

VALVES

PRESSURE SUSTAINING NORMALLY OPEN (PSNO) VALVES

SELECTION, INSTALLATION, OPERATION
AND TROUBLESHOOTING GUIDE



IRON PSNO VALVE



PVC PSNO VALVE

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INTRODUCTION

PSNO VALVES MAXIMIZE FLUSH CYCLE EFFICIENCY FOR ALL FILTERS



The Netafim USA Pressure Sustaining Normally Open (PSNO) Valve is the universal solution for all types of filters. A PSNO Valve ensures that the filter will initiate a backflush cycle with the required pressure for proper cleaning. This is accomplished by maintaining the correct pressure upstream of the valve (downstream of the filter). After the backflush cycle, the filter element(s) will be thoroughly cleaned.

With a PSNO Valve, Filters Flush More Efficiently Resulting in:

- Less Maintenance
- Less Downtime
- Less Water and Energy Used

Since the filters flush less frequently and more efficiently, a PSNO Valve is ideal for all types of filters - media or disc. There is no need for a larger pump, saving capital and operating expenses, to achieve the correct pressure during backflush.

PSNO VALVE FEATURES

Accurate Stable Control of Upstream Pressure

- Changes in flow do not affect the upstream pressure in the valve since the PSNO Valve pilot regulates this pressure

Quick Reaction Time of PSNO Valve

- Slightly before the filter starts flushing, the PSNO Valve goes into sustaining mode for quick reaction

Manual Override on Solenoid for Easy Adjustments

- Solenoid settings can be adjusted by simply turning a knob

Hydraulic Valve with Direct Sealing Diaphragm

- No stem, shaft or bearing within the water passage
- Longer life with less maintenance

Easy Installation and Low Maintenance

- Netafim valves are the most reliable in the industry, resulting in less maintenance
- They are easy to install and operate

INTRODUCTION

PSNO VALVE OPERATION

A PSNO Valve is always installed downstream of the filter. During standard operation, filtration mode, the PSNO Valve is fully open and flow or pressure to the field is not restricted. The solenoid is not energized at this time (See Figure 1).

During the flushing mode, the solenoid is energized and the PSNO Valve partially closes in order to provide the desired pressure to the filter for proper flushing. This is referred to as the sustaining mode. During the sustaining mode, the valve maintains a “set” upstream pressure regardless of flow rate or pressure variations (See Figure 2).

At the end of the flush cycle, the solenoid is de-energized and the PSNO Valve will fully open again.

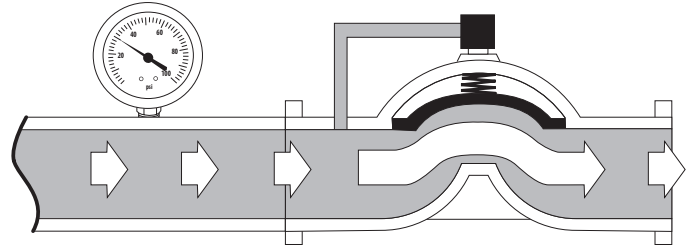


Figure 1: PSNO Valve Filtration Mode - valve is fully open and upstream pressure is 30 psi.

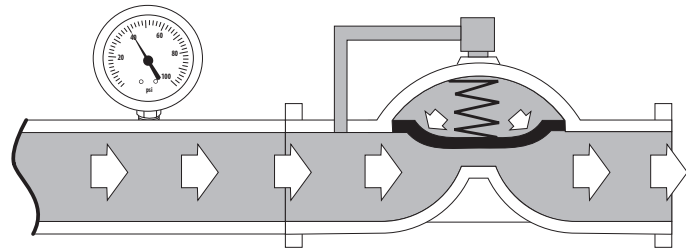
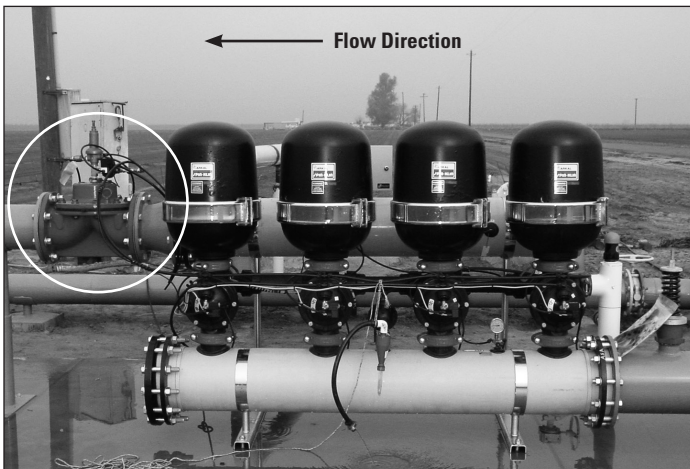
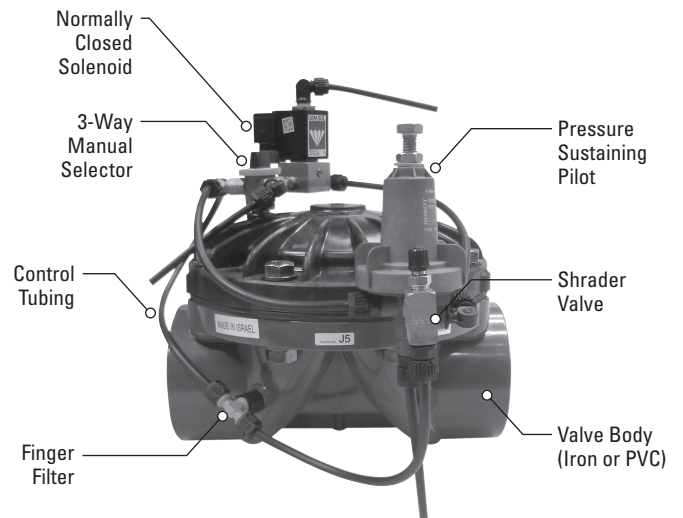


Figure 2: PSNO Valve Flushing Mode - valve partially closes and upstream pressure raises to 40 psi (or any other adjustable set point).



PSNO Iron Valve located downstream of a disc filter.



4" PSNO PVC Valve

SELECTION AND ORDERING

SELECTION GUIDELINES

When selecting a PSNO Valve, the following recommended flow ranges should be considered to ensure proper sizing and performance.

RECOMMENDED FLOW RANGE

Valve Size →	3"	4"	6"	868	8"	10"	12"
Flow Range (GPM)	40 - 400	60 - 600	130 - 1,300	150 - 1,500	200 - 2,000	350 - 3,500	480 - 4,800

It is recommended not to oversize the PSNO Valve. In relation to the specific flow (GPM), an oversized valve will require the diaphragm to be almost closed in the sustaining mode which can create high velocity, unstable regulation and potential cavitation.

MAXIMUM WORKING PRESSURE

Material	Valve Size	psi
PVC	3" and 4"	115
PVC	6"	145
Iron	All	230

ORDERING EXAMPLE

Pipeline: 6"

Required Flow Rate: 500 GPM

With a flow rate higher than 400 GPM, but lower than 600 GPM, a 4" valve is recommended. In this example, even though the pipeline is 6", a 6" valve is not recommended.

Choose the required voltage, Item and Model Numbers from the Ordering Information Charts on the next page.

SELECTION AND ORDERING



PVC MATERIAL with SLIP CONNECTION

Size	Flow Range (GPM)	Voltage	Item Number	Model Number
3"	40 - 400	24VAC	71610-022330	61PSNO3PLS-G
4"	60 - 600	24VAC	71610-022483	61PSNO4PLS-G
6"	130 - 1,300	24VAC	71610-006250	61PSNO6PLS-G

3" PVC also available with threaded connection.



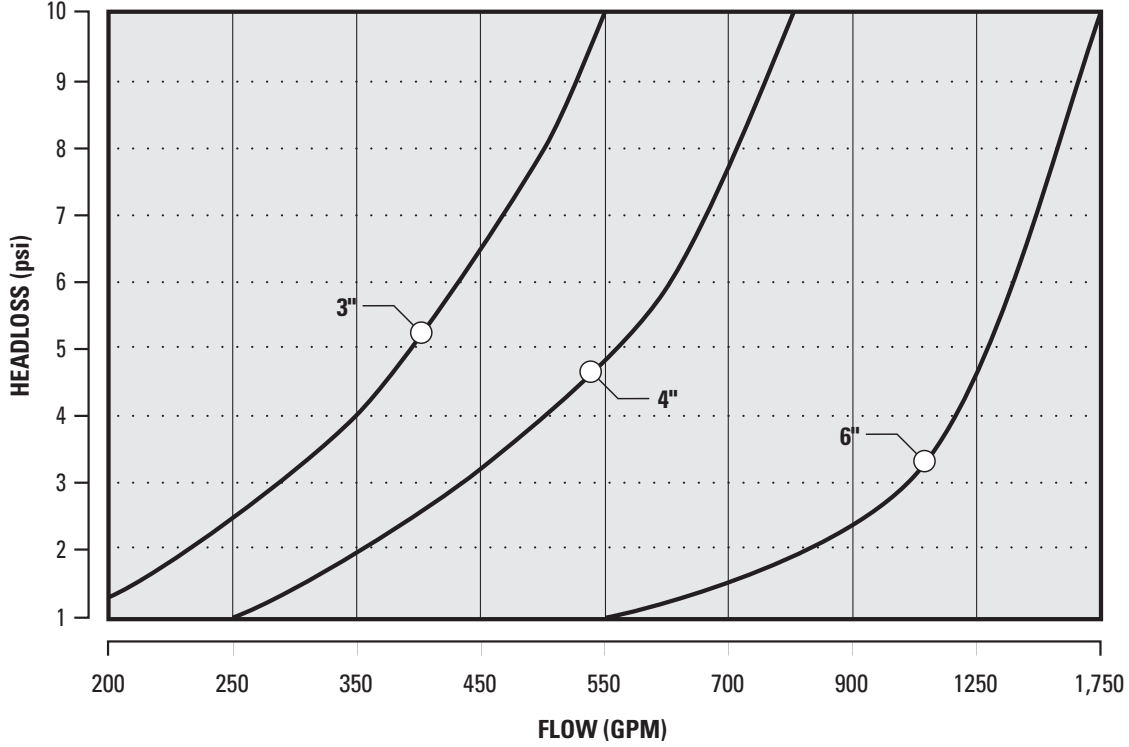
IRON MATERIAL with FLANGED CONNECTION

Size	Flow Range (GPM)	Voltage	Item Number	Model Number
3"	40 - 400	24VAC	-	61PSNO3IF-HP-G
4"	60 - 600	24VAC	71610-022495	61PSNO4IF-HP-G
6"	130 - 1,300	24VAC	71610-022620	61PSNO6IF-HP-G
868	150 - 1,500	24VAC	71610-022750	61PSNO868IF-HP-G
8"	200 - 2,000	24VAC	71610-023650	61PSNO8IF-HP-G
10"	350 - 3,500	24VAC	71610-023700	61PSNO10IF-HP-G
12"	480 - 4,800	24VAC	71610-023760	61PSNO12IF-HP-G

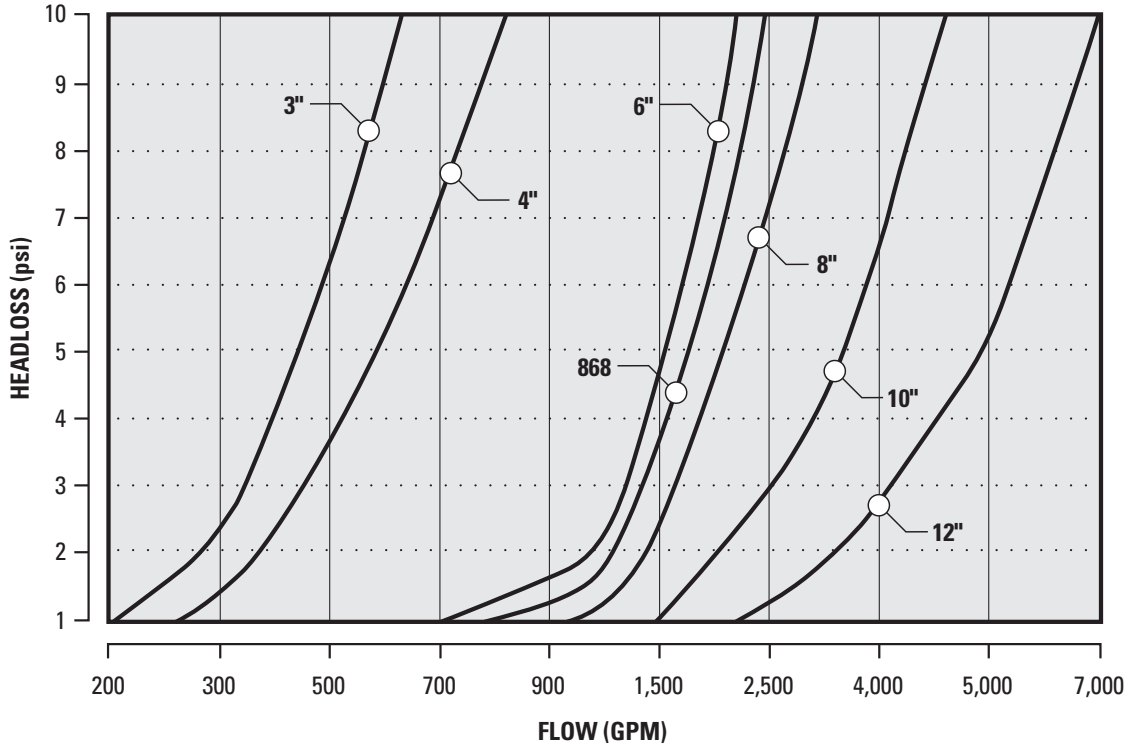
Note: All PSNO Valves are also available with 12VDC and 12VDCL solenoids. Call Netafim USA Customer Service for item and model numbers. For pricing information, refer to the Agriculture Division Price List.

HEADLOSS CHARTS

HEADLOSS CHART - PVC VALVES



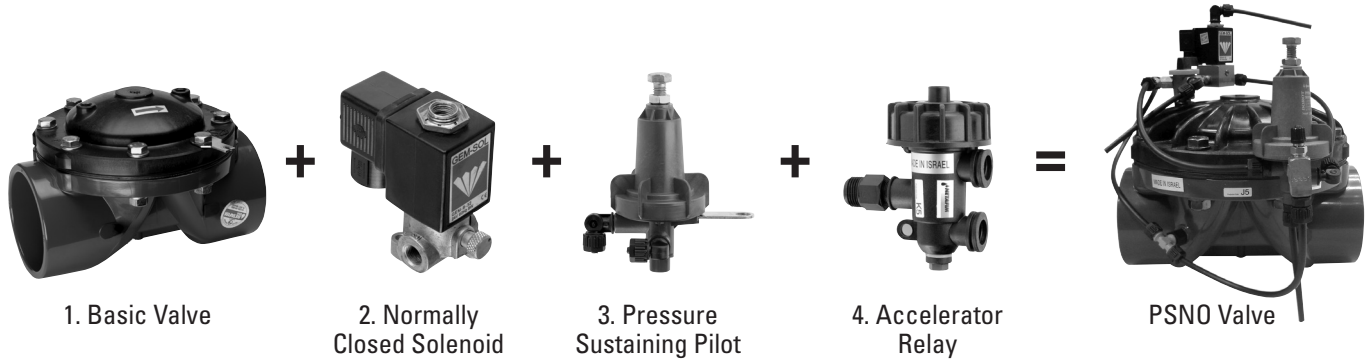
HEADLOSS CHART - IRON VALVES



COMPONENTS

PRESSURE SUSTAINING NORMALLY OPEN (PSNO) VALVE COMPONENTS

A Pressure Sustaining Normally Open (PSNO) Valve ships pre-assembled by Netafim USA following strict quality standards. The PSNO Valve consists of a Basic Valve, a Normally Closed Solenoid, a Pressure Sustaining Pilot, and an Accelerator Relay (if the valve is 6" and larger).



1. BASIC VALVE

The basic valve consists of four simple parts - body, spring, diaphragm and bonnet - making it the simplest valve to operate and maintain. Installation is quick and easy with its unique inline design which also creates low losses at high flow rates.

- Available with two body material options - PVC or Iron
- Stainless steel internal spring provides strength and long-life
- Flexible reinforced direct sealing rubber diaphragm requires no bearings, guides or internal seals
- Cover and body constructed of UV and corrosion resistant materials

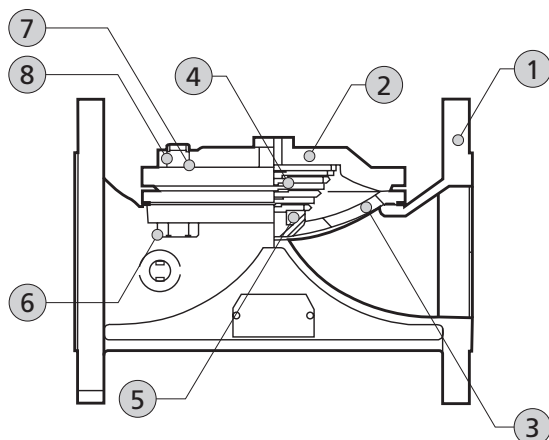


Illustration of a Basic Iron Valve

COMPONENTS

Key	Description
1	Body
2	Bonnet
3	Diaphragm
4	Spring
5	Spring Seat
6	Bolt
7	Washer
8	Nut

COMPONENTS

1. BASIC VALVE, (con't.)

a. Diaphragm

PVC and Iron valves are standard with a direct sealing natural rubber diaphragm. All Iron PSNO Valves use a high pressure diaphragm with a standard range of 10 - 230 psi. All PVC PSNO Valves use a low pressure diaphragm with a range of 2 - 60 psi.



High Pressure Diaphragm

b. Hydraulic Control Tubing and Fittings

Hydraulic control tubing is used for various connections on the valve and the tubing size is different based on the valve size and material. Fittings are available in either Plastic or Prestolock Brass based on the valve size and material.



Hydraulic Control Tubing

HYDRAULIC CONTROL TUBING AND FITTINGS

Valve Size	Tubing Material	Tubing Size	Fittings
PVC and Iron Valves up to 4"	Polyethylene	8mm	Plastic
All Valves 6" and Larger	Nylon	3/8" and 12mm*	Prestolock Brass

*12mm tubing connects the Accelerator Relay of the PSNO Valve to the command filter on the Galaxy Automatic Disc-Kleen Filter.



Plastic Fittings



Prestolock Brass Fittings

2. SOLENOID

A solenoid valve receives an electric command from a controller and converts it into a hydraulic command to the main valve. This enables the opening and closing of the valve by allowing the passage of water into or from the control chamber of the main valve.

Always use a Normally Closed (NC) Solenoid on all PSNO Valves. Standard solenoid is 24VAC NC. Choose from the following solenoids based on the available power source.

All solenoids have a manual override feature. Turning the knob 90 degrees to the left or right will activate the solenoid and place the valve in Sustaining Mode. Latching solenoids have a three position lever for manual override. Turning the lever to the right or "O" position activates the solenoid and places the valve in Sustaining Mode. Left or "C" position turns the valve off. For automatic mode, the lever should be placed in the center (locked) position.

SOLENOID ORDERING INFORMATION

Power	Item Number	Model Number
24VAC	70800-003260	61BBC-024
12VDC	70800-002910	61BBC-012
12VDCL	71000-019400	61ARK12VDCL-MO



24VAC Solenoid



12VDC Solenoid



12VDCL Solenoid

COMPONENTS

3. PILOT

A pilot is a mini-valve which ensures accuracy of the regulated pressure for hydraulic control valves. In PSNO valves, when the line pressure is lower than the pilot's spring setting (the set point), the pilot permits the passage of water into the chamber of the main valve, partially closing the valve. PSNO Valves are standard with a Green Pilot Spring and a recommended set point of 45 psi.

Pilot setting recommendations:

- Automatic Disc-Kleen Filters Set the pilot to 40 - 45 psi
- Sand Media Filters Set the pilot to 30 - 35 psi
- Automatic Screen Filters Set the pilot to 30 - 35 psi

PILOT SPECIFICATIONS

Valve Size →	Iron 3" and 4" All PVC Sizes	Iron 6" and Larger
Port Size	1/8"	1/2"
Pilot Configuration	3-Way	3-Way
Pilot Pressure Range	14 to 65 psi	14 to 90 psi
Maximum Pressure	140 psi	350 psi
Body/Bonnet Material	Plastic	Brass
Plunger Material	Stainless Steel	Stainless Steel
Diaphragm Material	Natural Rubber	Natural Rubber
O-Rings Material	Nitrile	Nitrile

PILOT ORDERING INFORMATION

Valve Size →	Iron 3" and 4" All PVC Sizes	Iron 6" and Larger
Item Number	71680-001100	71680-001400
Model Number	61PIL29200-G	61PIL66310-G



Plastic Pilot



Bronze Pilot

4. ACCELERATOR RELAY

An Accelerator Relay is designed with large flow passages to allow faster reaction time of the main PSNO valve. As soon as the solenoid is energized, the relay allows larger amounts of water to flow into the main valve chamber, partially closing the valve. It is a standard component on all 6" and larger valves.



Accelerator
Relay

ACCELERATOR RELAY ORDERING INFORMATION

Item Number	Model Number
71680-000790	61PIL25300

INSTALLATION AND MAINTENANCE

INSTALLATION GUIDELINES

1. Install the valve downstream of the filter station.
2. The arrow on the bonnet should match the flow direction.
3. Verify that a finger filter was installed at the upstream pressure port of the valve.
4. The valve can be installed in any position. When installing a 6" PVC Valve or a 12" Iron Valve, install the bonnets side by side, not one up and one down. This will allow for easier maintenance.
5. For all threaded valves – use five layers of Teflon tape for proper installation.
6. For all PVC slip valves – use primer and a heavy duty solvent.
7. For all flanged valves – bolts should be tightened in a diagonal sequence.
8. For 6" and larger iron valves, the needle valve connects to the 2" command filter on the Galaxy or main filter with the supplied 12mm tubing. The tee fitting on the command filter will have an open end for attachment to the 12mm tubing from the needle valve.
9. Connect the solenoid with the supplied 8mm tubing to the closest solenoid on the filter station by replacing the elbow fitting on the solenoid with a "T" connector.
10. Wire the solenoid of the valve to the "M" (master valve) connector on the backflush controller.

SETTINGS AND ADJUSTMENT GUIDELINES

The 3-Way selector must be in the A-position. The O-port is used to manually open the valve and the C-port to manually close the valve. A neutral position, not facing any of the ports, locks the water in the bonnet (used in case the pilot malfunctions).

- For 6" Iron flanged valves and larger:
 - Open ball valves at the upstream and downstream ports of the valves
 - Close needle valve and then open it 3 full turns
- Start the pump.
- Make sure the lines are full and the designed pressure is reached.
- Open the main valve manually and perform a backflush cycle with the controller.
- The valve remains closed or opens slightly while the upstream pressure maintains a high level.
- Loosen the bolt on the pilot until the upstream pressure reaches the minimum required level to backflush the filter.
- Wait until the pressure stabilizes, make final adjustments and tighten the lock nut on the pilot.
- If the manual override screw on the solenoid was used to manually open the valve in the previous step, turn it to the original position (automatic arrow facing base of the solenoid).
- Initiate another backflush cycle from the backflush controller and make sure the valve reaches the set pressure before backflush. Measure the pressure with a pressure gauge. Adjust pre-dwell time in the controller if set pressure is not achieved before backflush.
- If pressure is lower than the required set point, tighten the bolt on the pilot; every turn is approximately equivalent to 10 psi. Open the bolt if pressure is higher than set point.

MAINTENANCE

1. Keep the valve clear from weeds and dirt.
2. Turn the handle of the 3-way selector periodically to prevent sticking.
3. Verify the upstream pressure periodically, using a quality liquid filled gauge.

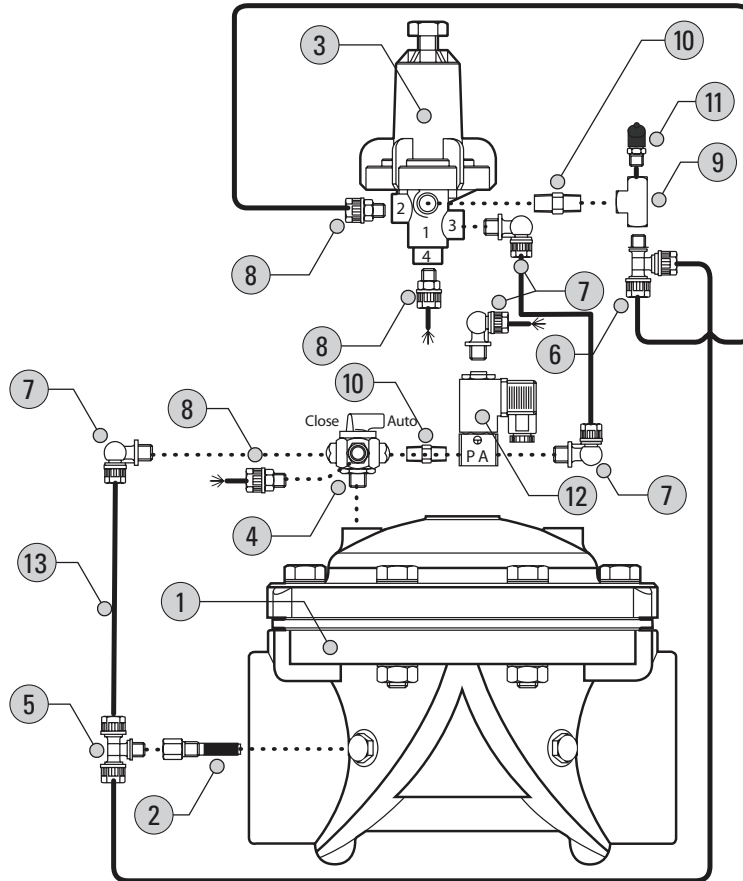
WINTERIZING

Drain the valve by disconnecting the tubing from the access ports of the valve and at any location where water can be trapped.

3" AND 4" IRON/PVC VALVES

PILOT CONNECTIONS

Port	Connection
1	Upstream
2	Upstream
3	Solenoid
4	Vent



3" and 4" IRON/PVC VALVE COMPONENTS

Key	Item Number	Model Number	Qty.	Description
1	-	-	1	Basic Valve Body (based on size & material)
2	71680-014170	61SF25P	1	Inline Plastic Finger Filter 1/2" x 2 3/8"
3	71680-001100	61PIL29200-G	1	Blue Plastic Pressure Sustaining Pilot
4	71680-035900	62SV21/4M	1	3-Way Valve 1/8" x 1/4" Male
5	76400-004400	55P4714802	1	Plastic Male Branch Tee Fitting 8mm x 1/8"
6	76400-004500	55P4724802	1	Plastic Male Run Tee Fitting 8mm x 1/8"
7	76400-003400	55P4694802	4	Plastic Male 90° Elbow Fitting 8mm x 1/8"
8	76400-002100	55P4684802	3	Plastic Male Connector Fitting 8mm x 1/8"
9	78301-002200	55B2203P2	1	Brass Tee Fitting 1/8" Female
10	76400-006200	55P1220202	2	Plastic Nipple Fitting 1/8"
11	76601-001050	61APS1/8	1	Shrader Valve 1/8"
12	70800-003260	61BBC-024-H	1	Solenoid 24VAC 8 Watt 1/2" Hub
13	40001-000400	15CONT-8	1	Control Tubing 8mm (1,000' coil)

Note: Solenoid ports may be labeled either P and A or 2 and 1.

3" & 4" IRON/PVC VALVES

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CHECK	SOLUTION
Valve does not open	The 3-Way selector (4) is in the C position	Verify knob position	Turn to A (automatic) position
	Ports are clogged at the 3-Way selector (4)	Turn 3-Way selector (4) to O (open), water is not flowing	Dismantle and clean or replace if needed
	Low upstream pressure	Design data, pump curve and minimum opening pressure of the valve data	Increase upstream pressure, connect command water from upstream of the filter instead of the valve
	Solenoid (12) is connected wrong	Verify port connections, top is drain port	Change accordingly
	Solenoid (12) is on manual mode	Check manual override	Make sure solenoid is in automatic position
	Solenoid (12) is clogged	Check flow at vent port	Clean or replace if needed
Valve does not sustain pressure	Punctured diaphragm	Turn 3-Way selector (4) to O (open), water flows continuously	Change diaphragm, identify I.D. number on the lip of the diaphragm
	3-Way selector (4) on O (open)	Verify knob position	Turn to A (automatic) position
	Solenoid (12) override in wrong position	Slot must be horizontal with arrow pointing down	Turn to correct position
	Solenoid (12) is not responding - no current	Measure output at controller	Consult controller manual
	Solenoid (12) has faulty coil	Check coil, is it "clicking"	Replace if not "clicking"
	Solenoid (12) clogged	Disconnect control tubing at Port 1 or A of solenoid - no water flowing	Clean solenoid (12) or replace if needed
	Pilot (3) - incorrect connections	Compare with schematics	Correct accordingly
Pilot (3) - clogged or faulty	No water flowing from pilot	Clean or replace pilot. Adjust bolt to change pressure	
Required backflush pressure can not be reached	Not enough flow at the inlet of the system	Make sure inlet butterfly valve is fully open (if installed)	Open butterfly valve if needed
		Check pump performance	
		Make sure the filter station is not completely clogged	Open filter and clean manually
		Check the 2" control filter on the filter manifold	Clean
		Make sure solenoid (12) is energized when the controller initiates the backflush cycle	Check and repair controller panel and/or replace solenoid (12)
Line pressure is greater than set point (45 psi)		During adjustment, must lower line pressure to 35-40 psi and then adjust pilot to 45 psi	

6" PVC VALVES

PILOT CONNECTIONS

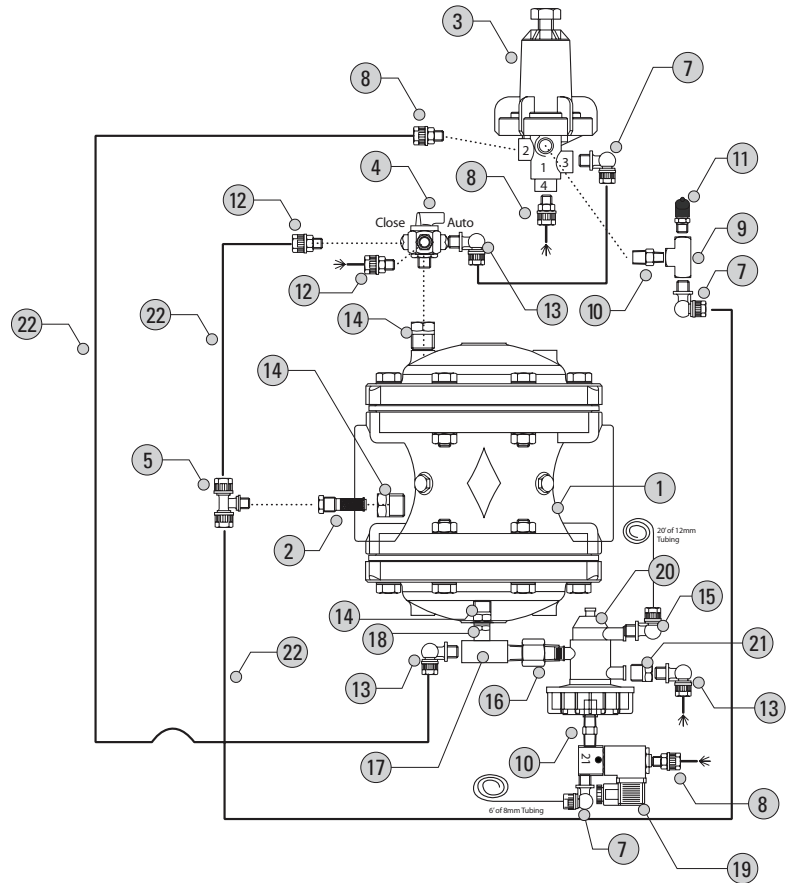
Port	Connection
1	Upstream
2	Relay
3	3-Way Valve
4	Vent

Note:

To manually close a 6" PVC Valve, first close the 3-Way Valve (#4) located on the valve's upper chamber AND then turn on the manual override on the Solenoid (#19) located on the valve's lower chamber.

Notes:

- 8mm tubing from the solenoid and 12mm tubing from the accelerator relay, attach to the 2" command filter of the main filter.
- Solenoid ports may be labeled either P and A or 2 and 1.



6" PVC VALVE COMPONENTS

Key	Item Number	Model Number	Qty.	Description
1	71600-006140	61B6PL-S	1	Basic PVC 6" Valve Body
2	71680-014000	61SF25SB	1	Inline Brass Finger Filter
3	71680-001100	61PIL29200-G	1	Blue Plastic Pressure Sustaining Pilot
4	71610-036100	62SV41/4M	1	3-Way Valve 1/4" x 1/4" Male
5	76400-004550	55P4724802	1	Plastic Male Run Tee Fitting 8mm x 1/8"
6	76400-006200	55P1220202	1	Plastic Nipple Fitting 1/8"
7	76400-003400	55P4694802	3	Plastic Male 90° Elbow Fitting 8mm x 1/8"
8	76400-002100	55P4684802	3	Plastic Male Connector Fitting 8mm x 1/8"
9	78301-002200	55B2203P2	1	Brass Tee Fitting 1/8" Female
10	76400-006200	55P1220202	1	Plastic Nipple Fitting 1/8"
11	76601-001050	61APS1/8	1	Shrader Valve 1/8"
12	76400-002300	55P4684804	2	Plastic Male Connector Fitting 8mm x 1/4"
13	76400-003500	55P4694804	3	Plastic Male 90° Elbow Fitting 8mm x 1/4"
14	76400-010000	55P1100804	3	Plastic Bushing 1/2" Male x 1/4" Female
15	76400-003575	25AP50780432	1	Plastic Elbow 12mm x 3/8"
16	78301-004700	55B222P64	1	Brass Adapter 1/4" Male x 3/8" Female
17	78301-002300	55B2203P4	1	Brass Tee 1/4" Female
18	78301-003900	55B216P4	1	Brass Hex Nipple 1/4"
19	70800-003260	61BBC-024	1	Solenoid 24VAC 8 watt with Knob
20	71680-000790	61PIL25300	1	Plastic Accelerator Relay
21	78301-003400	55B209P64	1	Reducer Bushing 3/8" Male x 1/4" Female
22	40001-000420	15CONT-8-I	12	8mm Hydraulic Control Tubing

6" PVC VALVES

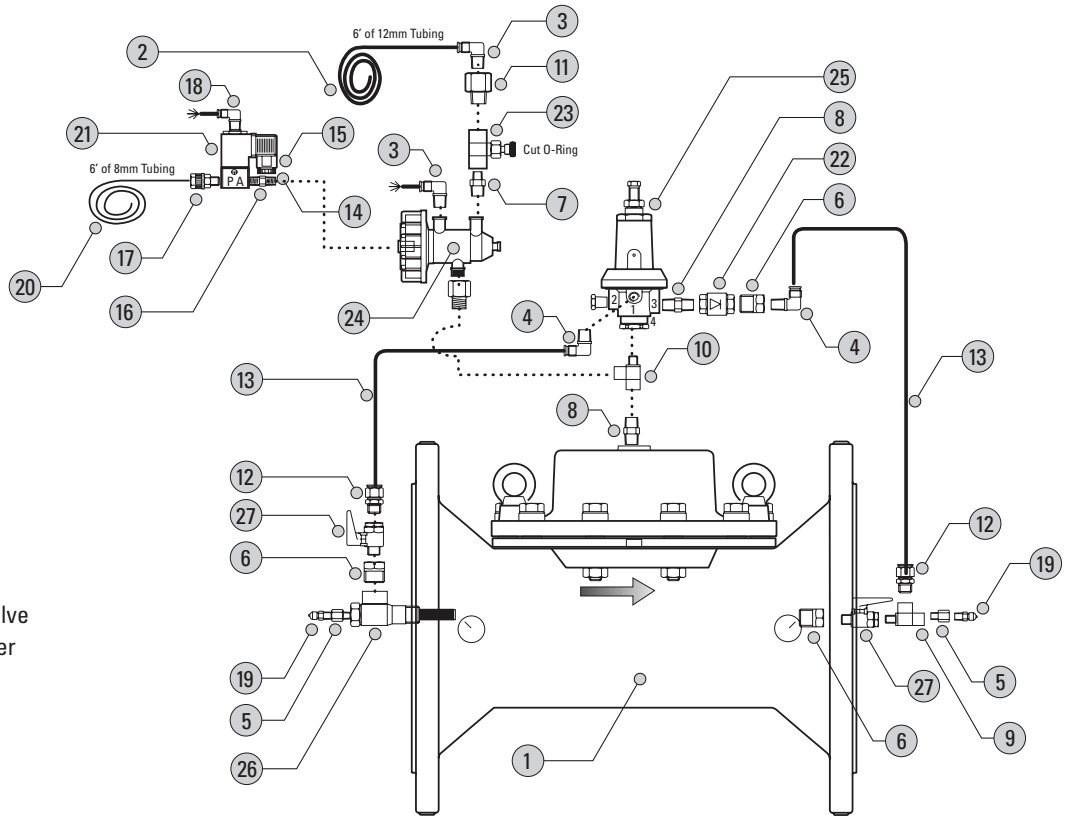
TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CHECK	SOLUTION
Valve does not open	The 3-Way selector (4) is in the C position	Verify knob position	Turn to A (automatic) position
	Ports are clogged at the 3-Way selector (4)	Turn 3-Way selector (4) to O (open), water is not flowing	Dismantle and clean or replace if needed
	Low upstream pressure	Design data, pump curve and minimum opening pressure of the valve data	Increase upstream pressure, connect command water from upstream of the filter instead of the valve
	Solenoid (19) is connected wrong	Verify port connections, top is drain port	Change accordingly
	Solenoid (19) is on manual mode	Check manual override	Make sure solenoid (19) is in automatic position
	Solenoid (19) is clogged	Check flow at vent port	Clean or replace if needed
	Relay (20) is not connected properly	Check connection according to schematics	Connect command water from upstream of the filter to the NC port of the relay (20)
Valve does not sustain pressure	Punctured diaphragm	Turn 3-Way selector (4) to O (open), water flows continuously	Change diaphragm, identify I.D. number on the lip of the diaphragm
	3-Way selector (4) on O (open)	Verify knob position	Turn to A (automatic) position
	Solenoid (19) override in wrong position	Slot to be horizontal with arrow pointing down	Turn to correct position
	Solenoid (19) is not responding - no current	Measure output at controller	Consult controller manual
	Solenoid (19) has faulty coil	Check coil, is it "clicking"	Replace if not "clicking"
	Solenoid (19) clogged	Disconnect control tubing at Port 1 or A of solenoid - no water flowing	Clean solenoid (19) or replace if needed
	Pilot (3) - incorrect connections	Compare with schematics	Correct accordingly
	Pilot (3) - clogged or faulty	No water flowing from pilot (3)	Clean or replace pilot (3). Adjust bolt to change pressure
Relay command pressure too low	Check pressure into the relay - minimum pressure should be 15psi	Increase upstream pressure or connect command water from upstream of the filter instead of upstream of the valve	
Required backflush pressure can not be reached	Not enough flow at the inlet of the system	Make sure inlet butterfly valve is fully open (if installed)	Open butterfly valve if needed
		Check pump performance	
		Make sure the filter station is not completely clogged	Open filter and clean manually
		Check the 2" control filter on the filter manifold	Clean
		Make sure solenoid is energized when the controller initiates the backflush cycle	Check and repair controller panel and/or replace solenoid (19)
Line pressure is greater than set point (45 psi)		During adjustment, must lower line pressure to 35-40 psi and then adjust pilot to 45 psi	

6" AND LARGER IRON VALVES

PILOT CONNECTIONS

Port	Connection
1	Upstream
2	Plugged
3	Downstream
4	Valve Bonnet



Notes:

- Solenoid ports may be labeled either P and A or 2 and 1.
- 8mm tubing from the solenoid attaches upstream of the valve.
- 12mm tubing from the needle valve attaches to the 2" command filter of the main filter.

6" IRON AND LARGER VALVE COMPONENTS

Key	Item Number	Model Number	Qty.	Description
1	-	61BXIF-HP	1	Basic Iron Flanged Valve (based on size)
2	00105-007500	25AP50500116	6	12mm Hydraulic Control Tubing
3	76400-003575	25AP50780432	2	12mm x 3/8" Plastic Elbow Fitting
4	78301-001600	55B169PL64	2	Swivel Elbow Fitting 3/8" x 1/4"
5	78301-003300	55B209P42	2	Brass Bushing 1/4" Male x 1/8" Female
6	78301-003600	55B209P84	3	Brass Bushing 1/2" Male x 1/4" Female
7	78301-004100	55B216P64	1	Brass Nipple 3/8" x 1/4"
8	78301-004200	55B216P8	2	Brass Nipple 1/2" x 1/2"
9	78301-002500	55B2225P4	1	Brass Tee Fitting 1/4" Female x 1/4" Male
10	78301-002600	55B2225P8	1	Brass Tee Fitting 1/2" Female x 1/2" Male
11	78301-004700	55B222P64	1	Brass Adapter 3/8" Female x 1/4" Male
12	78301-005600	55B68PL64	1	Brass Male Connector 3/8" C x 1/4" Male
13	71680-018460	55BNB6050	2	3/8" Nylon Tubing
14	76400-010200	55P1100402	3	Plastic Bushing 1/4" Male x 1/8" Female
15	76400-010000	55P1100804	1	Plastic Bushing 1/2" Male x 1/4" Female
16	76400-006200	55P1220202	1	Plastic Nipple 1/8"
17	76400-002100	55P4684802	1	Plastic Male Connector Fitting 8mm x 1/8"
18	76400-003400	55P4694802	1	Plastic Male Elbow Fitting 8mm x 1/8"
19	76601-001050	61APS1/8	1	Shrader Valve 1/8"
20	40001-000420	15CONT-8-I	6	8mm Hydraulic Control Tubing
21	70800-003260	61BBC-024	1	Solenoid 24VAC 8 watt 1/2" Hub
22	77540-005270	61CV50	1	1/2" Brass Check Valve
23	77500-004700	61NV1/4	1	1/4" Needle Valve
24	71680-000790	61PIL25300	1	Accelerator Relay
25	71680-001400	61PIL66310-G	1	Brass Pressure Sustaining Pilot
26	71680-014100	61SF5	1	Inline Brass Finger Filter
27	71610-035600	62SBV25	1	2-Way Ball Valve 1/4"

6" AND LARGER IRON VALVES

TROUBLESHOOTING GUIDE

PROBLEM	CAUSE	CHECK	SOLUTION
Valve does not open	Low upstream pressure	Design data, pump curve and minimum opening pressure of the valve data	Increase upstream pressure or connect command water from upstream of the filter instead of the valve
	Solenoid (21) is connected wrong	Verify port connections, top is drain port	Change accordingly
	Solenoid (21) is on manual mode	Check manual override	Make sure solenoid (21) is in automatic position
	Solenoid (21) is clogged	Check flow at vent port	Clean or replace if needed
	Relay (24) is not connected properly	Check connection according to schematics	Connect command water from upstream of the filter to the NC port of the relay (24)
	Check valve (22) is installed in the wrong position	Check arrow direction on the check valve (22)	Make sure check valve arrow is pointing downstream. Make sure o-rings are in good condition
Valve does not sustain pressure	Solenoid (21) override in wrong position	Slot to be horizontal with arrow pointing down	Turn to correct position
	Solenoid (21) is not responding - no current	Measure output at controller	Consult controller manual
	Solenoid (21) has faulty coil	Check coil, is it "clicking"	Replace if not "clicking"
	Solenoid (21) clogged	Disconnect control tubing at Port 1 or A of solenoid - no water flowing	Clean solenoid or replace if needed
	Pilot (25) - incorrect connections	Compare with schematics	Correct accordingly
	Pilot (25) - clogged or faulty	No water flowing from pilot (25)	Clean or replace pilot (25). Adjust bolt to change pressure
	Punctured diaphragm	Open valve and check diaphragm	Change diaphragm, identify I.D. number on the lip of the diaphragm
	Needle valve fully closed	Check degree of opening	Turn one full turn to open
	Relay command pressure too low	Check pressure into the relay - minimum pressure should be 15psi	Increase the pressure from the 2" command filter of the main filter
Required backflush pressure can not be reached	Not enough flow at the inlet of the system	Make sure inlet butterfly valve is fully open (if installed)	Open butterfly valve if needed
		Check pump performance	
		Make sure the filter station is not completely clogged	Open filter and clean manually
		Check the 2" control filter on the filter manifold	Clean
		Make sure solenoid (21) is energized when the controller initiates the backflush cycle	Check and repair controller panel and/or replace solenoid (21)
Line pressure is greater than set point (45 psi)		During adjustment, must lower line pressure to 35-40 psi and then adjust pilot to 45 psi	
Downstream pressure of the PSNO valve is too low, when the valve is fully open and not regulating	Very high flow rates create higher headloss than expected	During operation, disconnect the tube from check valve to downstream port of the valve and vent to the atmosphere	This tube will vent continuously during the entire backflush cycle preventing high headloss across the valve during backflush



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