylene, Kynar® PVDF, Teflon® PTFE or Corzan® CPVC, consult factory. Valve shafts are Teflon unless noted.

Seals – Standard seals are Viton®, EPDM and Buna-N.

Springs, Hardware & Cylinders – Not in wetted area of valve. Springs are steel, hardware is stainless steel, cylinders are clear acrylic. Maximum temperature rating of cylinders is 100°F at 125 PSI and 160°F at 50 PSI.

Temperature vs. Pressure:

Line pressure directly affects the temperature at which a plastic valve can operate safely. Also the size of a plastic valve has a direct bearing on the pressure it can withstand. The chart below is a guide for PVC valves.



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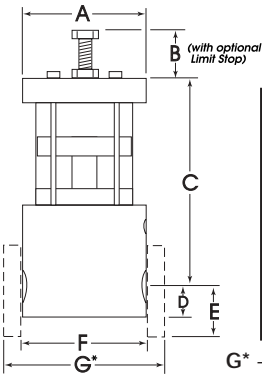
Series BAT • Air to Open / Air to Close

Double-acting-valve available in 3/4", 1", 1 1/4", 1 1/2" and 2" NPT in Geon PVC body with glass-filled Teflon shaft. Maximum liquid line pressure is 125 PSI. There is no minimum liquid pressure required. Air pressure regulated at 60 - 80 PSI is recommended. Series BAT is rated for pressure or vacuum service.

Series "BAT" Specifications & Ordering Information

PIPE SIZE	Cv	RECOMMENDED MINIMUM AIR PRESSURE REQUIRED TO CLOSE VALVE AGAINST LIQUID LINE PRESSURE								MODEL NUMBER	(SEAL)
		LINE BACK PRESSURES									
		25	1,73	50	2,76	100	6,90	125	8,63		
psi	bars	psi	bars	psi	bars	psi	bars				
3/4"	8.5	20	1,38	30	2,07	35	2,43	45	3,11	BAT075V-PV	(Viton)
										BAT075EP-PV	(EPDM)
1"	15.0	25	1,73	30	2,07	40	2,76	50	3,45	BAT100V-PV	(Viton)
										BAT100EP-PV	(EPDM)
1 1/4"	24.0	25	1,73	20	1,38	30	2,07	40	2,76	BAT125V-PV	(Viton)
										BAT125EP-PV	(EPDM)
1 1/2"	33.0	20	1,38	25	1,73	35	2,42	45	3,11	BAT150V-PV	(Viton)
										BAT150EP-PV	(EPDM)
2"	60.0	25	1,73	25	1,73	40	2,76	50	3,45	BAT200V-PV	(Viton)
										BAT200EP-PV	(EPDM)

To order with throttling limit stops, add "LS" to part number after seal material.
Example: BAT075V-LS-PV. For Buna-N seals, replace "V" or "EP" with "B". Example: BAT075B-PV
Maximum air pressure rating is 100 PSI/6,90 BAR.



Series "BAT" Dimensions

	in. 3/4"	mm 88.9	in. 1"	mm 95.3	in. 1 1/4"	mm 115.9	in. 1 1/2"	mm 127.0	in. 2"	mm 152.4
A	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B(max)	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	6 9/16	166.6	7 3/8	187.2	8 5/16	211.1	9	228.6	10 3/16	258.6
D	1 5/32	29.2	1 3/8	34.8	1 5/8	41.1	1 7/8	47.5	1 11/32	29.2
E	1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*	4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

G* - Dimension is inlet-to-outlet with optional flanged ends.

Series BAT requires air or hydraulic pressure and the use of a 4-way solenoid valve to open and close. A piston is attached to the pressure balanced Teflon shaft. Air applied to the top of the piston closes the valve; air applied to the bottom of the piston forces the piston and shaft up, lifting the disk off the seat and opening the valve. NPT connections standard; socket and flanged optional. Air inlet connections 1/8" NPT.

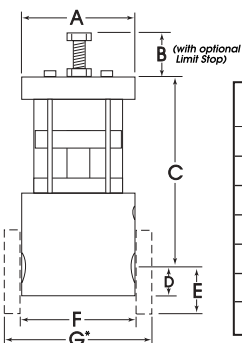
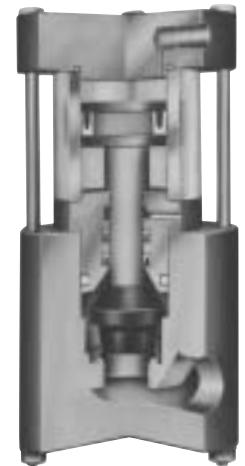
Series BLT • Liquid Line Pressure to Open / Air to Close

Automatic opening valve available in 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" NPT in Geon PVC body with glass-filled Teflon shaft. Maximum liquid line pressure is 125 PSI. 15 PSI minimum liquid line pressure required to open valve. Air pressure regulated at 60 - 80 PSI is recommended. Not for vacuum service.

Series "BLT" Specifications & Ordering Information

PIPE SIZE	Cv	RECOMMENDED MINIMUM AIR PRESSURE REQUIRED TO CLOSE VALVE AGAINST LIQUID LINE PRESSURE								MODEL NUMBER	(SEAL)
		LINE BACK PRESSURES									
		25	1,73	50	2,76	100	6,90	125	8,63		
psi	bars	psi	bars	psi	bars	psi	bars				
1/2"	3.6	30	2,06	30	2,06	30	2,06	30	2,06	BLT050V-PV	(Viton)
										BLT050EP-PV	(EPDM)
3/4"	8.5	15	1,04	20	1,38	30	2,07	40	2,76	BLT075V-PV	(Viton)
										BLT075EP-PV	(EPDM)
1"	15.0	15	1,04	20	1,38	40	2,76	45	3,11	BLT100V-PV	(Viton)
										BLT100EP-PV	(EPDM)
1 1/4"	24.0	15	1,04	25	1,73	40	2,76	45	3,11	BLT125V-PV	(Viton)
										BLT125EP-PV	(EPDM)
1 1/2"	33.0	20	1,38	35	2,42	55	3,80	60	4,14	BLT150V-PV	(Viton)
										BLT150EP-PV	(EPDM)
2"	60.0	20	1,38	30	2,07	45	3,11	55	3,80	BLT200V-PV	(Viton)
										BLT200EP-PV	(EPDM)

To order with throttling limit stops, add "LS" to part number after the seal material.
Example: BLT075V-LS-PV. For Buna-N seals, replace "V" or "EP" with "B".
Example: BLT075B-LS-PV. Maximum air pressure rating is 100 PSI/6,90 BAR



Series "BLT" Dimensions

	in. 1/2"	mm 60.3	in. 3/4"	mm 88.9	in. 1"	mm 95.3	in. 1 1/4"	mm 115.9	in. 1 1/2"	mm 127.0	in. 2"	mm 152.4
A	2 3/8	60.3	3 1/2	88.9	3 3/4	95.3	4 9/16	115.9	5	127.0	6	152.4
B(max)	1 3/4	44.5	1 3/4	44.5	1 3/4	44.5	1 5/8	41.3	1 3/4	44.5	2 3/8	60.3
C	5 3/8	136.5	5 5/16	134.9	5 9/16	141.2	6 3/8	161.8	6 5/8	168.2	8 7/8	225.3
D	7/8	19.9	1 5/32	29.2	1 3/8	34.8	1 7/8	47.5	1 7/8	47.5	1 1/2	38.1
E			1 15/16	49.2	2 1/8	53.8	2 5/16	58.7	2 1/2	63.5	3	76.2
F	2 3/8	60.3	3	76.2	4	101.6	4 1/2	114.3	6	152.4	5	127.0
G*			4	101.6	5	127.0	5 3/4	146.1	7 3/8	187.2	8 1/2	215.9

G* - Dimension is inlet-to-outlet with optional flanged ends.

Series BLT requires air or hydraulic pressure and the use of a 3-way solenoid valve to close. A piston is attached to the main pressure balanced Teflon shaft. 15 PSI liquid line pressure will automatically force open the valve. Air applied to the top of the piston closes the valve. NPT connections standard; socket or flanged optional. Air inlet connections 1/8" NPT.

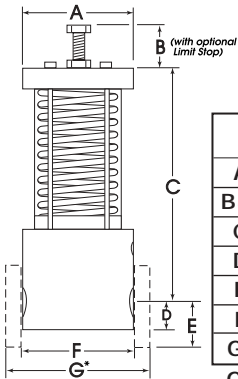
Series BST-NC • Air to Open/Fail Safe Spring To Close

Normally-closed valve available in 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" NPT in Geon PVC body with glass-filled Teflon shaft. Maximum liquid line pressure is 100 PSI. There is no minimum liquid pressure required. Air pressure regulated at 60 - 80 PSI is recommended. For pressure or vacuum service.

Series "BST-NC" Specifications & Ordering Information

PIPE SIZE	Cv	PRESSURE RATINGS		MODEL NUMBERS	(SEALS)
		MINIMUM AIR TO OPEN	MAXIMUM LIQUID LINE PRESSURE		
1/2"	3.6	30 PSI	125 PSI	BST050V-NC-PV	(Viton)
		2,06 BAR	8,6 BAR		
3/4"	8.5	50 PSI	100 PSI	BST075V-NC-PV	(Viton)
		3,45 BAR	6,9 BAR		
1"	15.0	45 PSI	100 PSI	BST100V-NC-PV	(Viton)
		3,11 BAR	6,9 BAR		
1 1/4"	24.5	45 PSI	100 PSI	BST125V-NC-PV	(Viton)
		3,11 BAR	6,9 BAR		
1 1/2"	33.0	545 PSI	100 PSI	BST150V-NC-PV	(Viton)
		3,11 BAR	6,9 BAR		
2"	60.0	45 PSI	100 PSI	BST200V-NC-PV	(Viton)
		3,11 BAR	6,9 BAR		

To order with throttling limit stops, add "LS" to part number after the "NC", Example: BST075B-NC-LS-PV. For Buna-N seals, replace "V" or "EP" with "B". Example: BST075B-NC-PV. Maximum air pressure rating is 100 PSI/6,90 BAR.



Series "BST-NC" Dimensions

	1/2" in.	3/4" in.	1" in.	1 1/4" in.	1 1/2" in.	2" in.
A	23/8 60.3	31/2 88.9	33/4 95.3	49/16 115.9	5 127.0	6 152.4
B(max)	13/4 44.5	13/4 44.5	13/4 44.5	15/8 41.3	13/4 44.5	23/8 60.3
C	6 1/2 165.1	9 3/8 238.0	11 5/16 287.3	13 330.2	15 381.0	15 13/16 401.6
D	1 3/8 34.9	1 5/32 29.2	1 3/8 34.8	1 25/32 45.2	1 25/32 45.2	1 15/32 37.1
E		1 15/16 49.2	2 1/8 53.8	2 5/16 58.7	2 1/2 63.5	3 76.2
F	2 3/8 60.3	3 76.2	4 101.6	4 1/2 114.3	6 152.4	5 177.8
G*		4 101.6	5 127.0	5 3/4 146.1	7 3/8 187.2	8 1/2 215.9

G* - Dimension is inlet-to-outlet with optional flanged ends.

Series BST-NC requires air or hydraulic pressure and the use of a 3-way solenoid valve to open. A piston is attached to the main pressure balanced Teflon shaft. Air applied under the piston opens the valve; when this air pressure is removed, a spring forces the piston and shaft down, closing the valve. NPT connections standard; socket or flanged optional. Air inlet connection is 1/8" NPT.

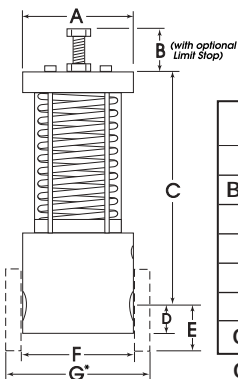
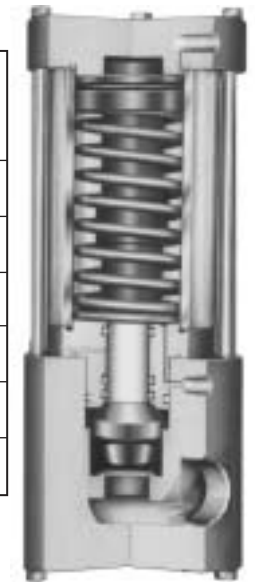
Series BST-NO • Fail Safe Spring To Open/Air to Close

Normally-open valve available in 1/2", 3/4", 1", 1 1/4", 1 1/2" and 2" NPT in Geon PVC body with glass-filled Teflon shaft. Maximum liquid line pressure is 125 PSI. There is no minimum liquid pressure required. Air pressure regulated at 60 - 80 PSI is recommended. For pressure or vacuum service.

Series "BST-NO" Specifications & Ordering Information

PIPE SIZE	Cv	RECOMMENDED MINIMUM AIR PRESSURE REQUIRED TO CLOSE VALVE AGAINST LIQUID LINE PRESSURE						MODEL NUMBER	(SEAL)						
		LINE BACK PRESSURES													
		0 psi	0 bars	25 psi	1,73 bars	50 psi	2,76 bars			75 psi	2,76 bars	100 psi	6,90 bars	125 psi	8,63 bars
1/2"	3.6	30	2,06	30	2,06	30	2,06	30	2,06	30	2,06	30	2,06	BST050V-NO-PV BST050EP-NO-PV	(Viton) (EPDM)
		45	3,11	45	3,11	50	3,45	55	3,80	55	3,80	60	4,14		
3/4"	8.5	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	BST100V-NO-PV BST100EP-NO-PV	(Viton) (EPDM)
		40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80		
1"	15.0	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	BST125V-NO-PV BST125EP-NO-PV	(Viton) (EPDM)
		40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80		
1 1/4"	24.0	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	BST150V-NO-PV BST150EP-NO-PV	(Viton) (EPDM)
		40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80		
1 1/2"	33.0	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	BST200V-NO-PV BST200EP-NO-PV	(Viton) (EPDM)
		40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80		

To order with throttling limit stops, add "LS" to part number after the "NO", Example: BST075B-NO-LS-PV. For Buna-N seals, replace "V" or "EP" with "B". Example: BST075B-NO-PV. Maximum air pressure rating is 100 PSI/6,90 BAR.



Series "BST-NO" Dimensions

	1/2" in.	3/4" in.	1" in.	1 1/4" in.	1 1/2" in.	2" in.
A	23/8 60.3	31/2 88.9	33/4 95.3	49/16 115.9	5 127.0	6 152.4
B(max)	13/4 44.5	13/4 44.5	13/4 44.5	15/8 41.3	13/4 44.5	23/8 60.3
C	6 1/2 165.1	9 1/16 230.1	9 15/16 236.5	11 5/16 287.3	14 1/8 358.6	14 3/4 374.7
D	1 3/8 34.9	1 5/32 29.2	1 3/8 34.8	1 25/32 45.2	1 25/32 45.2	1 15/32 37.1
E		1 15/16 49.2	2 1/8 53.8	2 5/16 58.7	2 1/2 63.5	3 76.2
F	2 3/8 60.3	3 76.2	4 101.6	4 1/2 114.3	6 152.4	5 177.8
G*		4 101.6	5 127.0	5 3/4 146.1	7 3/8 187.2	8 1/2 215.9

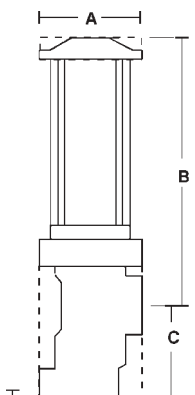
G* - Dimension is inlet-to-outlet with optional flanged ends.

Series BST-NO requires air or hydraulic pressure and the use of a 3-way solenoid valve to close. A piston is attached to the main pressure balanced Teflon shaft. Air applied over the piston closes the valve; when this air pressure is removed, a spring forces the piston and shaft up, opening the valve. NPT connections standard; socket or flanged optional. Air inlet connections 1/8" NPT.

Series BFS • Series F – 3-Way Diverter Valves

Air-operated diverter valves available is 1/2" (Series BFS), 3/4", 1", 1 1/4", 1 1/2" and 2" NPT in Geon PVC body with pressure balanced PVC shaft. Maximum liquid line pressure is 125 PSI (100 PSI for 1/2"). No minimum liquid pressure required. Air pressure regulated at 60 - 80 PSI is recommended. For pressure or vacuum service.

Series BFS and Series F Specifications & Ordering Information



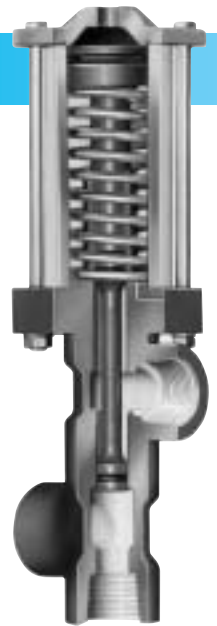
Pipe Size	Cv Factor NO / NC	RECOMMENDED MINIMUM AIR PRESSURE REQUIRED TO CLOSE VALVE AGAINST LINE BACK PRESSURE										Model Number (Seal)		
		LINE BACK PRESSURES												
		0	0	25	1,73	50	2,76	75	2,76	100	6,90		125	8,63
		psi	bars	psi	bars	psi	bars	psi	bars	psi	bars	psi	bars	
1/2"	3.6 2.5	45	3,11	45	3,11	50	3,45			65	4,49			BFS050V-PV (Viton) BFS050EP-PV (EPDM)
3/4"	12.2 7.3	45	3,11	45	3,11	50	3,45	55	3,80	55	3,80	60	4,14	F075V-PV (Viton) F075EP-PV (EPDM)
1"	19.2 11.5	45	3,11	45	3,11	50	3,45	55	3,80	55	3,80	60	4,14	F100V-PV (Viton) F100EP-PV (EPDM)
1 1/4"	34.5 20.7	45	3,11	40	2,76	45	3,11	50	3,45	55	3,80	60	4,14	F125V-PV (Viton) F125EP-PV (EPDM)
1 1/2"	47.5 28.5	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	F150V-PV (Viton) F150EP-PV (EPDM)
2"	79.0 47.5	40	2,76	40	2,76	40	2,76	45	3,11	50	3,45	55	3,80	F200V-PV (Viton) F200EP-PV (EPDM)

For Buna-N seals, replace "V" or "EP" with "B". Example F075B-PV • Maximum air pressure rating is 100 PSI/6,90 BARS

Series BFS and Series F Dimensions

Size DIM	1/2" (BFS)		3/4" (F)		1" (F)		1 1/4" (F)		1 1/2" (F)		2" (F)	
	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm	in.	mm
A	2 1/2	63.5	2 3/4	69.9	2 3/4	69.9	3 3/16	81.0	3 11/16	9.7	4 11/16	118.9
B	4 1/2	114.3	7 1/8	181.0	7 7/8	200.0	8	203.2	9 1/8	231.8	11 7/8	301.6
C	3 1/8	79.4	3 5/8	92.1	4 1/4	108.0	4 15/16	125.2	5 1/2	139.7	6 1/2	165.1
D	1 1/4	31.8	1 3/8	34.9	1 3/4	44.4	1 15/16	49.2	2	50.8	2 1/4	57.1
E	1 7/16	36.5	1 3/8	34.9	1 3/4	44.4	1 15/16	49.2	2	50.8	2 1/4	57.1

Series F (3/4" - 2") and Series BFS (1/2") require air or hydraulic pressure and the use of a 3-way solenoid valve to divert flow from a normally-open port to a normally-closed port. Air applied over the piston diverts the flow; when this air pressure is removed, a spring forces the piston and shaft up, returning flow to the normally-open port. NPT connections standard; socket or flanged optional. Air inlet is 1/8" NPT.



SAMPLE SPECIFICATIONS

Series BLT

Air-operated shutoff valve constructed of Grade 1, Type 1 Geon PVC with [Viton, EPDM, Buna-N] seals, is to have clear acrylic cylinder for visual indication of valve position. Valve shall be air to close and liquid line pressure to open. Pipe connection size is [1/2", 3/4", 1", 1 1/2", 2"] with 1/8" air connection. Valve shall have million-cycle design with balanced Teflon shaft, Fail-Dry safety design incorporating a vented chamber between the main seal and upper seal, and be individually tested prior to delivery. As manufactured by Plast-O-Matic Valves, Inc., Cedar Grove, NJ.

Series BAT

Air-operated shutoff valve constructed of Grade 1, Type 1 Geon PVC with [Viton, EPDM, Buna-N] seals, is to have clear acrylic cylinder for visual indication of valve position. Valve shall be air to close and air to open, Pipe connection size is [3/4", 1", 1 1/4", 1 1/2", 2"] with 1/8" air connection. Valve shall have million cycle design with balanced Teflon shaft, Fail Dry safety design incorporating a vented chamber between the main seal and upper seal, and be individually tested prior to delivery. As manufactured by Plast-O-Matic Valves, Inc., Cedar Grove, NJ.

ADD: With throttling Limit Stop (when appropriate). **REPLACE:** "Air" with "hydraulic" when actuating with water.

Series BST-NC/BST-NO

Air-operated shutoff valve constructed of Grade 1, Type 1 Geon PVC with [Viton, EPDM, Buna-N] seals, is to have clear acrylic cylinder for visual indication of valve position. Valve shall be fail-safe spring [Normally-closed air to open/Normally Open air-to close]. Pipe connection size is [1/2", 3/4", 1", 1 1/4", 1 1/2", 2"] with 1/8" air connection. Valve shall have million-cycle design with balanced Teflon shaft, Fail-Dry safety design incorporating a vented chamber between the main seal and upper seal, and be individually tested prior to delivery. As manufactured by Plast-O-Matic Valves, Inc., Cedar Grove, NJ.

Series BFS (1/2") & Series F (3/4" to 2")

Air-operated diverter valve constructed of Grade 1, Type 1 Geon PVC with [Viton, EPDM, Buna-N] seals, is to have clear acrylic cylinder for visual indication of valve position. Valve shall use air to divert to normally-closed port, spring return to normally-open port. Pipe connection size is [1/2", 3/4", 1", 1 1/4", 1 1/2", 2"] with 1/8" air connection. Valve shall have million cycle design with balanced shaft and be individually tested prior to delivery. As manufactured by Plast-O-Matic Valves, Inc., Cedar Grove, NJ.

PLAST-O-MATIC
VALVES, INC.

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