INTRODUCTION

Nelson Irrigation has historically provided "special function" valves (ordered using an S# code) that were made available for unique and difficult applications where a standard valve would not work. However, the standard configurations (electric on/off, pressure reducing, pressure sustaining, rate-of-flow, etc.) satisfy the vast majority of applications where Nelson control valves are used.

Starting in 2019, many of these "special functions" were made "standard" through the use of new "Solenoid Logic L#" codes, which simplifies the ordering process. See pages 5-6 for a summary of these new codes.

The remaining "special functions" have either been discontinued entirely, or may be available after consulting with the factory. A select few are readily available to order.

Due to the complicated nature of the applications where these "special functions" are used, it is strongly encouraged that you consult with Nelson Irrigation's application engineering team before specifying, ordering, or requesting a "special function" valve.

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OPTIONS AND AVAILABILITY

#	AVAILABILITY	SOLENOID	PRESSURE REDUCING	PRESSURE SUSTAINING	PS+PR COMBO	RATE-OF-FLOW	D07 CHECK	D06 EXH.	OTHER	INT FILTER	EXT FILTER
S1	Contact Factory								needle valve	♦	
S2	Configurable	♦								♦	
S4	L03	♦		♦						♦	(S8)
S5	L06	♦		♦						♦	(S18)
S6	Discontinued										
S7	Contact Factory	♦♦	♦♦								♦
S8	L03	♦		♦						(S4)	♦
S9	Contact Factory	♦♦		♦			♦				♦
S10	Discontinued										
S11	Contact Factory	♦♦♦	♦♦							♦	
S12	L11	♦			♦					♦	(S17)
S13	Contact Factory	♦♦	♦								♦
S14	Configurable							♦			
S15	Contact Factory	♦	♦♦								♦
S16	Contact Factory	♦		♦♦							♦
S17	L11	♦			♦					(S12)	♦
S18	L06	♦		♦						(S5)	♦
S19	L05	♦		♦					Normally closed solenoid	♦	(S27)
S20	L08	♦	♦						Normally closed solenoid	♦	
S21	L04	♦		♦					Normally closed solenoid	♦	(S32)
S22	Discontinued										
S23	Discontinued										
S24	Discontinued										
S25	L09	♦			♦						♦
S26	Discontinued										
S27	L05	♦		♦					Normally closed solenoid	(S19)	♦
S28	L12	♦			♦						♦
S29	Discontinued										
S30	Discontinued										
S31	L02	♦						♦	Normally closed solenoid		♦
S32	L04	♦		♦					Normally closed solenoid	(S21)	♦
S33	Contact Factory			♦						♦	
S34	Discontinued										
S37	Discontinued										
S38	Configurable							♦	Surge Control	♦	
S39	Discontinued										
S40	L09	♦			♦		♦				♦
S41	L03	♦		♦			♦				♦
S42	L06	♦		♦			♦			♦	
S43	L10	♦			♦					♦	
S44	L02	♦							Solenoid-Actuated Hydr. Relay	♦	
S45	L02	♦							Normally closed solenoid		♦
S46	L13	♦	♦						Normally closed solenoid		♦
S47	L02	♦			♦				Solenoid-Actuated Hydr. Relay		♦
S48	L04	♦		♦					Solenoid-Actuated Hydr. Relay	♦	
S49	Discontinued										
S50	Configurable			♦				♦	Surge Control		♦
S51	Contact Factory			♦♦							♦
S52	Contact Factory								Hydraulic Relay		
S53	Discontinued										
S54	Contact Factory	♦♦	♦				♦			♦	♦
S55	L02	♦					♦		Solenoid-Actuated Hydr. Relay	♦	
S56	Discontinued										
S57	Contact Factory	♦						♦	Normally closed solenoid		♦
S58	Discontinued										
S59	Contact Factory	♦♦		♦♦							♦
S60	L02	♦				♦			Normally closed solenoid		♦
S61	L03	♦		♦					Solenoid-Actuated Hydr. Relay	♦	
S62	Contact Factory				♦					♦	
S63	Contact Factory	♦♦	♦			♦					♦
S64	Contact Factory		♦								♦
S65	Contact Factory								Surge Control	♦	
S66	Contact Factory				♦	♦					♦
S67	Discontinued										
S68	Contact Factory	♦			♦	♦					♦
S69	Contact Factory	♦		♦		♦					♦

DESCRIPTIONS

(Non-discontinued valves only)

S1	**Contact Factory for Availability.** Adjustable response time. A needle valve is provided below the manual selector valve to make the valve ON/OFF response time adjustable.
S2	Electric Shut-off with Drain Bypass. Typical application of the S2 special valve is to provide a safety that will cause a high pressure shut-off of a pump. The valve power is connected to the same power source as the system. If power to the system is off the solenoid will shut the valve off. The valve closing will result in a high pressure which can be detected by a high pressure shut-off switch located at the pump. Advantage is no direct electrical connection is required from the valve to the pump.
S7	**Contact Factory for Availability.** Two Level Reducing. In the event two levels of downstream pressure are required, this electric remote control on/off valve is equipped with two levels of pressure reducing control. Each control is set to a different pressure and each solenoid is controlled from a separate controller station. Useful when valve is to control zones with very different pressure requirements.
S9	**Contact Factory for Availability.** Two Solenoid Pressure Sustaining to give electric control to sustaining pilot. Closed when de-energized. Energize both solenoids to open valve fully. Energize only one to have pressure sustaining control. Includes check valve to close valve if downstream pressure exceeds the upstream pressure. External filter shown.
S11	**Contact Factory for Availability.** Two level pressure reducing plus wide open control is useful for applications that require different operating pressure setting at different times. The changing of pressure is controlled by power to the solenoids. The pilots are typically set so that when one solenoid is energized one of the pilots maintains a high pressure and when a different solenoid is energized the other pilot maintains a low pressure. The third solenoid is useful to open the valve fully resulting in no pressure control.
S13	**Contact Factory for Availability.** Two Solenoid Pressure Reducing Electric. Useful to control downstream pressure when both solenoids are energized. Second solenoid is used to switch from reducing to full open valve. External filter shown.
S14	Low Pressure, Rapid Open Valve. Sleeve exhaust valve used to vent sleeve chamber until pressure reaches 10 or 30 psi (depending on model). Useful for pump start up. No filter or manual control.
S15	**Contact Factory for Availability.** Two Level Reducing Electric switching. In the event two levels of downstream pressure are required; this electric valve is equipped with two levels of pressure reducing control. Each control can be set to a different pressure and the solenoid used to switch between the two pressures when energized. Useful when valve is to control zones with very different pressure requirements. Solenoid will not open or close valve. External filter shown.
S16	**Contact Factory for Availability.** Two Level Sustaining. In the event two levels of upstream pressure are required, this electric valve is equipped with two levels of pressure sustaining control. Each control is set to a different pressure and the solenoid switches between the two pressures when energized. Useful when valve is used to change the upstream pressure requirements. Solenoid will not open or close valve. External filter shown.
S33	**Contact Factory for Availability.** Low Pressure Shut-off if pipe bursts. Sustaining pilot works off from downstream pressure and is set to shut off valve if pressure falls. Internal filter shown.
S38	Surge Anticipator valve. The purpose of S38 is to open rapidly when water arrives at the valve upon system startup, and also when there is power failure. It is typically installed as a relief at large pump stations, where the pilots work to reduce the potential for damage due to flow reversal.
S50	Pressure Sustaining plus Surge Anticipator (S38). Useful where the valve is to allow rapid fill of the pipe system then maintain a sustained pressure on the upstream of the valve. External filter shown.

S51	**Contact Factory for Availability.** Two-level Pressure Sustaining. Useful where the valve is to maintain two different sustained pressures on the upstream of the valve. External filter shown.
S52	**Contact Factory for Availability.** Hydraulic Relay with Remote Supply. Valve open and close function is controlled by remote hydraulic pressure. Useful where no electric solenoid is used.
S54	**Contact Factory for Availability.** Two-solenoid pressure reducing with external filter. Valve can be closed, fully open, or pressure reducing, depending upon solenoid power. Includes check feature.
S57	**Contact Factory for Availability.** Rapid relief solenoid valve. This valve is useful to reduce water hammer potential during filling of a pipe system. When the water is initially turned on the valve is fully open. When the upstream pressure reached 30 PSI the valve will slowly close. The solenoid on/off power can open or close the valve.
S59	**Contact Factory for Availability.** Pressure sustaining controlled by dual solenoids and dual pilots. Valve control is directed by the status of the solenoids. Upstream pressure can be controlled from the set point of either pilot. Two levels of pressure control can be achieved.
S62	**Contact Factory for Availability.** Pressure sustaining and reducing combination control valve which can be manually selected to operate between either a pressure reducing control of downstream pressure or pressure sustaining control of upstream pressure. The valve will not open for either control to work unless the upstream pressure attains the set point pressure of the sustaining regulator pilot.
S63	**Contact Factory for Availability.** Pressure reducing and Rate-of-Flow combination controlled by dual solenoid. Provides the option of either controlling downstream pressure in conjunction with Rate-of-Flow or bypassing the pressure control and using only the Rate-of-Flow function.
S64	**Contact Factory for Availability.** Normally open, low pressure relief valve with external filter. Purpose is for the control valve to divert water when pressure falls below a set point. This valve functions just like a valve with the D06 Sleeve Exhaust feature; the difference is this valve has an adjustable pilot, and the opening speed is slower. When pressure is below the pilot control set point the valve is open.
S65	**Contact Factory for Availability.** High pressure rapid relief is useful to quickly relieve pressure when it exceeds a safe level. The large ports of the surge pilot are for opening the valve instantly and the small 5/32 tubing will slowly flow water into the valve chamber to close the valve slowly.
S66	**Contact Factory for Availability.** This valve functions just like a regular combination sustaining-reducing valve, but adds the rate-of-flow function. The valve will open (up to the limit of the rate-of-flow pilot setting) when upstream pressure exceeds the sustaining pilot setting, thereafter it will reduce downstream pressure to the setting on the reducing pilot. The rate-of-flow pilot will throttle the valve any time the flow exceeds the setting on the pilot.
S68	**Contact Factory for Availability.** Solenoid control in combination with pressure sustaining and reducing pilot and Rate-of-Flow. Useful to fill an empty pipe slowly and avoid water surge hammer damage.
S69	**Contact Factory for Availability.** Solenoid control in combination with pressure sustaining pilot and Rate-of-Flow

SPECIAL SOLENOID CONTROL LOGIC SUMMARY

The S# codes shown below have been replaced by standard configurations using the corresponding Solenoid Logic Code L#. These S# have been **discontinued** but are shown here for historical cross-reference. These valves should now be ordered using the indicated L#.

SOLENOID ONLY

SOLENOID STATUS	VALVE STATUS	SOLENOID LOGIC CODE	OLD 800 SERIES S#		NOTES
			INT. FILTER	EXT. FILTER	
Energized	Open	**L01**	–	–	Default Configuration (normally open solenoid)
De-Energized	Closed				
Energized	Closed	**L02**	**S44**	**S45**	"Reverse Logic" (>50psi need normally closed solenoid). **S44** uses solenoid actuated hydraulic relay. See also **S31** (with sleeve exhaust), and **S60** (with rate of flow).
De-Energized	Open				

SUSTAINING W/SOLENOID

SOLENOID STATUS	VALVE STATUS	SOLENOID LOGIC CODE	OLD 800 SERIES S#		NOTES
			INT. FILTER	EXT. FILTER	
Energized	Sustaining	**L03**	**S4** **S61**	**S8**	**S61** uses solenoid-actuated hydraulic relay. See also variation **S41** (with check)
De-Energized	Closed				
Energized	Sustaining	**L04**	**S21** **S48**	**S32**	(>50psi need normally closed solenoid). **S21** does not have solenoid bypass. **S48** uses a solenoid-actuated hydraulic relay.
De-Energized	Open				
Energized	Closed	**L05**	**S19**	**S27**	(>50psi need normally closed solenoid)
De-Energized	Sustaining				
Energized	Open	**L06**	**S5**	**S18**	See also variation **S42** (with check).
De-Energized	Sustaining				

REDUCING W/SOLENOID

SOLENOID STATUS	VALVE STATUS	SOLENOID LOGIC CODE	OLD 800 SERIES S#		NOTES
			INT. FILTER	EXT. FILTER	
Energized	Reducing	**L07**	–	–	Default Configuration (normally open solenoid)
De-energized	Closed				
Energized	Closed	**L08**	**S20**	–	"Reverse Logic" (>50psi need normally closed solenoid)
De-energized	Reducing				
Energized	Reducing	**L13**	–	**S46**	"Reverse Logic" (>50psi need normally closed solenoid)
De-energized	Open				
Energized	Open	**L14**	–	–	
De-energized	Reducing				

SPECIAL SOLENOID CONTROL LOGIC SUMMARY (CONT'D)

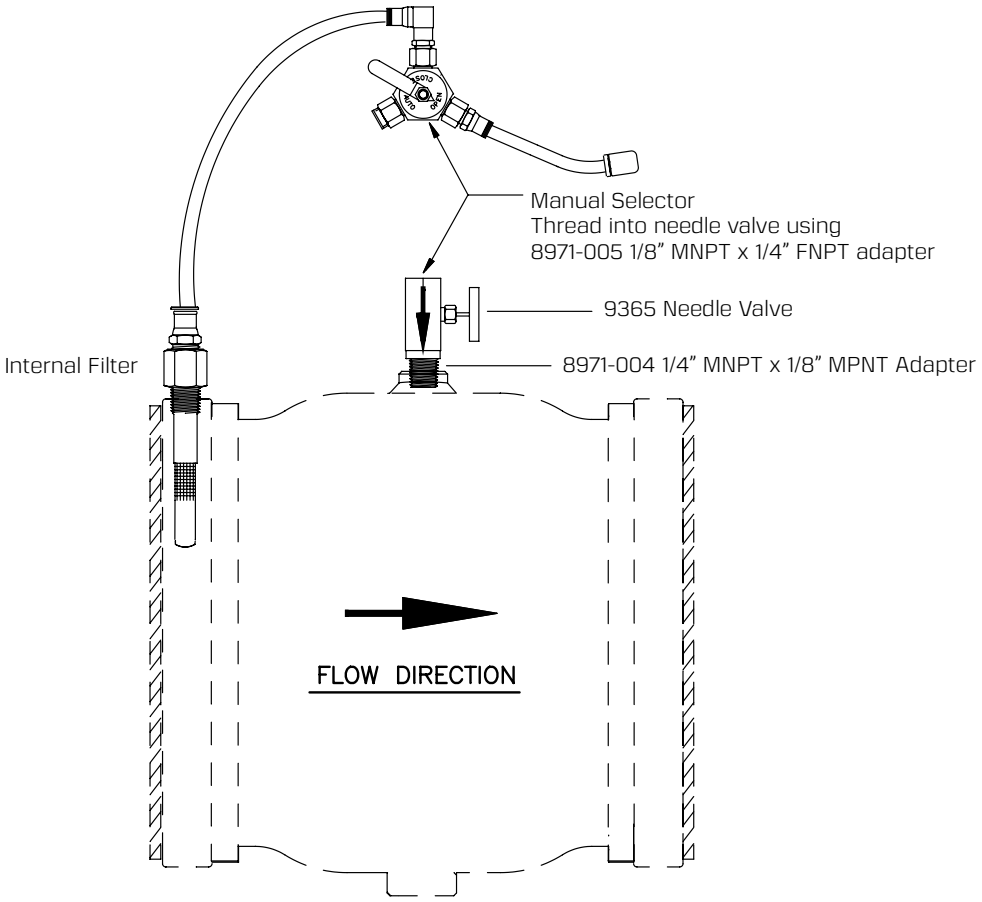
COMBO SUSTAINING/REDUCING W/SOLENOID

SOLENOID STATUS	VALVE STATUS	SOLENOID LOGIC CODE	OLD 800 SERIES S#		NOTES
			INT. FILTER	EXT. FILTER	
Energized	Combo	**L09**	–	**S25**	Default Configuration (normally open solenoid). See also **S40** (with check)
De-energized	Closed				
Energized	Open	**L12**	–	**S28**	
De-energized	Combo		**S29** (int. & ext.)		
Energized	Reducing	**L11**	**S12**	**S17**	
De-energized	Sustaining				
Energized	Sustaining	**L10**	**S43**	–	
De-energized	Reducing				

CONTACT FACTORY FOR AVAILABILITY.

S1—ADJUSTABLE RESPONSE TIME VALVE

PURPOSE: Adjustable control of the opening and closing speed of the valve.



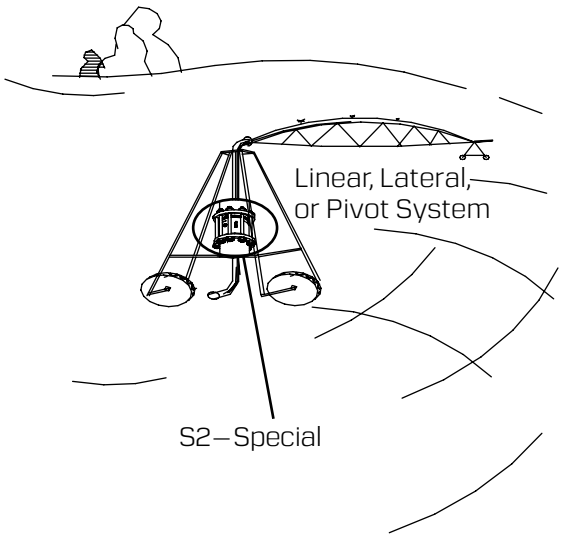
APPLICATION: Typical application of the S1 special valve is for speed control of the valve open/close response. The needle valve on the valve port can be adjusted to set the desired closing and opening response time. **Both opening and closing response are affected by the needle valve setting. Closing response time is typically three to six times longer than opening time.**

The needle valve can be added in this configuration to almost any valve to slow down the opening and closing speed of the valve. Note: adding a needle valve will never make the valve open/close faster than the valve would normally perform without the neelde valve.

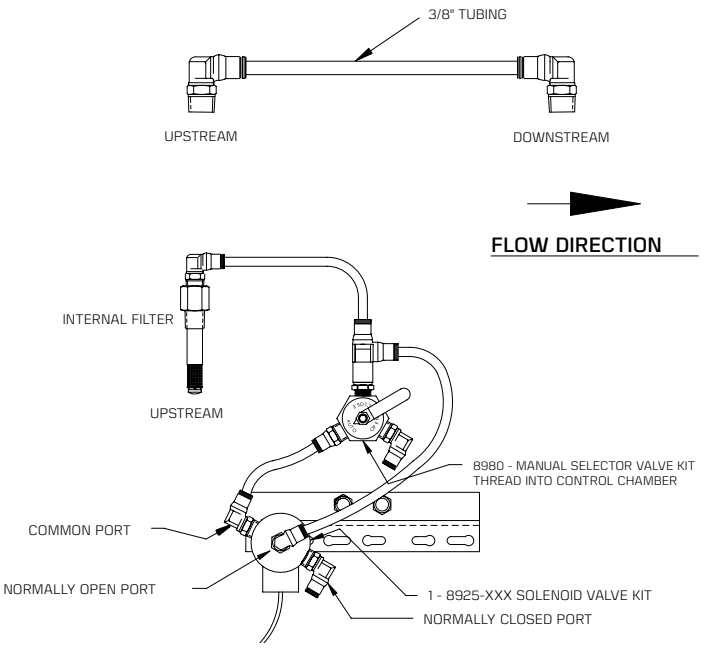
S2—ELECTRIC WITH DRAIN BYPASS FEATURE

PURPOSE: In the event that there is a shut down of the system or an unplanned electric failure, this valve will shut-off the water flow to avoid an over water problem when the system is not moving. The resulting back pressure may also be used to shut-down a pump as explained in the Application below. This valve is identical to a standard on/off (L01) valve, but adds the drain bypass feature.

TYPICAL APPLICATION



CONTROL SCHEMATIC



APPLICATION: Typical application of the S2 special valve is to connect the valve power to the same power source as the system. If power to the system is off, the solenoid will shut the valve off. Closing the valve will result in a high pressure which can be detected by a high pressure shut-off switch located at the pump. The advantage is no direct electrical connection is required from the valve to the pump.

The valve manual selector must be in the "AUTO" position so power to the solenoid will open the valve and no power to the solenoid will close* the valve. If in the "OPEN" position, the solenoid has no effect, permitting manual opening of the valve. If in the "CLOSE" position, the solenoid has no effect, permitting manual closing of the valve.

***SELF DRAIN FEATURE**: The drain bypass is to allow water on the top side (down stream) of the valve to drain back below the valve to avoid a freezing problem. **Due to the drain bypass hose the valve will not shut off completely drip-free.**

DISCONTINUED
SEE LO3

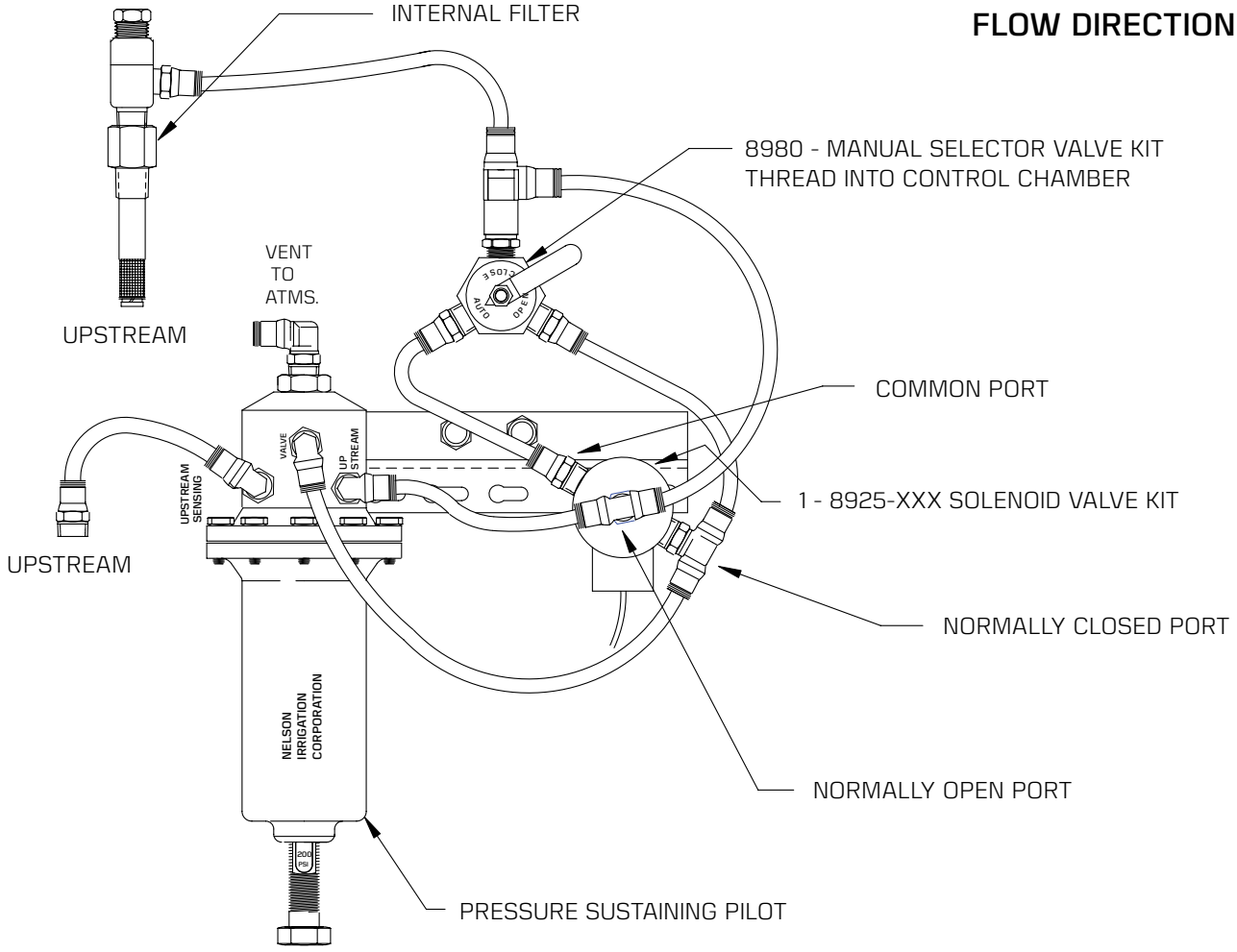
S4 - PRESSURE SUSTAINING, ELECTRIC ON-OFF WITH INT. FILTER

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID DE-ENERGIZED: VALVE WILL CLOSE.

TO BYPASS SOLENOID, SELECT "OPEN" AND THE VALVE WILL REGULATE

FLOW DIRECTION



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

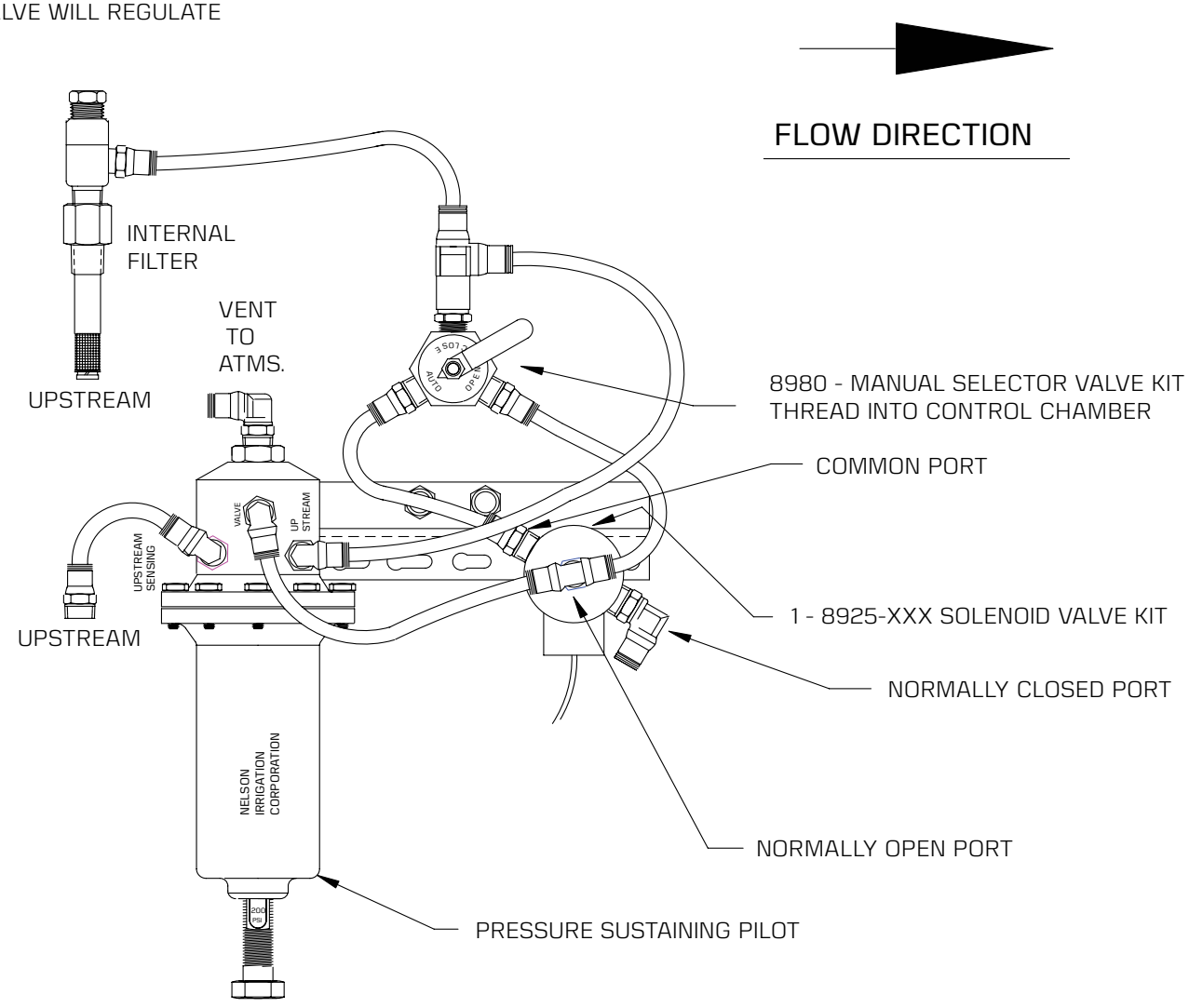
DISCONTINUED
SEE L06

S5 - PRESSURE SUSTAINING, ELECTRIC ON-OFF WITH INT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: VALVE WILL FULLY OPEN.

TO BYPASS SOLENOID, SELECT "OPEN" AND THE VALVE WILL REGULATE



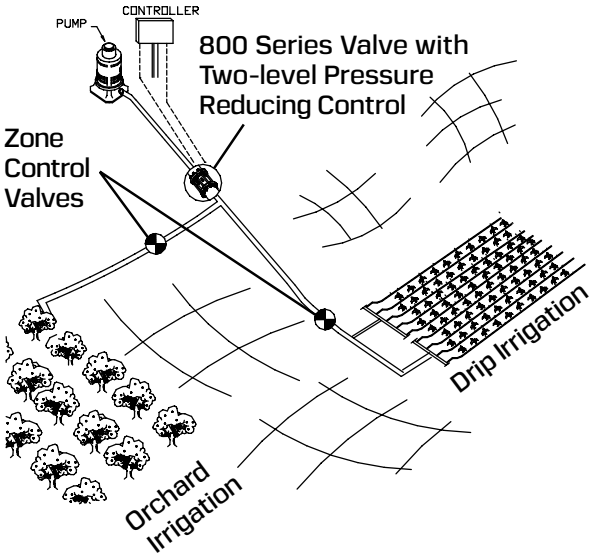
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

S7—TWO-LEVEL PRESSURE REDUCING

CONTACT FACTORY FOR AVAILABILITY.

PURPOSE: In the event two levels of pressure are required, this electric remote control on/off valve is coupled with two levels of pressure reducing control. Each control is set to a different pressure and each solenoid is controlled from a separate controller station.

TYPICAL APPLICATION



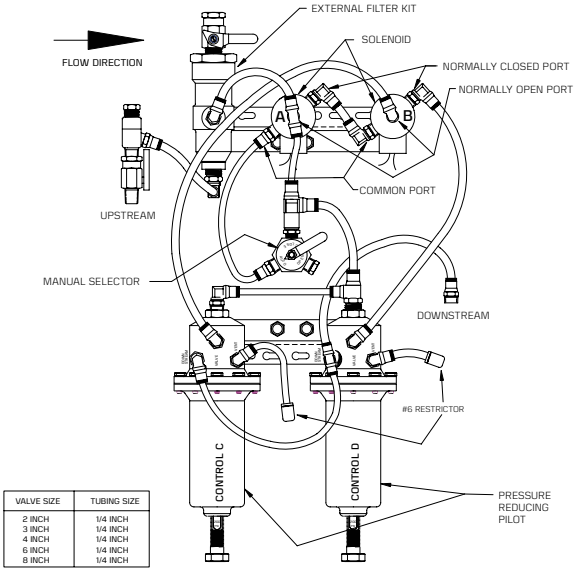
CONTROL SCHEMATIC

See following page

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	PRESSURE CONTROL D WILL REGULATE
ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL C WILL REGULATE

MODEL # D2 D3 D4 D11 D12 D13 | D2 D3 D4 D11 D12 D13 | E21-E72 | H2 S7

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED: PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED: PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

APPLICATION: The S7 Two-Level Pressure Reducing Control is useful when there is a need to irrigate at one pressure and then electrically switch to flush mode on drip irrigation, or alternatively irrigate another zone (for example, an orchard at a different pressure). Either of the two electric solenoids are used to turn the valve on or off. Each of the two solenoids are coupled with two separate pressure controls. The solenoids independently control the two separate pressure controls. Refer to the Solenoid Control Table above to determine the effect that solenoid "A" has on the operation of pressure control "C" , etc.

The manual selector must be put in the "auto" position for the control to work. In the "auto" position the pressure reducing control will automatically reduce a higher inlet pressure to a constant lower downstream pressure. The pressure reducing controls are independently adjustable to give the desired downstream pressure. Pointing the manual selector to "open" will override the "auto" control, but when pointed to "auto" the valve will pressure-reduce even with no power.

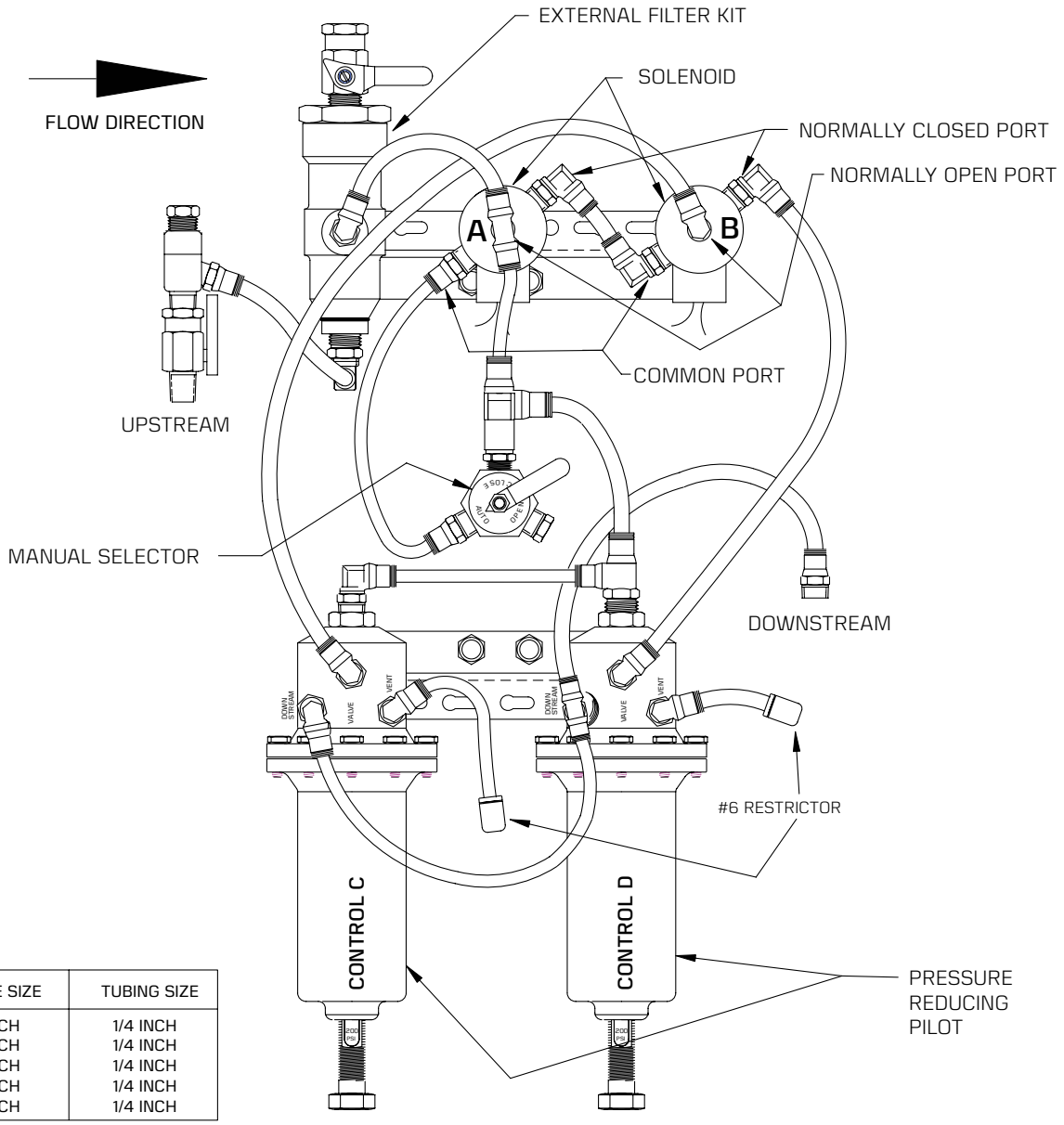
CONTACT FACTORY FOR AVAILABILITY.

S7 - TWO LEVEL PRESSURE REDUCING WITH EXTERNAL FILTER

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	PRESSURE CONTROL D WILL REGULATE
ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL C WILL REGULATE

MODEL # | D2 D3 D4 D11 D12 D13 | D2 D3 D4 D11 D12 D13 | E21-E72 | H2 S7

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED: PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED: PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

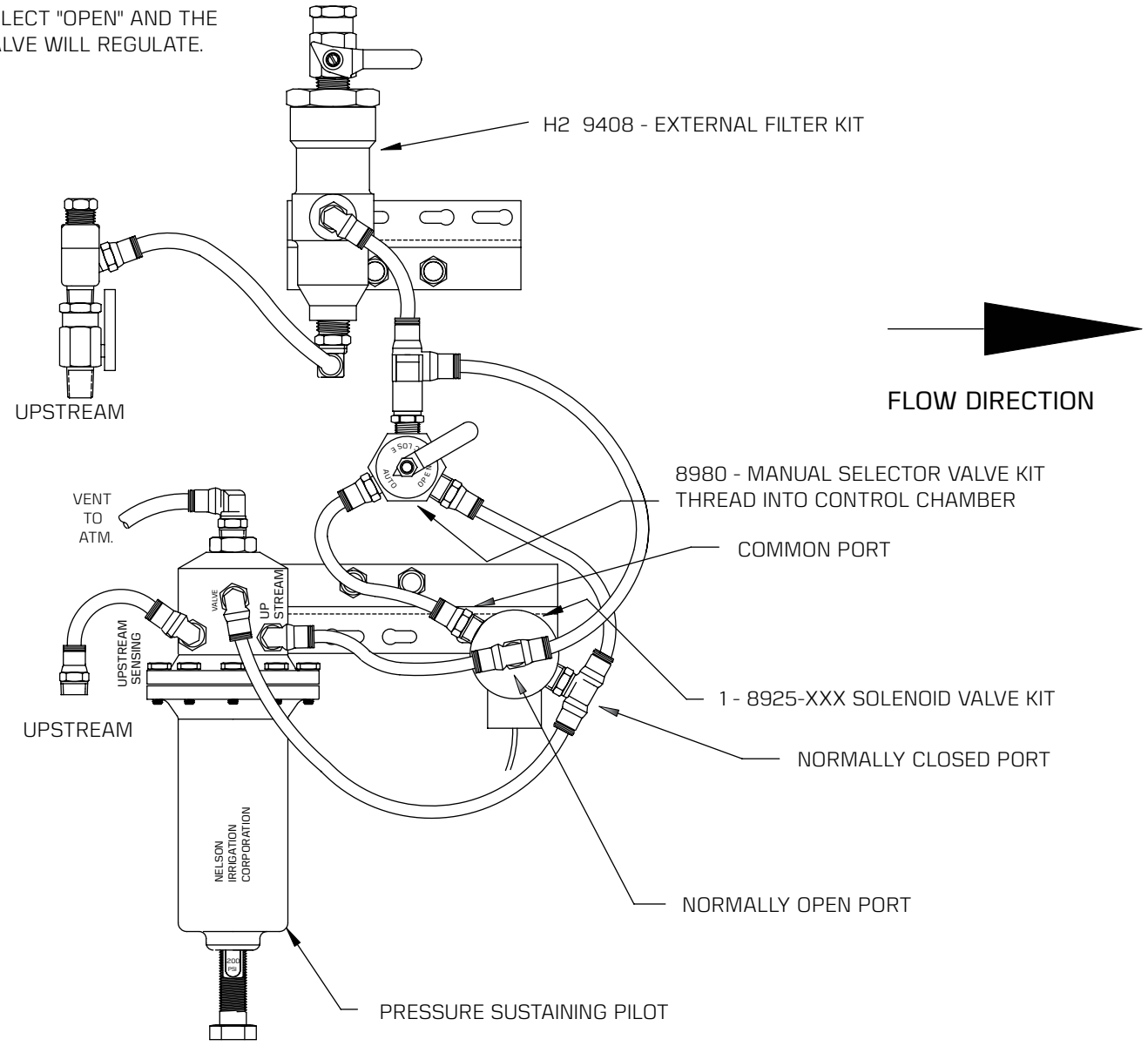
DISCONTINUED
SEE LO3

S8 – PRESSURE SUSTAINING, ELECTRIC ON-OFF WITH EXTERNAL FILTER

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID DE-ENERGIZED: VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

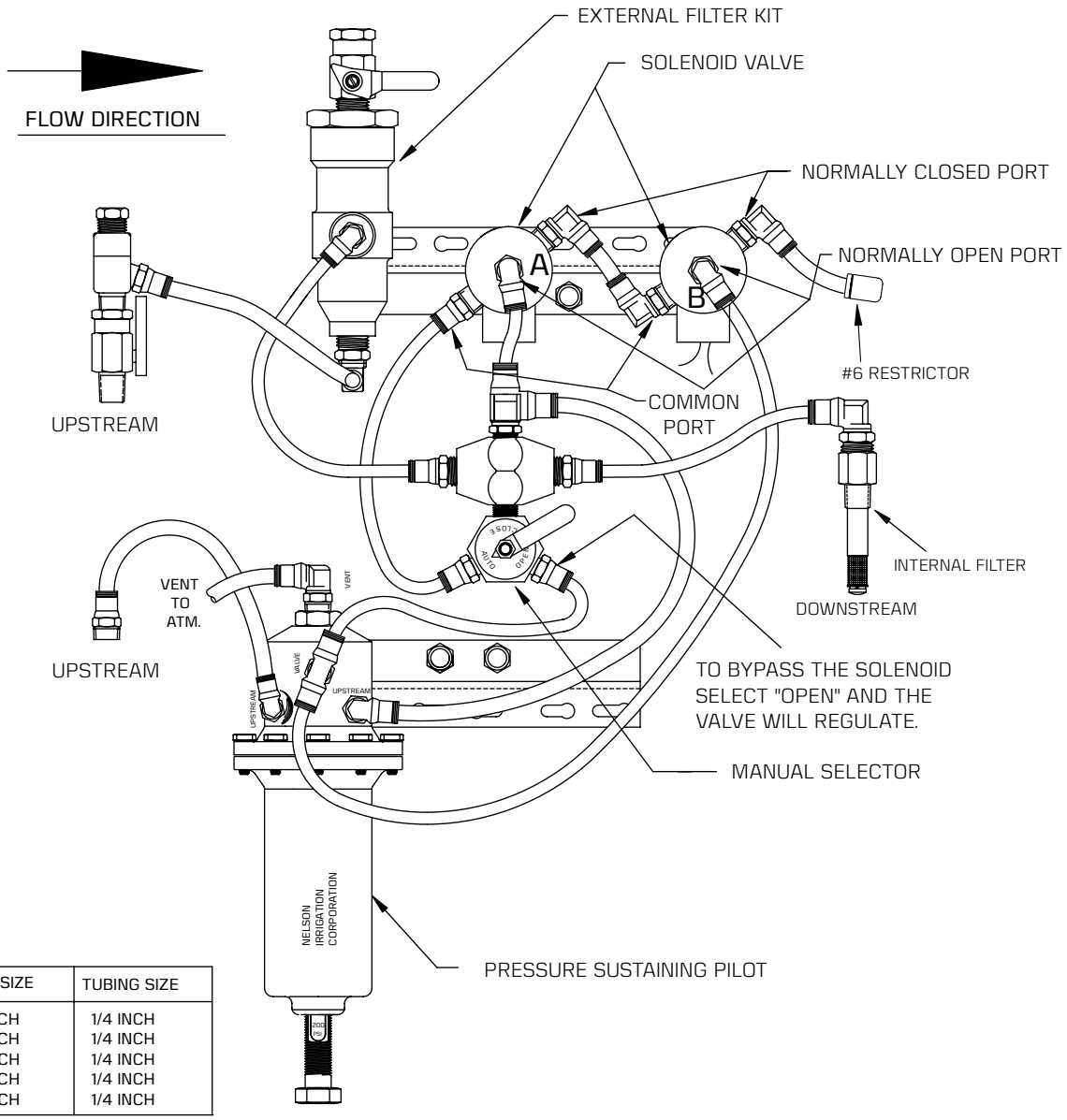
CONTACT FACTORY FOR AVAILABILITY.

S9 - TWO SOLENOID PRESSURE SUSTAINING WITH CHECK FEATURE

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED*
ENERGIZED	ENERGIZED	VALVE WILL OPEN FULLY
ENERGIZED	DE-ENERGIZED	PRESSURE SUSTAINING

***CHECK FEATURE:** IF DOWNSTREAM PRESSURE EXCEEDS INLET PRESSURE WHEN SOLENOID A IS DE-ENERGIZED, THE VALVE WILL REMAIN CLOSED.

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

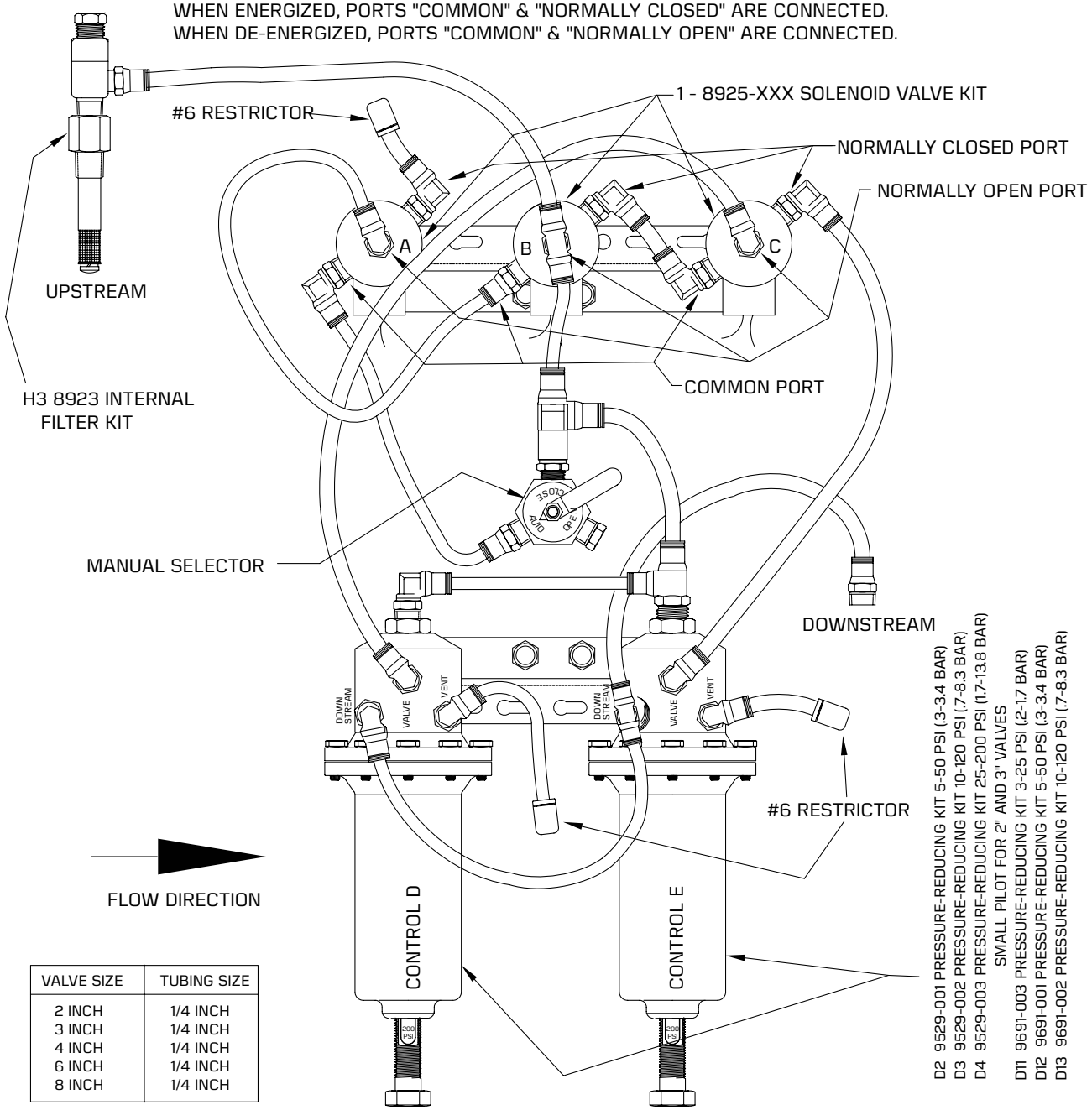
CONTACT FACTORY FOR AVAILABILITY.

S11 - TWO LEVEL PRESSURE REDUCING PLUS WIDE OPEN WITH INT. FILTER

SOLENOID A	SOLENOID B	SOLENOID C	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	DE-ENERGIZED	DE-ENERGIZED	WIDE OPEN
DE-ENERGIZED	ENERGIZED	ENERGIZED	PRESSURE CONTROL E WILL REGULATE
DE-ENERGIZED	ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL D WILL REGULATE

MODEL # | D2 D3 D4 D11 D12 D13 | D2 D3 D4 D11 D12 D13 | E21-E72 | H3 S11

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

D2 9529-001 PRESSURE-REDUCING KIT 5-50 PSI (.3-3.4 BAR)
D3 9529-002 PRESSURE-REDUCING KIT 10-120 PSI (.7-8.3 BAR)
D4 9529-003 PRESSURE-REDUCING KIT 25-200 PSI (1.7-13.8 BAR)
SMALL PILOT FOR 2" AND 3" VALVES
D11 9691-003 PRESSURE-REDUCING KIT 3-25 PSI (.2-1.7 BAR)
D12 9691-001 PRESSURE-REDUCING KIT 5-50 PSI (.3-3.4 BAR)
D13 9691-002 PRESSURE-REDUCING KIT 10-120 PSI (.7-8.3 BAR)

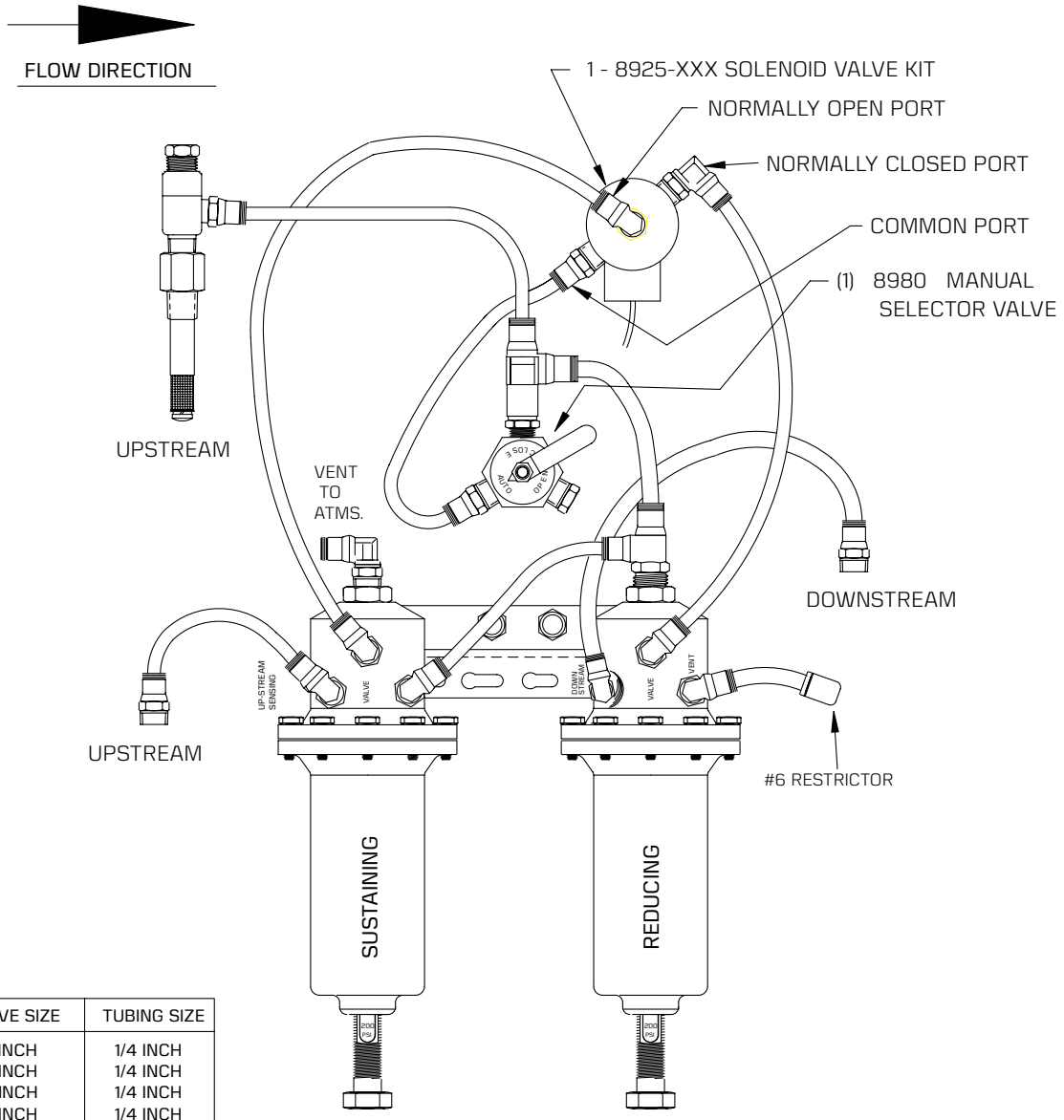
DISCONTINUED
SEE L11

S12 - PRESSURE SUSTAINING & REDUCING WITH A SOLENOID

SOLENOID DE-ENERGIZED: THE VALVE MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: THE VALVE REDUCES A HIGHER INLET PRESSURE TO A STEADY LOWER DOWNSTREAM PRESSURE REGARDLESS OF CHANGING FLOW RATE AND/OR VARYING INLET PRESSURE.

APPLICATIONS: CONNECT THE SOLENOID TO A TIME DELAY RELAY SO THE VALVE FILLS THE SYSTEM IN A SUSTAINING MODE AND THEN IS SHIFTED TO A PRESSURE-REGULATING MODE.



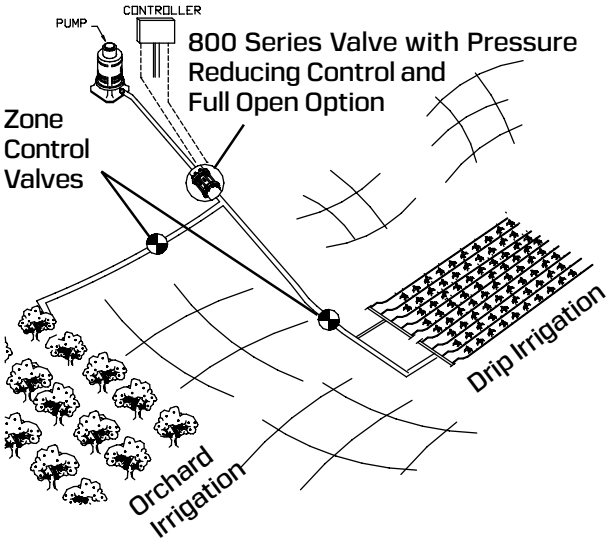
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S13—TWO-SOLENOID, PRESSURE REDUCING, FULLY OPEN

PURPOSE: Two solenoids are used to toggle the function between closed, pressure reducing, or fully open.

TYPICAL APPLICATION



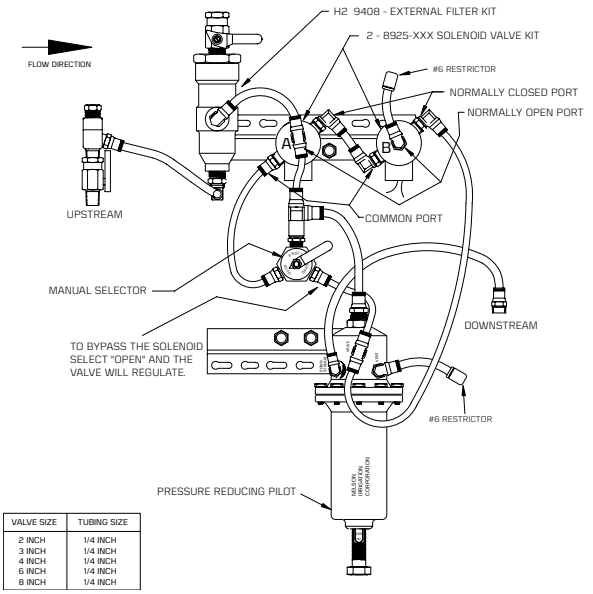
CONTROL SCHEMATIC

See Following Page

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	PRESSURE CONTROL WILL REGULATE
ENERGIZED	DE-ENERGIZED	VALVE WILL OPEN WIDE

MODEL # D2, D3, D4, D11, D12, D13 — E21-E72 & E21-E72 — H2 S13

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

APPLICATION: The pressure reducing control with the S13 special full-open option is useful when there is a need to irrigate at one pressure and then electrically switch to flush mode on drip irrigation or alternatively irrigate another zone (an orchard with the valve fully open for example). Solenoid "A" is used to turn the valve on or off. Solenoid "B" is used to open the valve for the pressure reducing mode. Each of the two solenoids independently control the two different operational modes. Refer to the Solenoid Control Table above to determine the effect that solenoid "A" has on operation of the valve, etc.

The manual selector must be put in the "auto" position for the control to work. In the "auto" position and solenoid "B" energized the pressure reducing control will automatically reduce a higher inlet pressure to a constant lower downstream pressure. The pressure reducing control is adjustable to give the desired downstream pressure. Pointing the manual selector to "open" will override the electric control but pressure reducing will still occur.

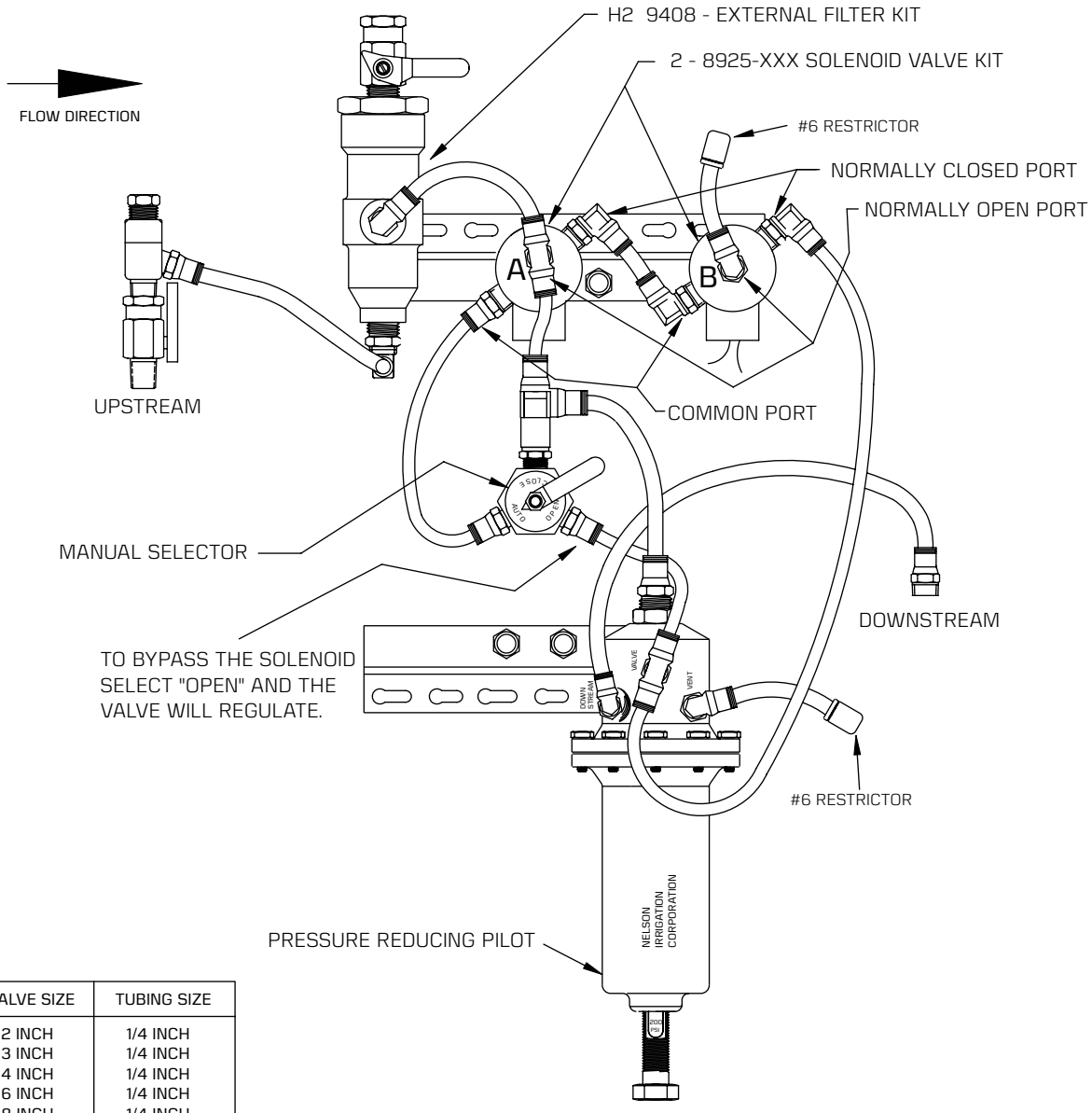
CONTACT FACTORY FOR AVAILABILITY.

S13 - TWO SOLENOID PRESSURE REDUCING WITH EXTERNAL FILTER

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	PRESSURE CONTROL WILL REGULATE
ENERGIZED	DE-ENERGIZED	VALVE WILL OPEN WIDE

MODEL # D2 D3 D4 D11 D12 D13 | E21-E72 & E21-E72 | H2 S13

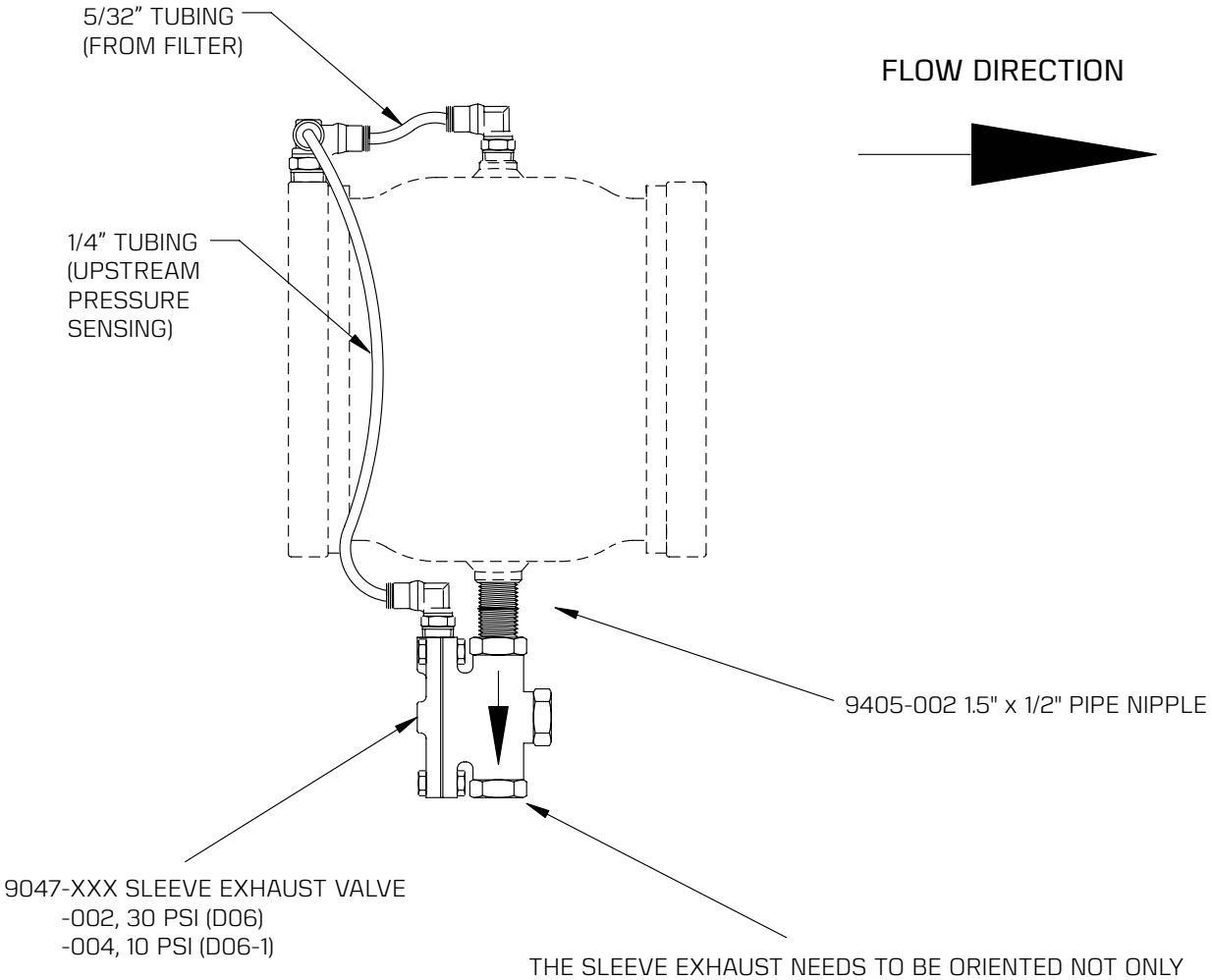
DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

S14 - LOW PRESSURE, RAPID OPEN

This valve is **open** as long as upstream pressure is **below** the nominal pressure rating of the sleeve exhaust valve (10 or 30 psi, depending on the model). The valve closes slowly once the pressure exceeds this value. If the pressure drops below this value at any time the valve will open **RAPIDLY**.

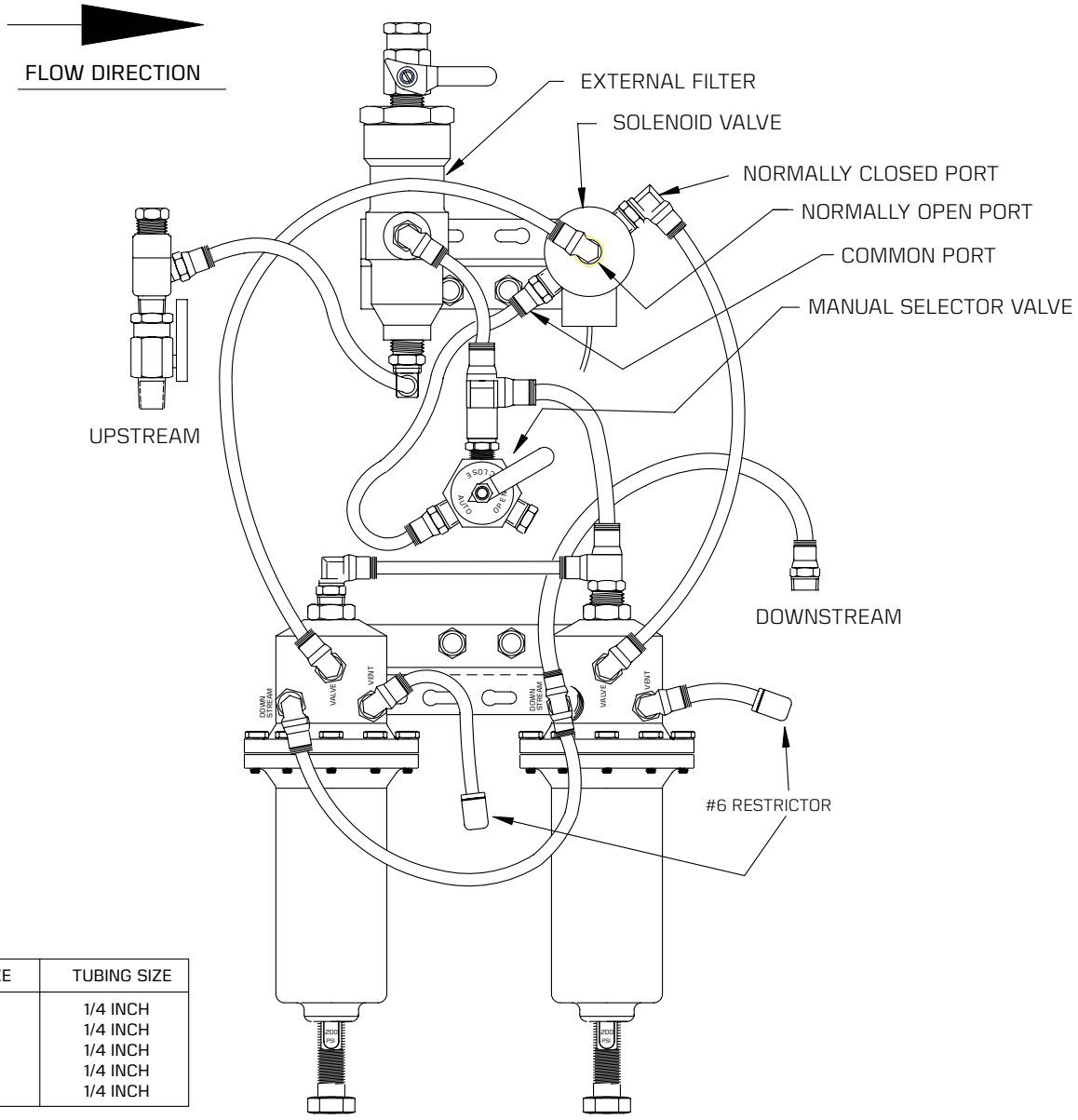


CONTACT FACTORY FOR AVAILABILITY.

S15 - TWO LEVEL PRESSURE REDUCING WITH A SOLENOID

SOLENOID DE-ENERGIZED: THE VALVE ACCURATELY MAINTAINS A CONSTANT, PRESET DOWNSTREAM PRESSURE (**CONTROL A**).

SOLENOID ENERGIZED: THE VALVE ACCURATELY MAINTAINS A CONSTANT, PRESET DOWNSTREAM PRESSURE (**CONTROL B**).



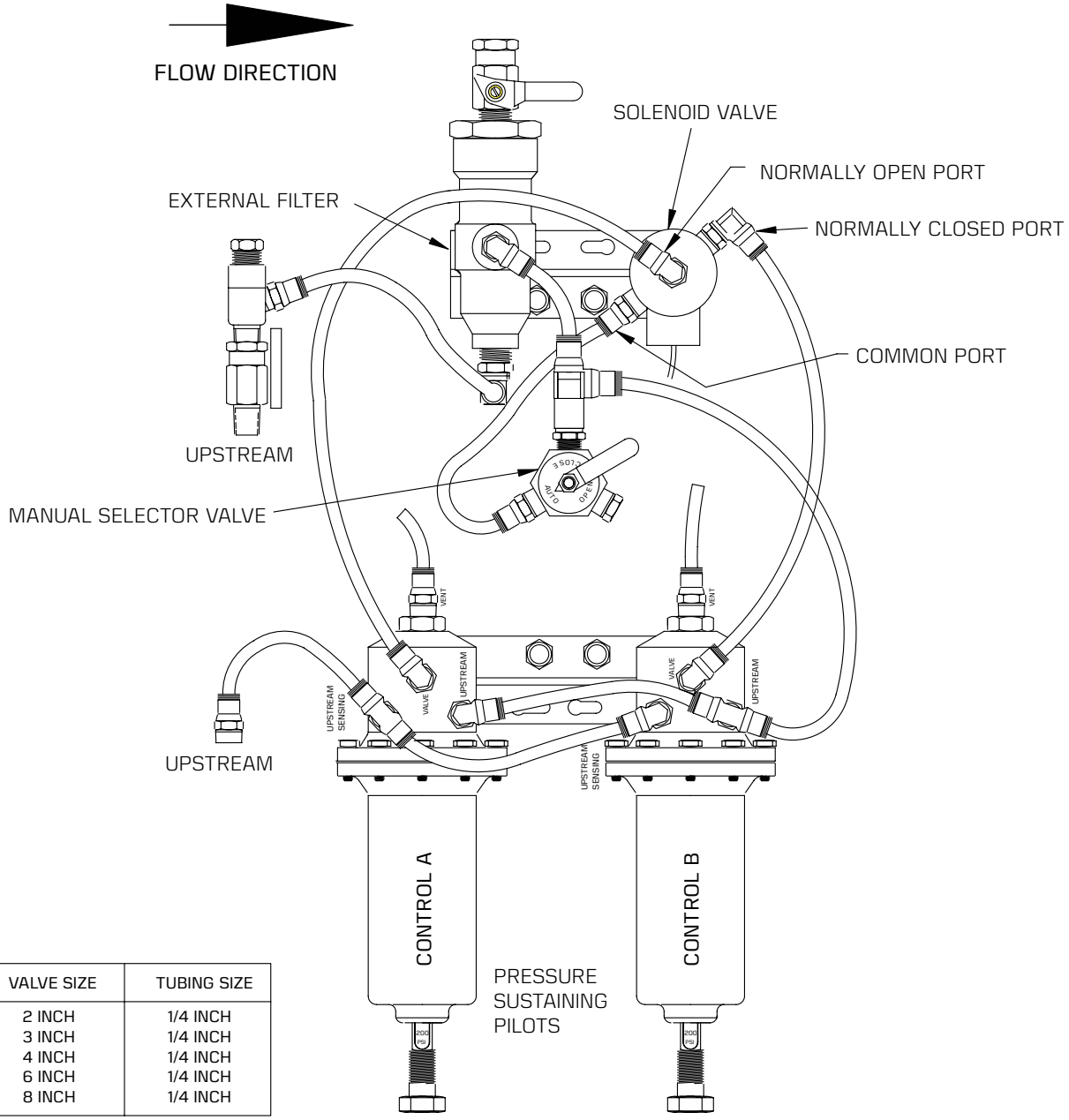
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S16 - TWO LEVEL PRESSURE SUSTAINING WITH A SOLENOID

SOLENOID DE-ENERGIZED: THE VALVE ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE (**CONTROL A**) BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: THE VALVE ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE (**CONTROL B**) BY DISCHARGING WATER AS REQUIRED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

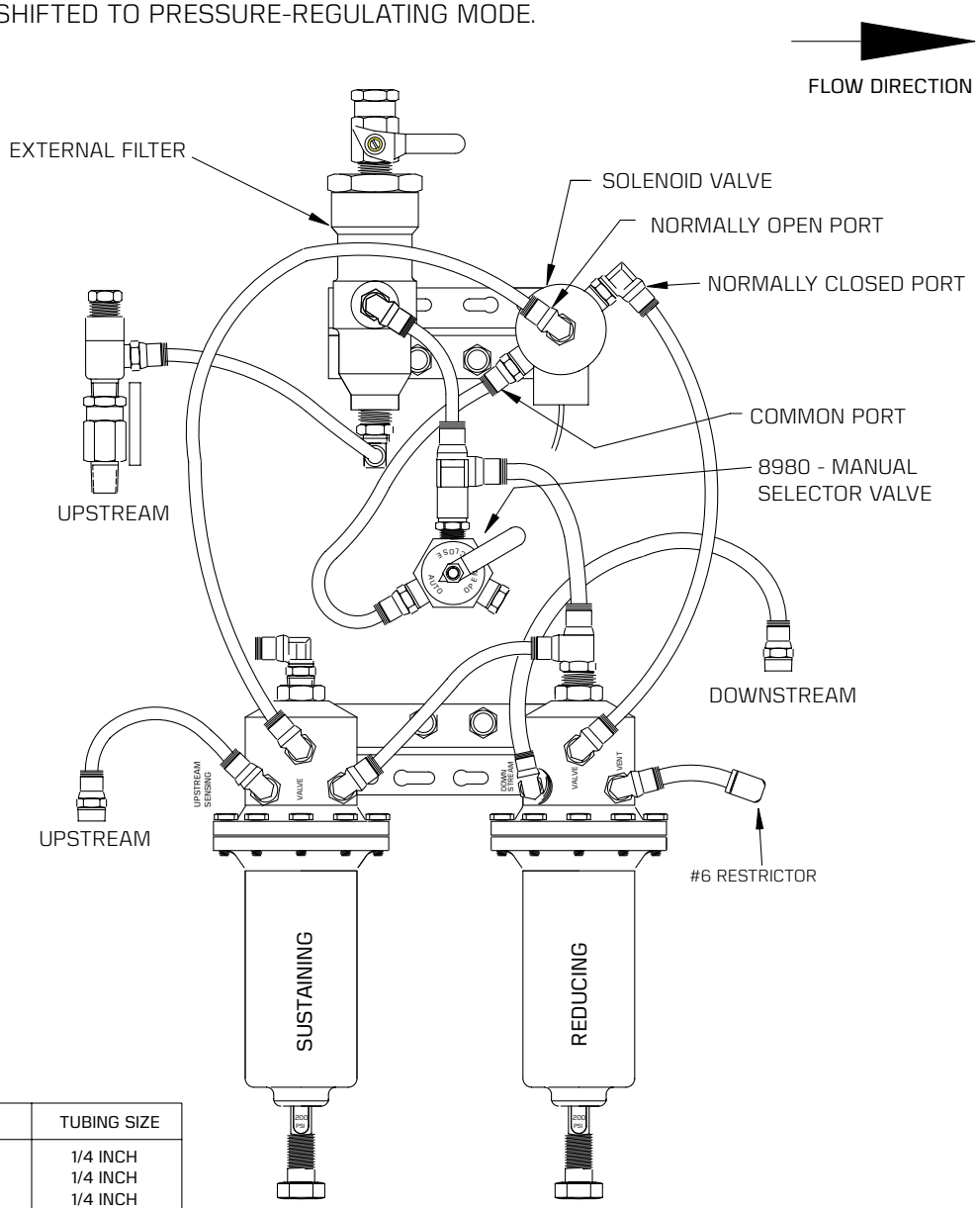
DISCONTINUED
SEE L11

S17 – PRESSURE SUSTAINING & REDUCING, SOLENOID & EXT. FILTER

SOLENOID DE-ENERGIZED: THE VALVE MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: THE VALVE REDUCES A HIGHER INLET PRESSURE TO A STEADY LOWER DOWNSTREAM PRESSURE REGARDLESS OF CHANGING FLOW RATE AND/OR VARYING INLET PRESSURE.

APPLICATIONS: CONNECT THE SOLENOID TO A TIME DELAY RELAY SO THE VALVE FILLS THE SYSTEM IN A SUSTAINING MODE AND THEN IS SHIFTED TO PRESSURE-REGULATING MODE.



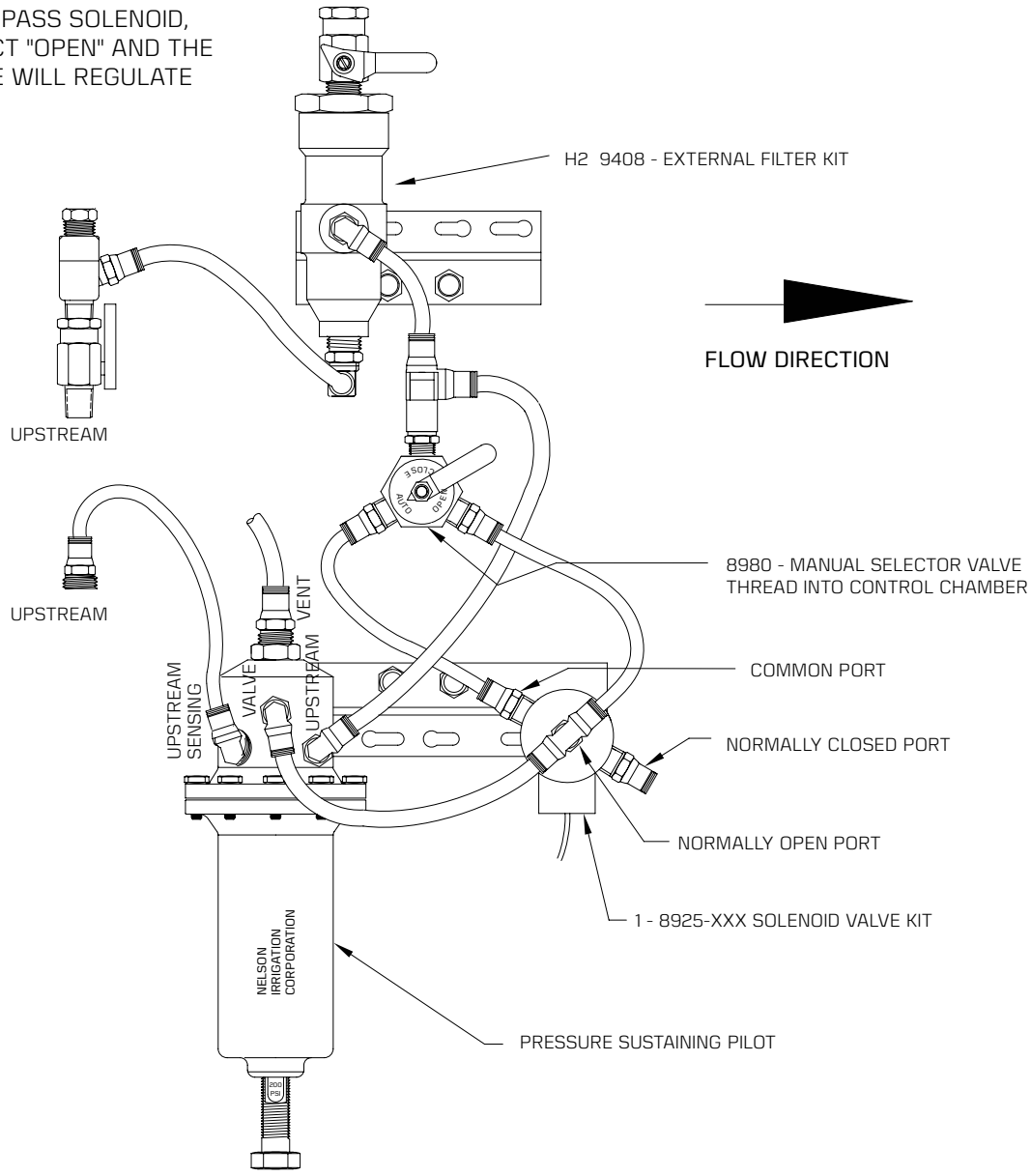
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L06

S18 - PRESSURE SUSTAINING/RELIEF & SOLENOID WITH EXT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.
SOLENOID ENERGIZED: VALVE WILL FULLY OPEN.

TO BYPASS SOLENOID, SELECT "OPEN" AND THE VALVE WILL REGULATE

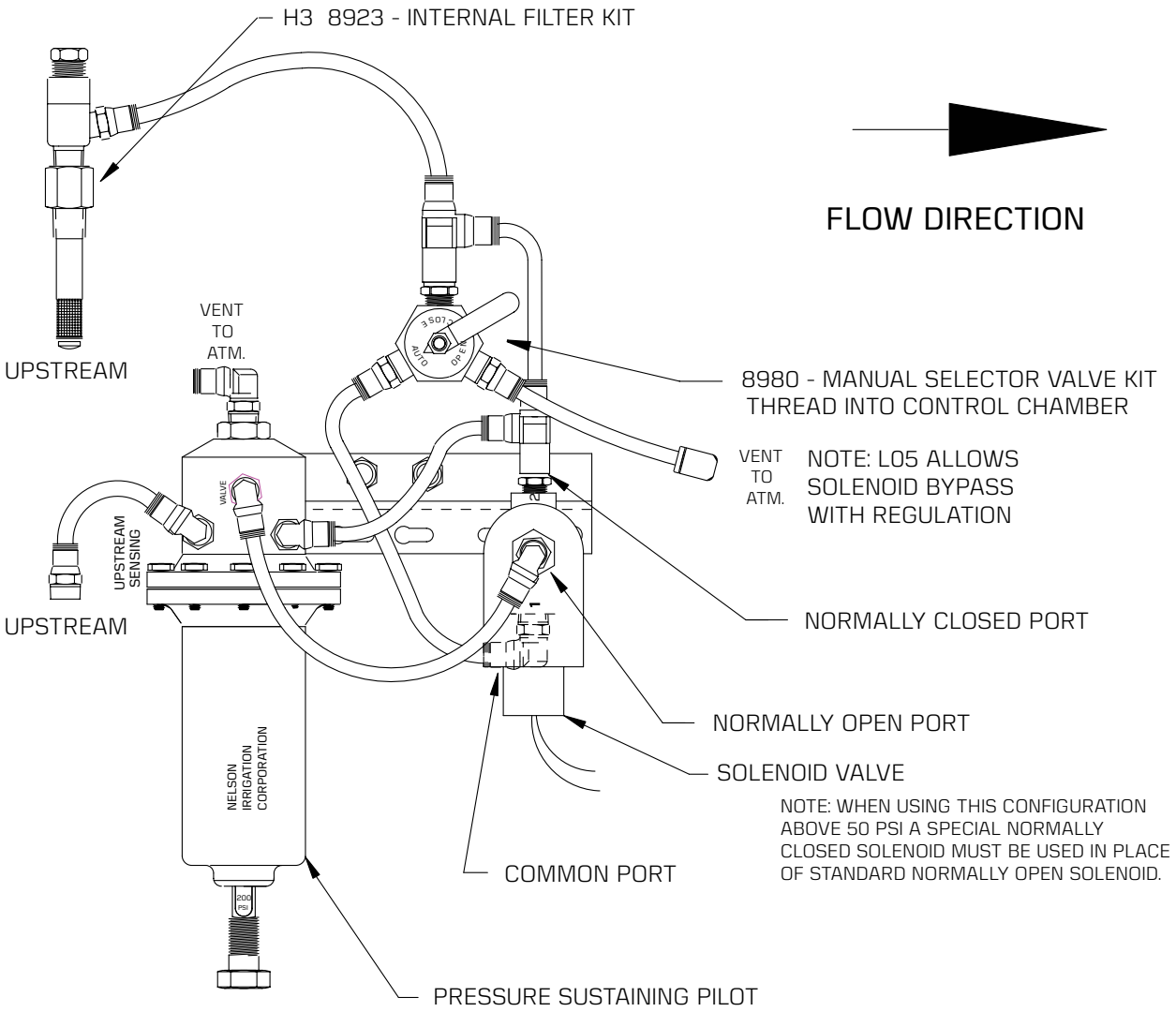


DISCONTINUED
SEE L05

S19 – PRESSURE SUSTAINING & SOLENOID WITH INTERNAL FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: VALVE WILL CLOSE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE LO8

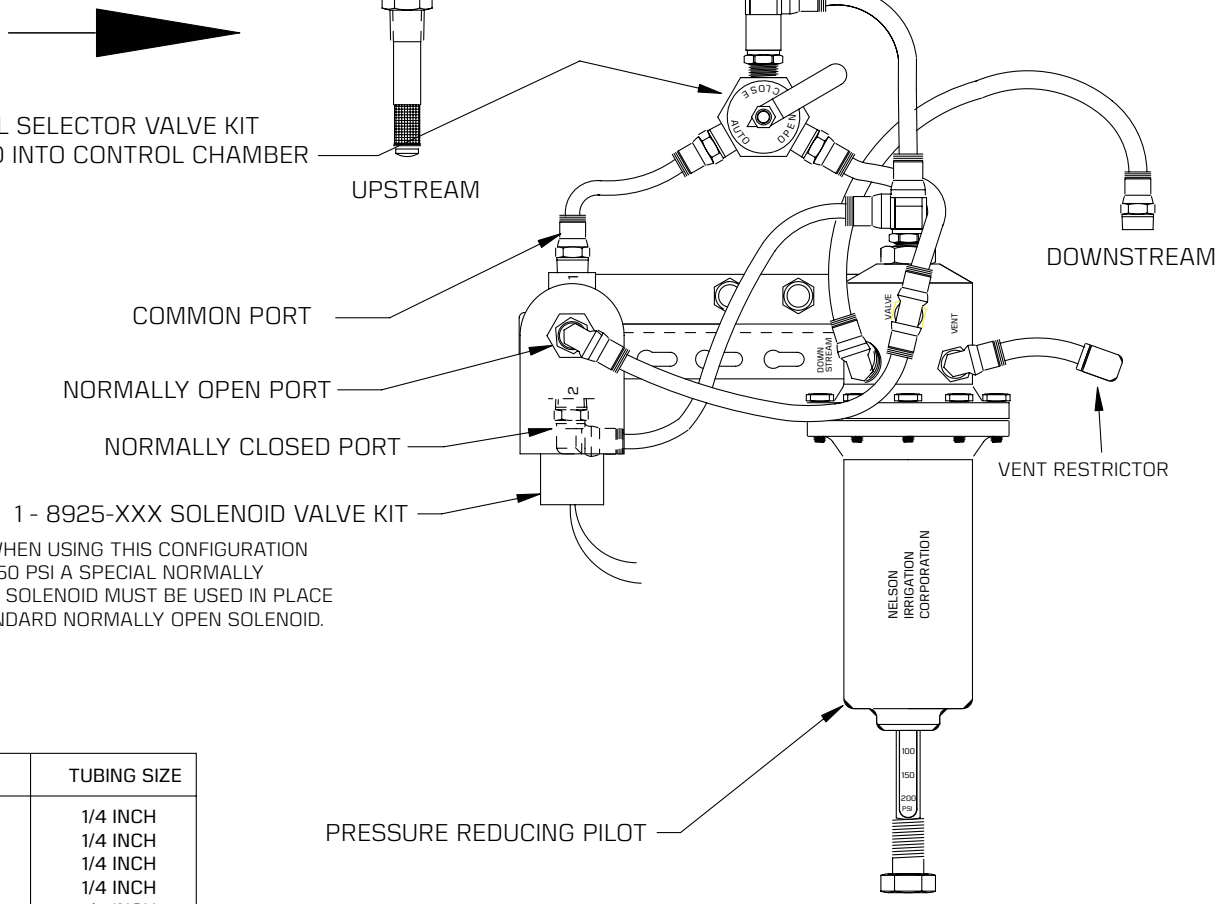
S20 - PRESSURE REDUCING WITH SOLENOID AND INTERNAL FILTER

SOLENOID ENERGIZED: THE VALVE WILL CLOSE

SOLENOID DE-ENERGIZED: PRESSURE-REDUCING VALVE AUTOMATICALLY REDUCES A HIGHER INLET PRESSURE TO A CONSTANT OUTLET PRESSURE REGARDLESS OF VARYING INLET PRESSURE AND/OR CHANGING FLOW RATE.

TO BYPASS SOLENOID,
SELECT "OPEN" AND THE
VALVE WILL REGULATE

FLOW DIRECTION



NOTE: WHEN USING THIS CONFIGURATION ABOVE 50 PSI A SPECIAL NORMALLY CLOSED SOLENOID MUST BE USED IN PLACE OF STANDARD NORMALLY OPEN SOLENOID.

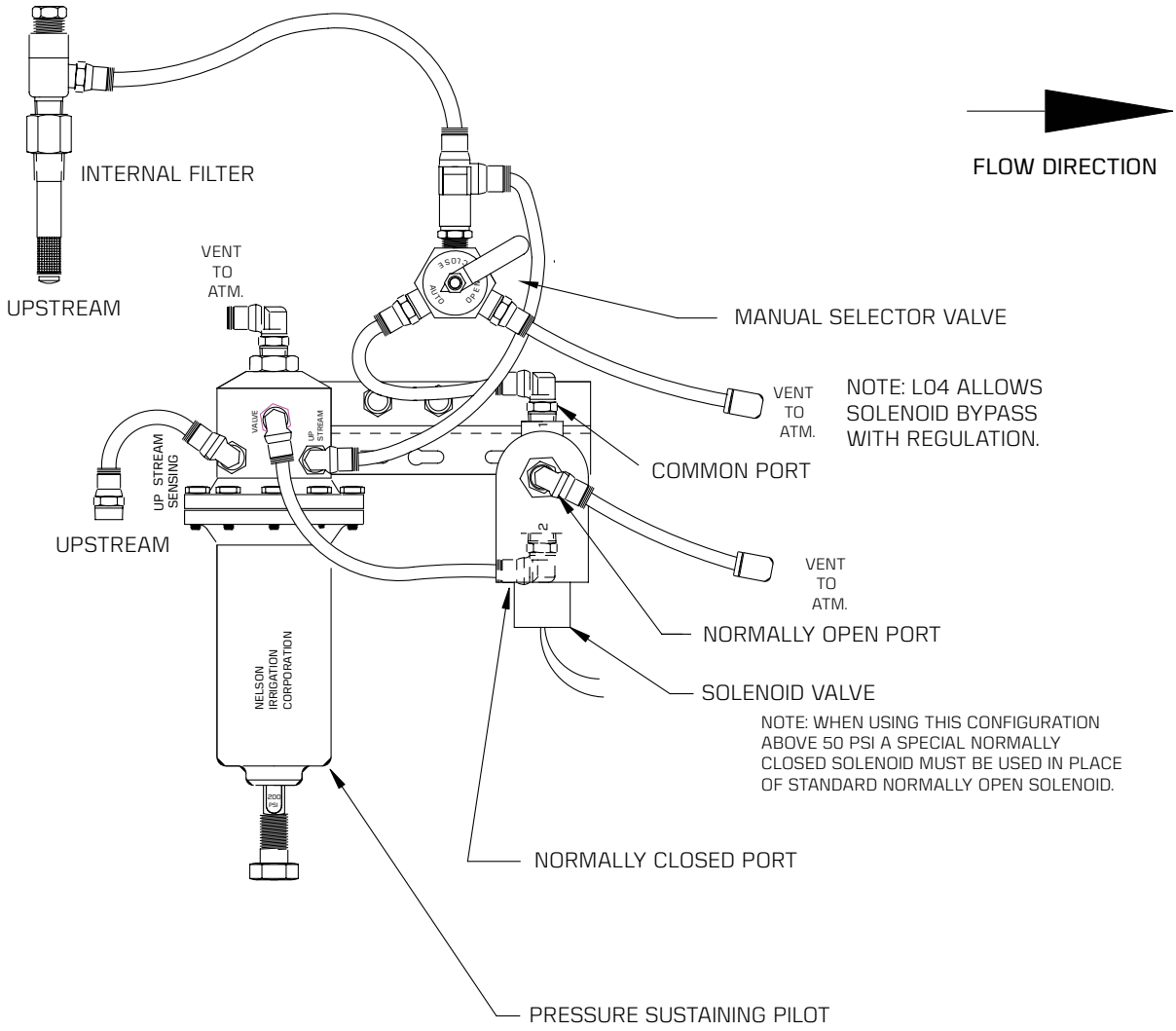
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L04

S21 - PRESSURE SUSTAINING, NORMALLY OPEN WITH INTERNAL FILTER

SOLENOID DE-ENERGIZED: VALVE WILL OPEN.

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.



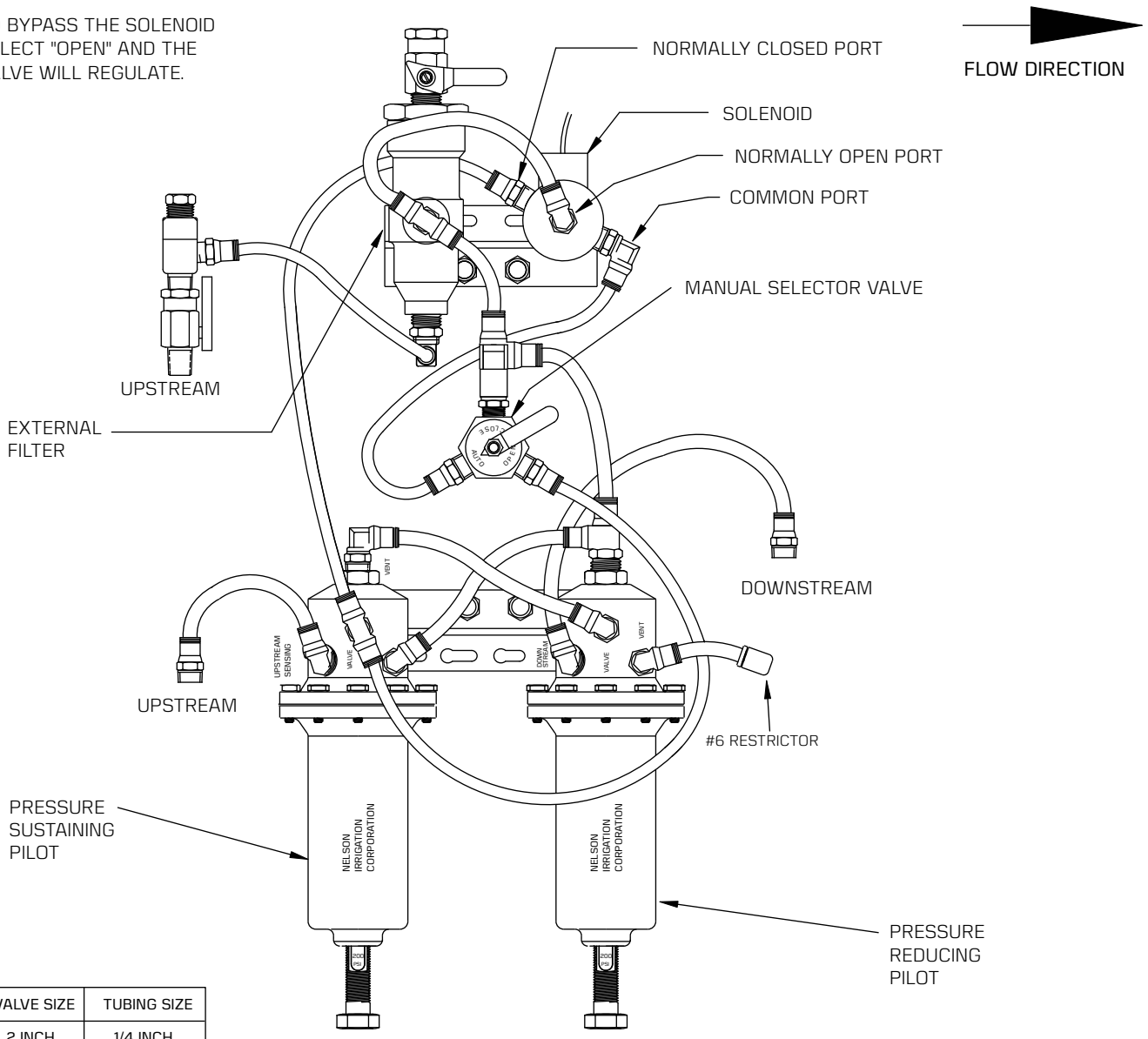
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L09

S25 - PRESSURE SUSTAINING & REDUCING, SOLENOID WITH EXT. FILTER

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED. ONCE DOWNSTREAM PRESSURE RISES TO THE SET POINT OF THE PRESSURE-REDUCING CONTROL, IT MAINTAINS THE SET DOWNSTREAM PRESSURE BY CLOSING THE VALVE AS REQUIRED.

SOLENOID DE-ENERGIZED: THE VALVE WILL CLOSE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

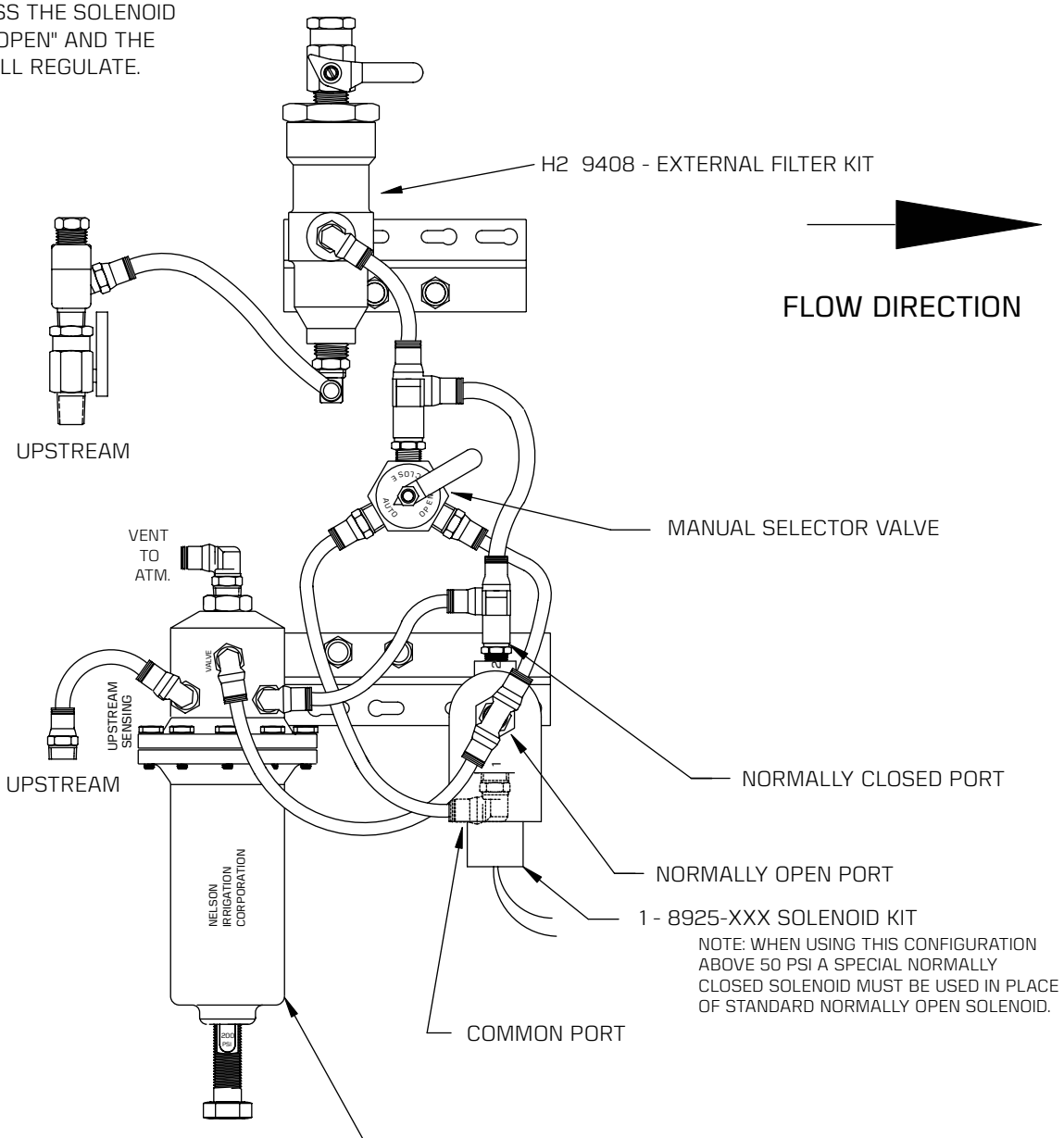
DISCONTINUED
SEE L05

S27 - PRESSURE SUSTAINING, ELECTRIC ON-OFF WITH EXT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	3/8 INCH

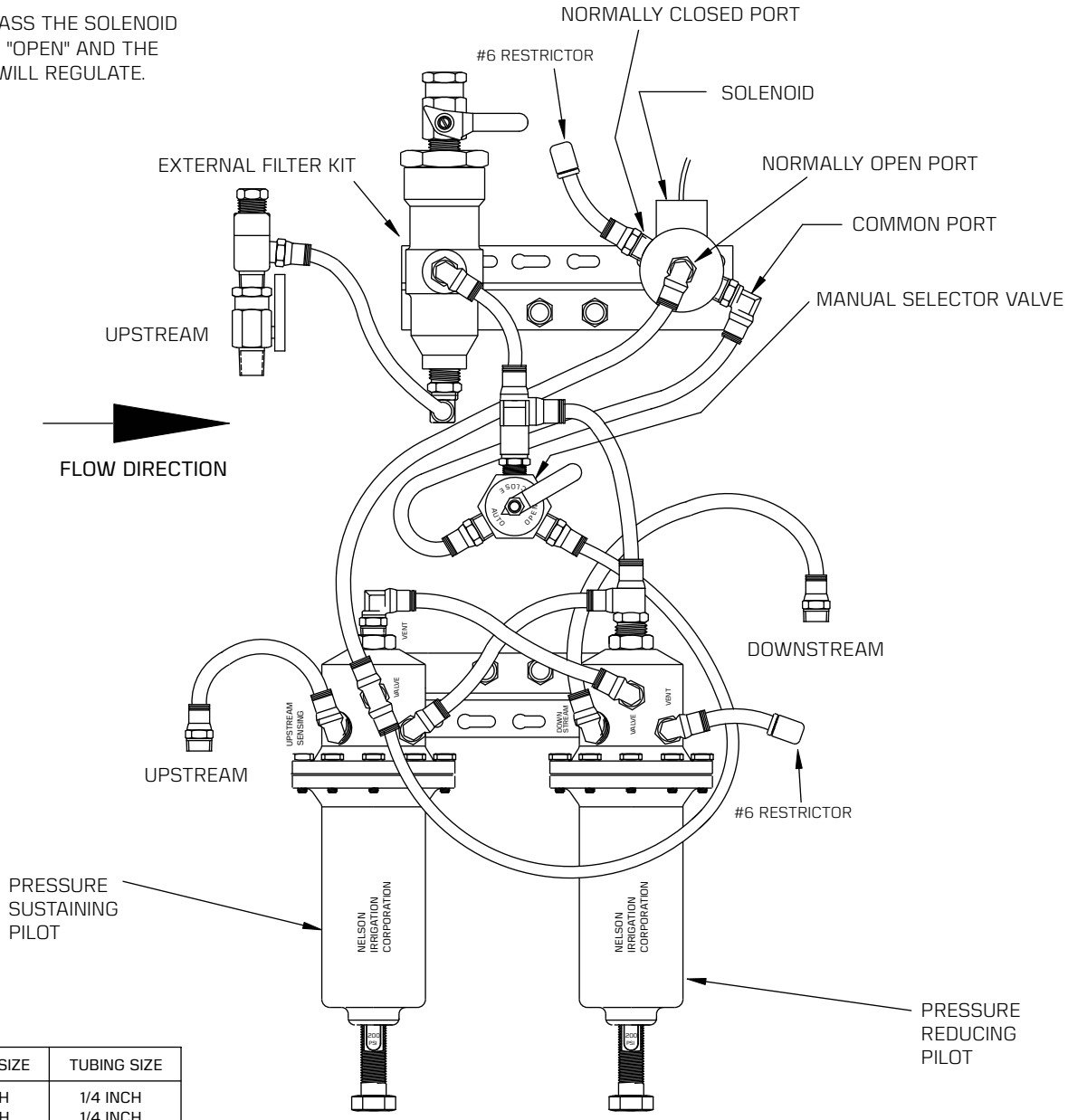
DISCONTINUED
SEE L12

S28 - PRESSURE SUSTAINING & REDUCING, SOLENOID WITH EXT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED. ONCE DOWNSTREAM PRESSURE RISES TO THE SET POINT OF THE PRESSURE-REDUCING CONTROL, IT MAINTAINS THE SET DOWNSTREAM PRESSURE BY CLOSING THE VALVE AS REQUIRED.

SOLENOID ENERGIZED: THE VALVE WILL OPEN.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



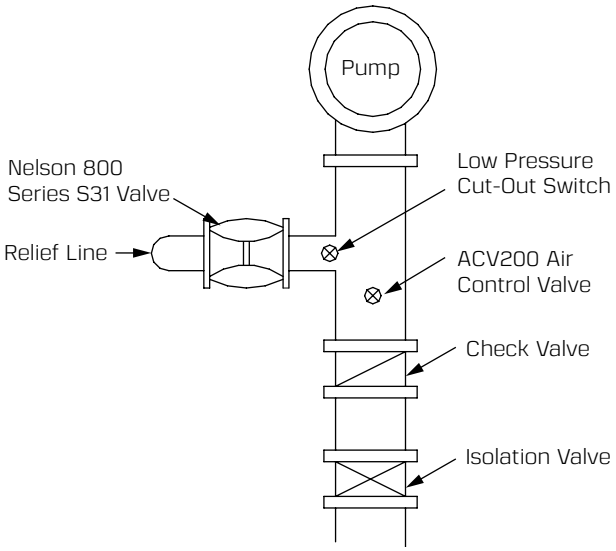
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L02
WITH DO6 OPTION

S31—DEEP WELL CONTROL NORMALLY OPEN VALVE WITH SLEEVE EXHAUST

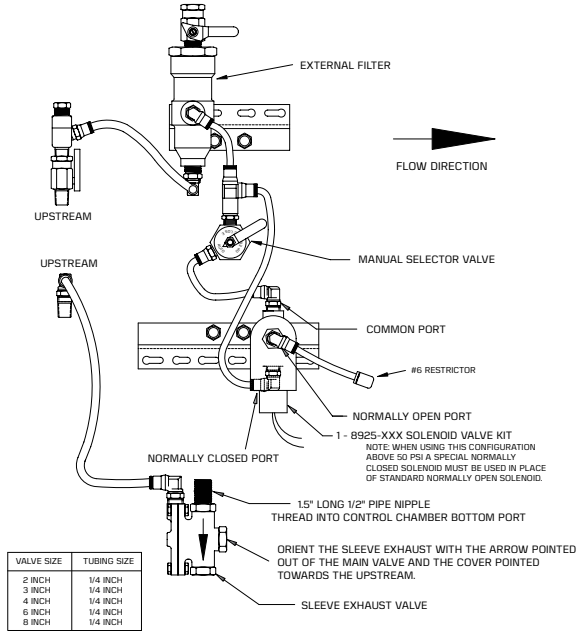
PURPOSE: At pump start-up, the initial surge of water will pass through a bypass line equipped with the Nelson Control Valve. As the pressure rises, the Nelson Valve will slowly close, gradually diverting the flow through the check valve thereby bringing the pump on-line without causing a surge in the mainline system.

TYPICAL APPLICATION



CONTROL SCHEMATIC

See Following Page



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

APPLICATION: The Nelson control valve with the S31 special deep well application option is used to gradually bring a pump on-line without causing a surge in the mainline system. The manual selector must be put in the "auto" position for the solenoid to work.

START-UP SEQUENCE: Before the pump is turned on, the solenoid is energized. Then, at the start-up of the pump, the initial surge of water will hit the check valve and be diverted to the Nelson valve. The valve will open instantly because of the sleeve exhaust attached to the base. When the upstream pressure reaches 30 psi, the sleeve exhaust will close and the Nelson valve will gradually close as pressure builds in the sleeve chamber. As the Nelson valve closes, the flow will be diverted from the relief line through the check valve to the mainline. A time delay is needed during start-up so the line has time to exceed the cutout pressure set point.

SHUTDOWN SEQUENCE: When taking the pump off-line, the solenoid is de-energized to vent the sleeve chamber. As the pressure in the sleeve chamber drops, the Nelson Valve will open and the flow will be diverted through the relief line. As the pressure drops, a low pressure cutout switch can be set to deactivate the pump.

Manual Override Control: If the pressure in the relief line is above 30 psi and the Nelson Valve does not close, the solenoid can be bypassed by putting the manual selector in the "close" position. The Nelson Valve can also be held open by pointing the manual selector to the "open" position.

DISCONTINUED
SEE L02
WITH D06 OPTION

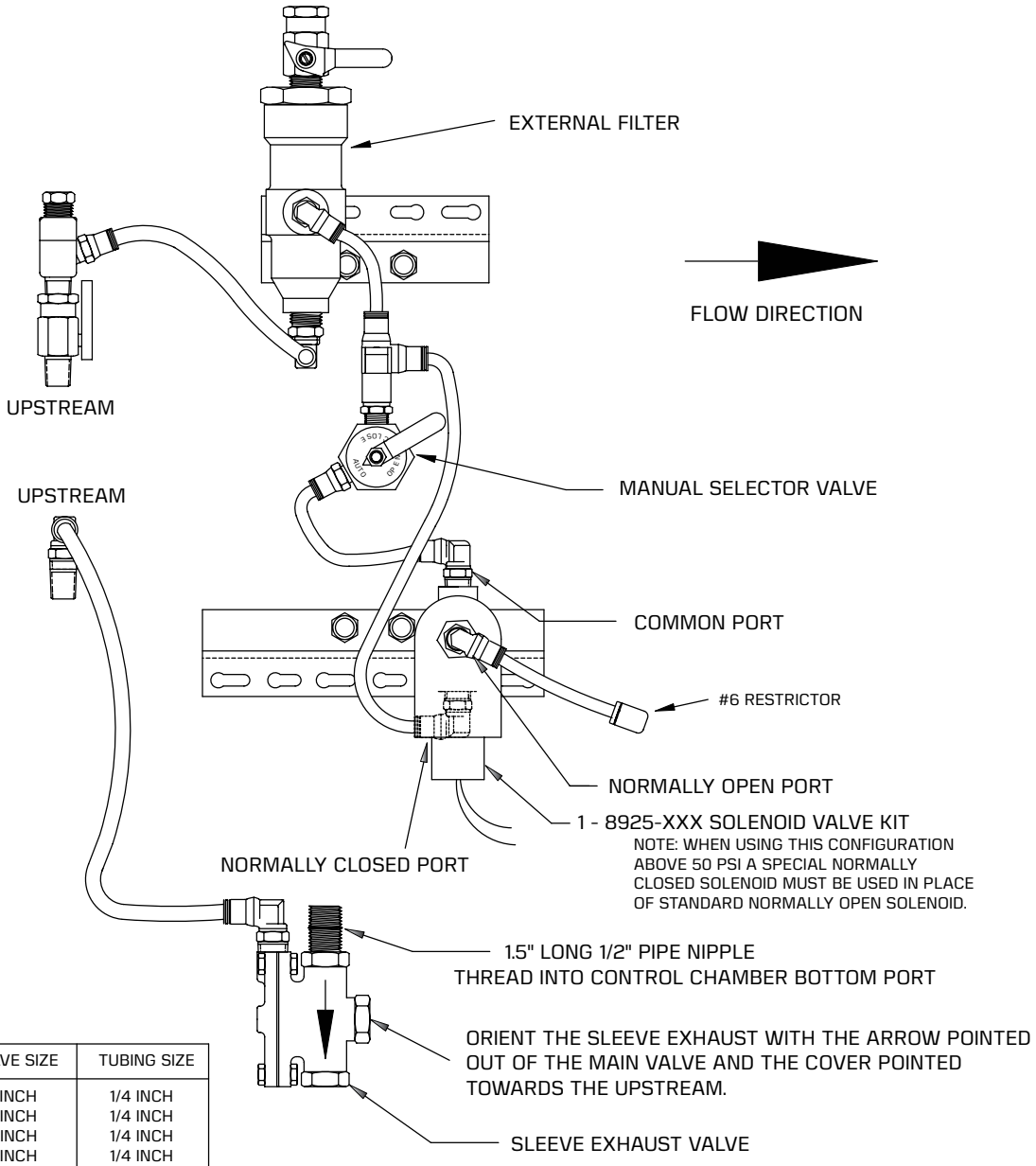
S31 - DEEP WELL CONTROL
NORMALLY OPEN VALVE WITH SLEEVE EXHAUST

BY ADDING THE SLEEVE EXHAUST THE MAIN VALVE CAN SNAP OPEN WHEN WATER ARRIVES.
THE VALVE WILL THEN STAY OPEN UNTIL UPSTREAM PRESSURE REACHES 10 OR 30 PSI (DEPENDING ON MODEL)
ABOVE THAT PRESSURE, THE MAIN VALVE WILL RESPOND TO THE SOLENOID.

SOLENOID DE-ENERGIZED: VALVE WILL OPEN BY VENTING CONTROL CHAMBER TO ATMOSPHERE.

SOLENOID ENERGIZED: VALVE WILL CLOSE BY APPLYING UPSTREAMPRESSURE TO CONTROL CHAMBER.

MODEL # E21-E72 D6 H2 S31



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

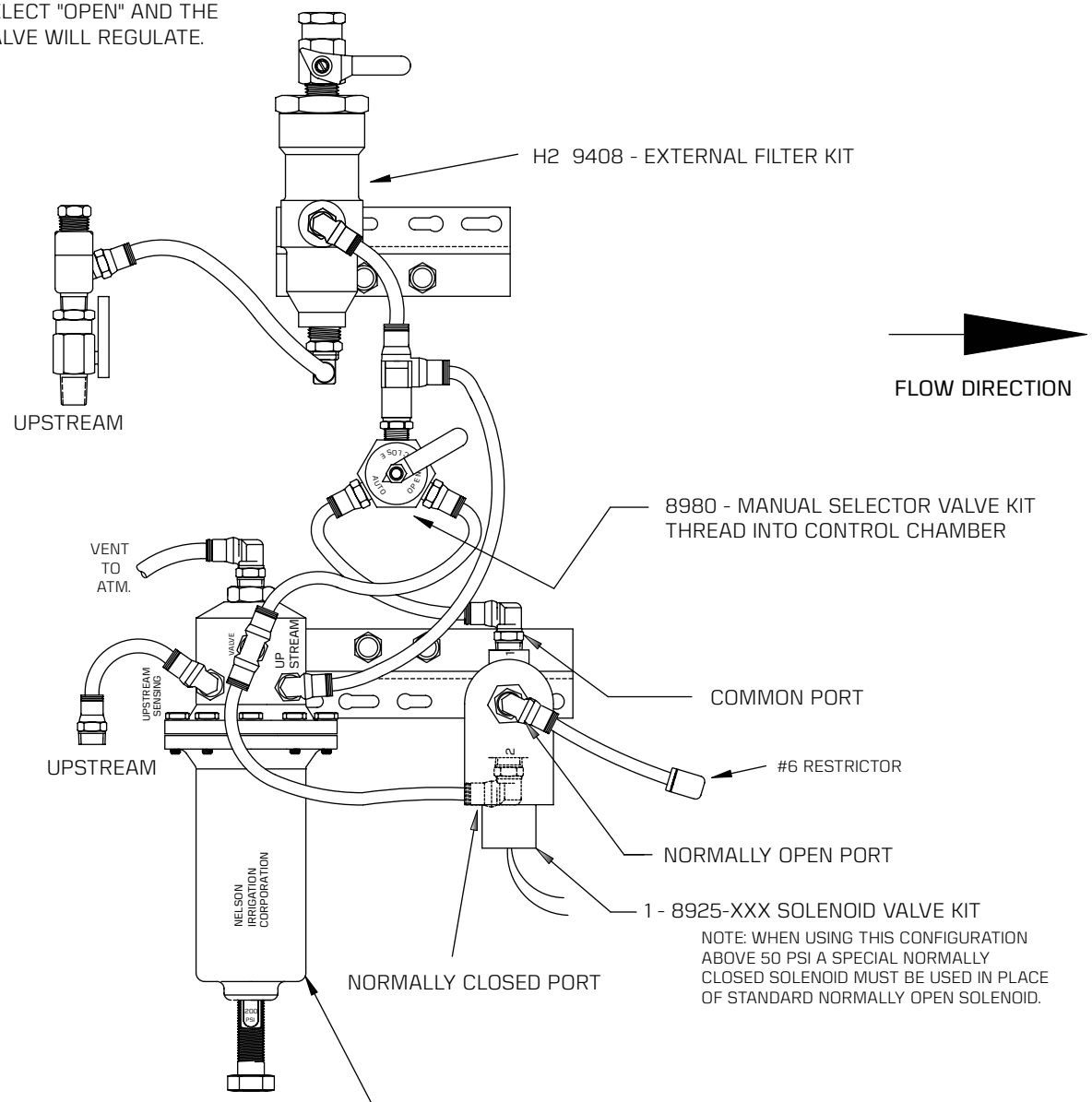
DISCONTINUED
SEE L04
PSNO

S32 - PRESSURE SUSTAINING, NORMALLY OPEN, WITH EXTERNAL FILTER

SOLENOID DE-ENERGIZED: VALVE WILL OPEN.

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



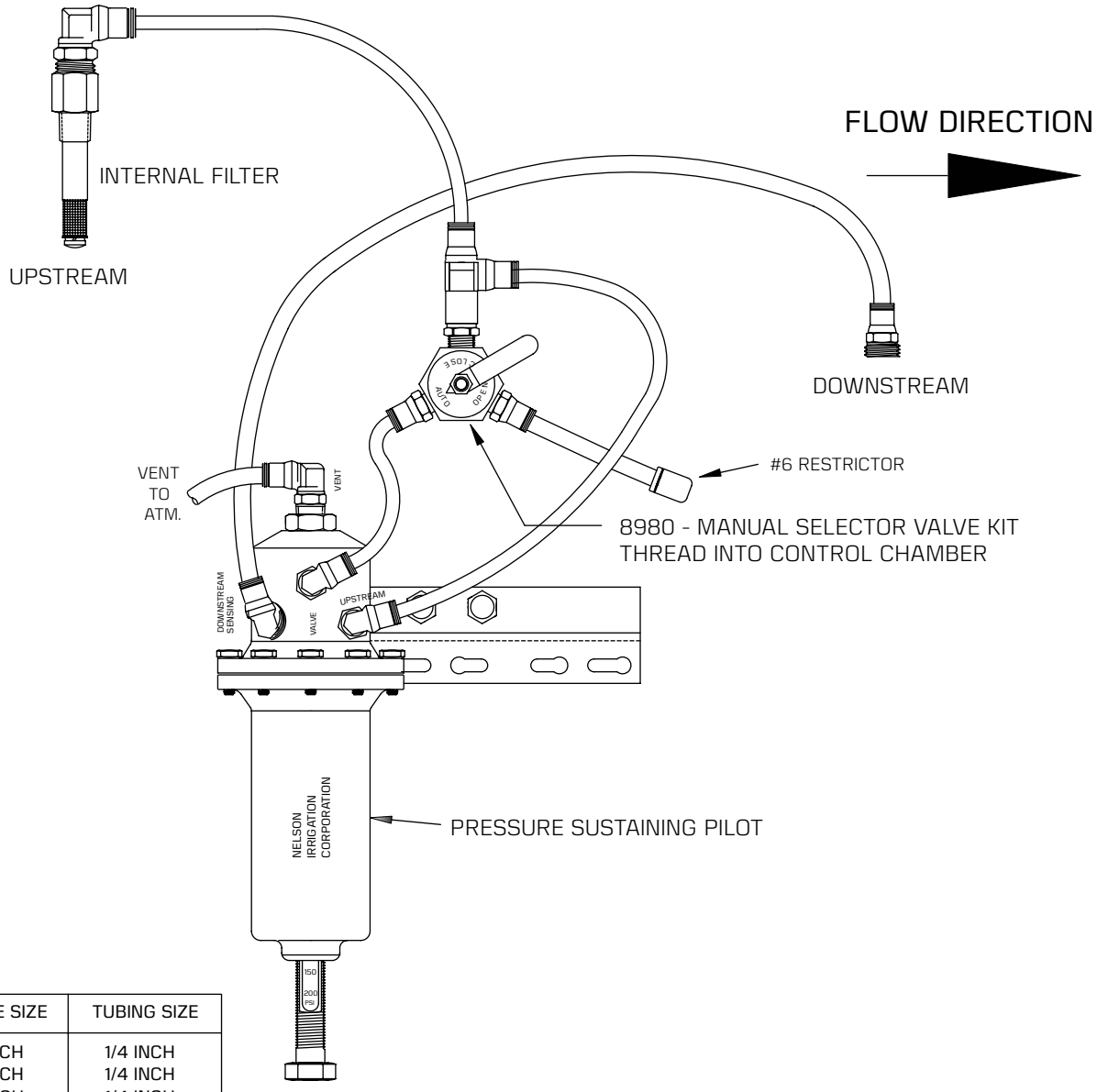
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S33 - LOW PRESSURE SHUTOFF WITH INTERNAL FILTER

APPLICATION: PRESSURE CONTROL MUST BE SET TO POINT AT WHICH SHUTOFF IS DESIRED. FAILURE OF DOWNSTREAM SYSTEM (SUCH AS PIPE BURSTING) CAUSES LOW PRESSURE IN SYSTEM AND VALVE WILL AUTOMATICALLY CLOSE.

NOTE: VALVE MUST BE MANUALLY OPENED UNTIL DOWNSTREAM PRESSURE RISES ABOVE PRESSURE CONTROL SETPOINT. THEN MANUAL SELECTOR MUST BE SET TO "AUTO" PORT.

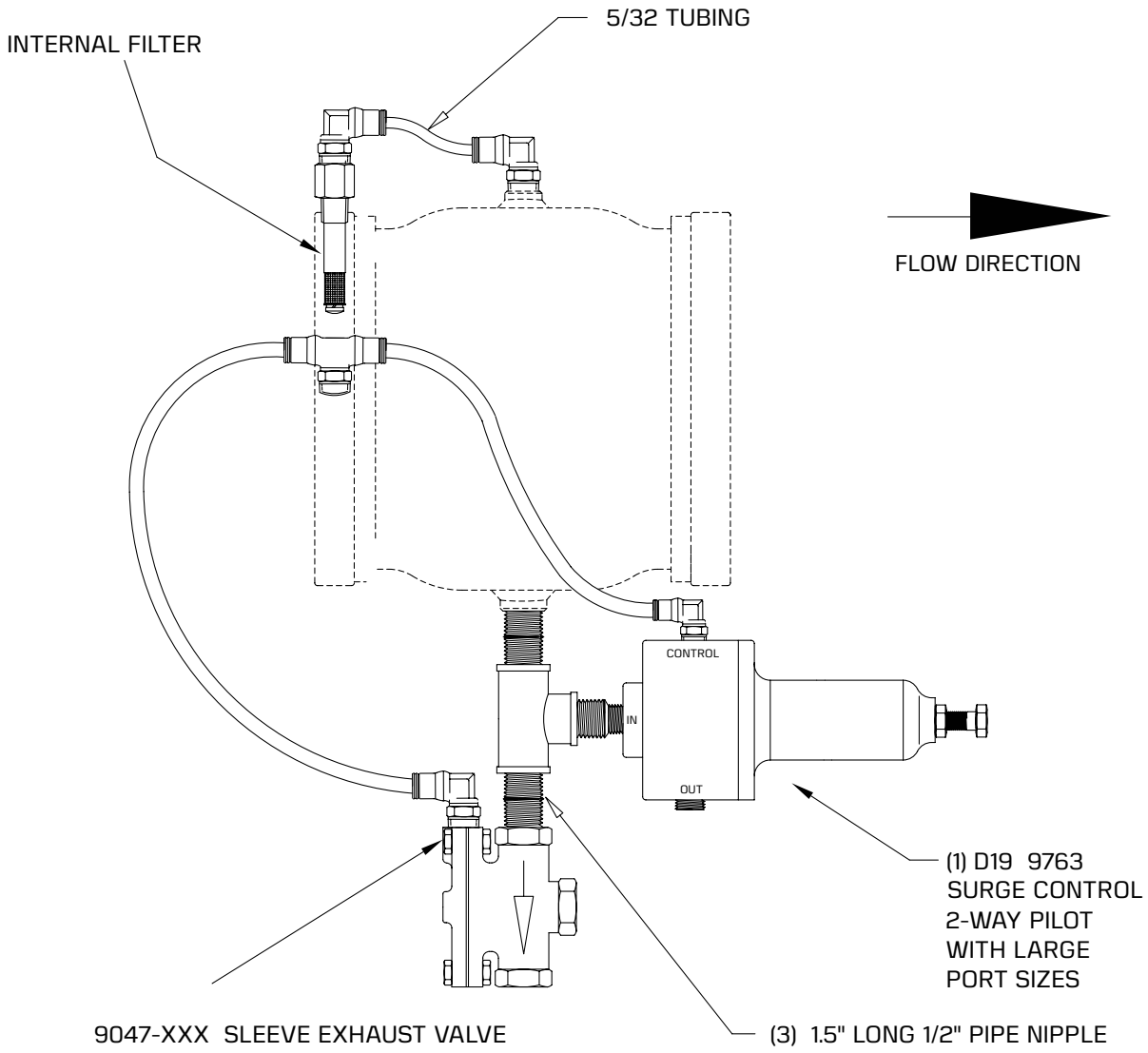


VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

S38 - SURGE ANTICIPATOR VALVE

The purpose of S38 is to open rapidly when water arrives at the valve upon system startup, and also when there is power failure. It is typically installed as a relief at large pump stations, where the pilots work to reduce the potential for damage due to flow reversal.

When water first hits this valve, the sleeve exhaust is open so the main valve fully opens letting all the water pass. Once the upstream pressure exceeds the nominal pressure rating of the sleeve exhaust (10 or 30 psi, depending on the model), the sleeve exhaust closes and water is slowly added to the valve control chamber until it closes completely. The surge control 2-way pilot quickly exhausts water if upstream pressure exceeds upper setpoint on the pilot.



DISCONTINUED
SEE L09
WITH CHECK FEATURE

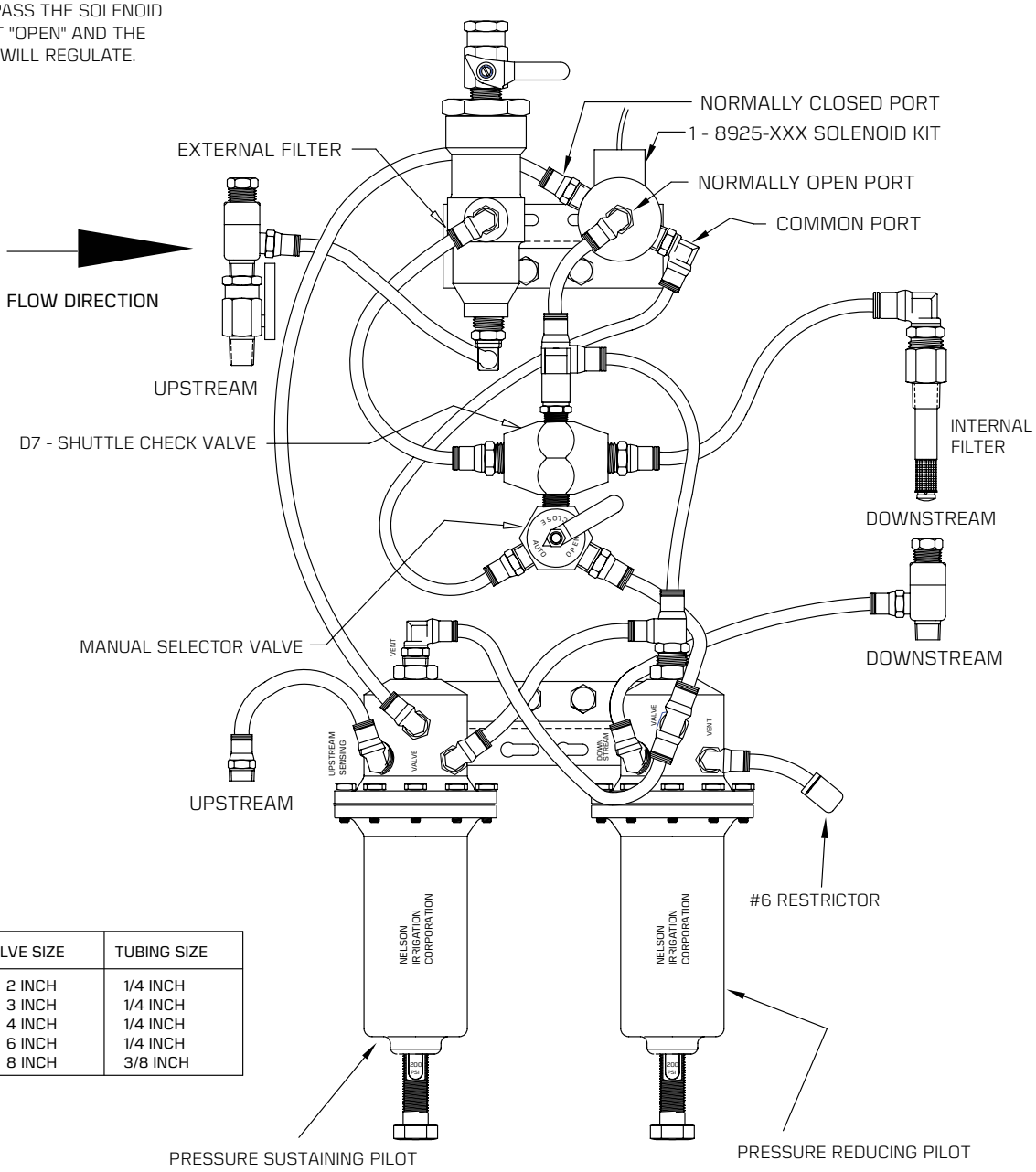
S40 - PRESSURE SUSTAINING & REDUCING, SOLENOID, CHECK, & EXT. FILTER

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED. ONCE DOWNSTREAM PRESSURE RISES TO THE SET POINT OF THE PRESSURE-REDUCING CONTROL, IT MAINTAINS THE SET DOWNSTREAM PRESSURE BY CLOSING THE VALVE AS REQUIRED.

SOLENOID DE-ENERGIZED: THE VALVE WILL CLOSE.

CHECK FEATURE: IF DOWNSTREAM PRESSURE EXCEEDS THE UPSTREAM PRESSURE THE MAIN VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	3/8 INCH

DISCONTINUED
SEE L03
WITH CHECK FEATURE

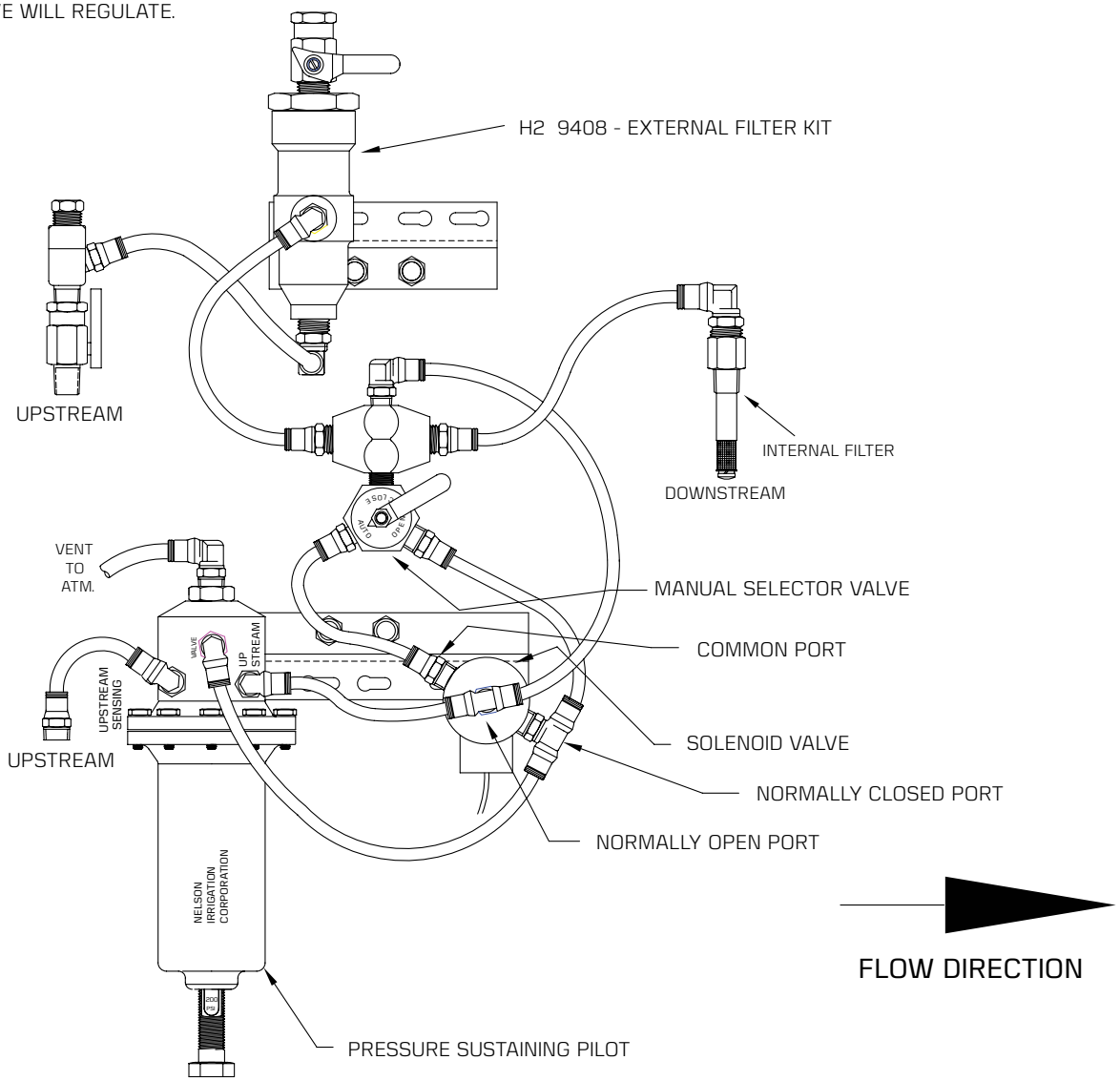
S41 - PRESSURE SUSTAINING, ELECTRIC ON-OFF, CHECK WITH EXT. FILTER

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID DE-ENERGIZED: VALVE WILL CLOSE.

CHECK FEATURE: WITH SOLENOID DE-ENERGIZED, IF DOWNSTREAM PRESSURE EXCEEDS THE UPSTREAM PRESSURE THE MAIN VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

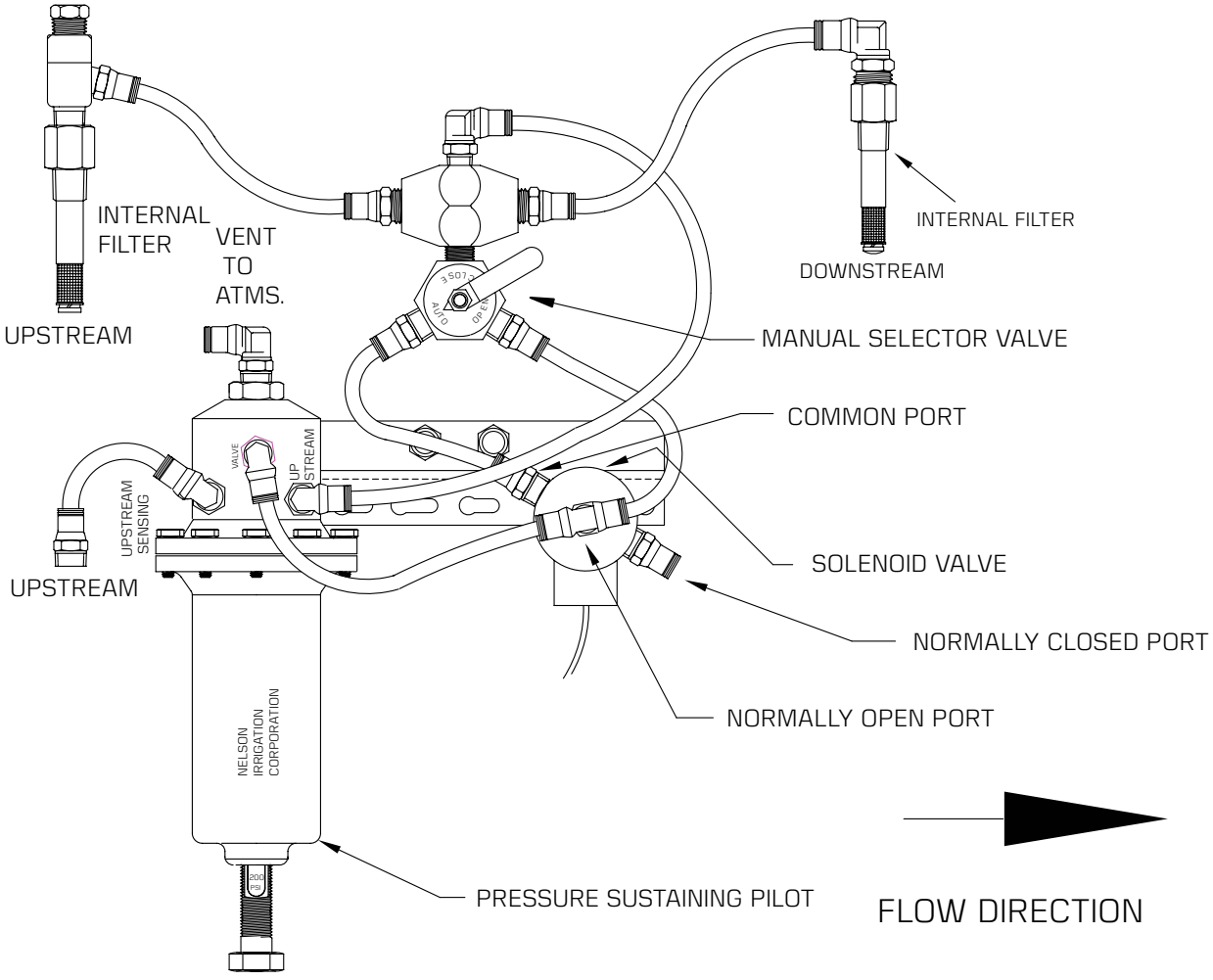
DISCONTINUED
SEE L06
WITH CHECK FEATURE

S42 - PRESSURE SUSTAINING, ELECTRIC ON-OFF, CHECK WITH INT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID ENERGIZED: VALVE WILL FULLY OPEN.

CHECK FEATURE: WITH SOLENOID DE-ENERGIZED, IF DOWNSTREAM PRESSURE EXCEEDS THE UPSTREAM PRESSURE THE MAIN VALVE WILL CLOSE.



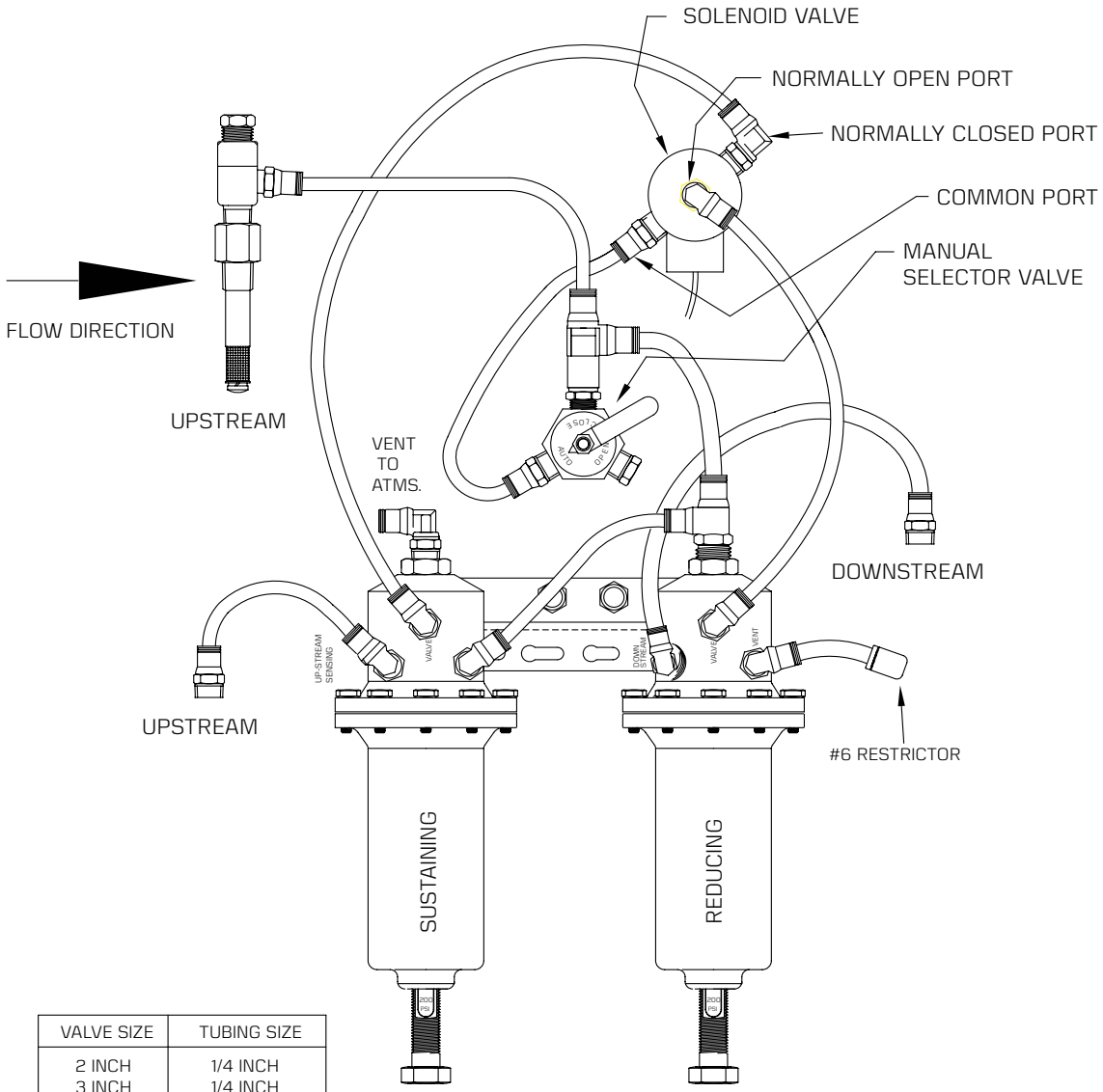
DISCONTINUED
SEE L10

S43 - PRESSURE SUSTAINING & REDUCING WITH A SOLENOID

SOLENOID ENERGIZED: THE VALVE MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

SOLENOID DE-ENERGIZED: THE VALVE REDUCES A HIGHER INLET PRESSURE TO A STEADY LOWER DOWNSTREAM PRESSURE REGARDLESS OF CHANGING FLOW RATE AND/OR VARYING INLET PRESSURE.

APPLICATION: CONNECT THE SOLENOID TO THE BACKFLUSH RELAY SO THE VALVE HOLDS PRESSURE AGAINST FILTERS IN A SUSTAINING MODE AND THEN IS SHIFTED TO A PRESSURE REDUCING MODE DURING NORMAL OPERATION.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

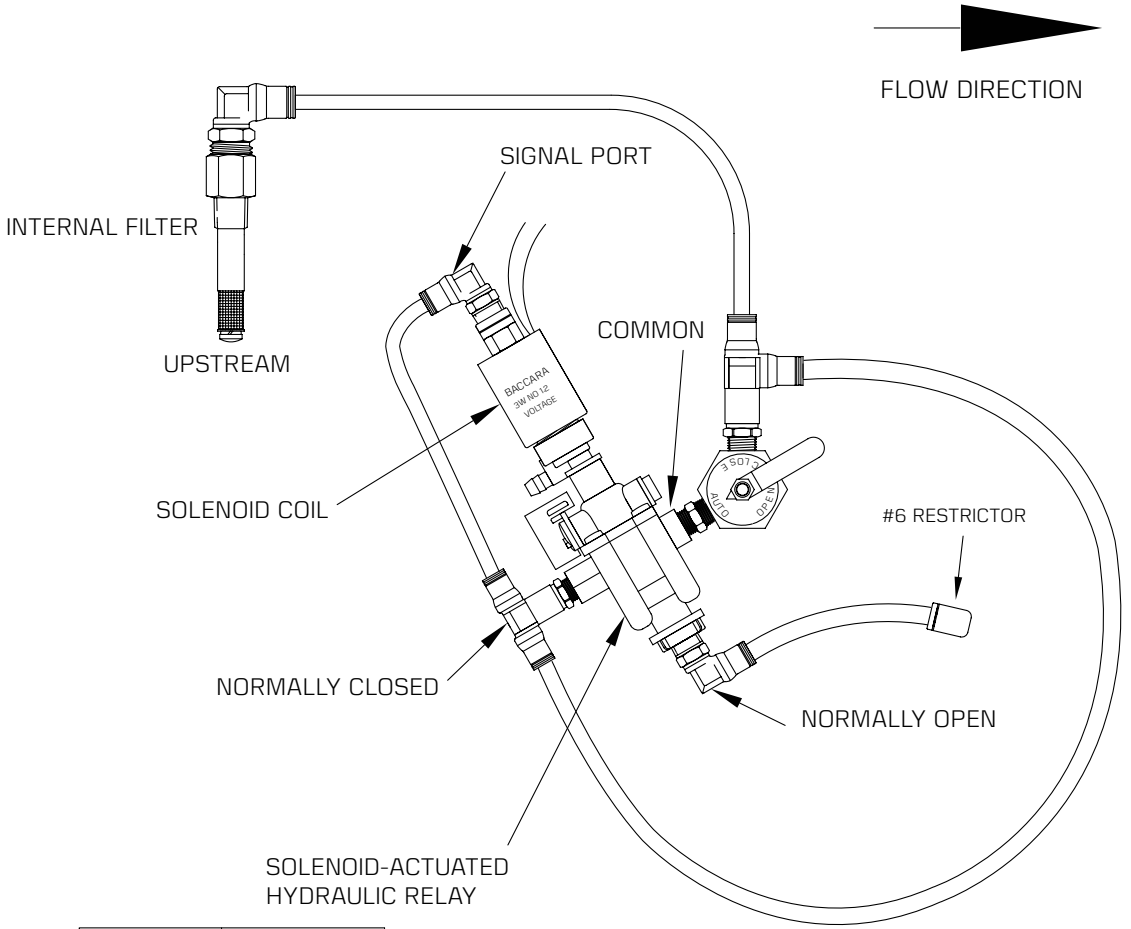
DISCONTINUED
SEE LO2

S44 - NORMALLY OPEN, SOLENOID-ACTUATED HYDRAULIC RELAY

THE VALVE WILL REMAIN OPEN AS LONG AS THE SOLENOID ATTACHED TO THE HYDRAULIC RELAY IS DE-ENERGIZED. ONCE THE SOLENOID IS ENERGIZED THE VALVE BEGINS TO CLOSE.

SOLENOID DE-ENERGIZED: VALVE WILL OPEN BY VENTING CONTROL CHAMBER TO ATMOSPHERE.

SOLENOID ENERGIZED: VALVE WILL CLOSE BY APPLYING UPSTREAM PRESSURE TO CONTROL CHAMBER.



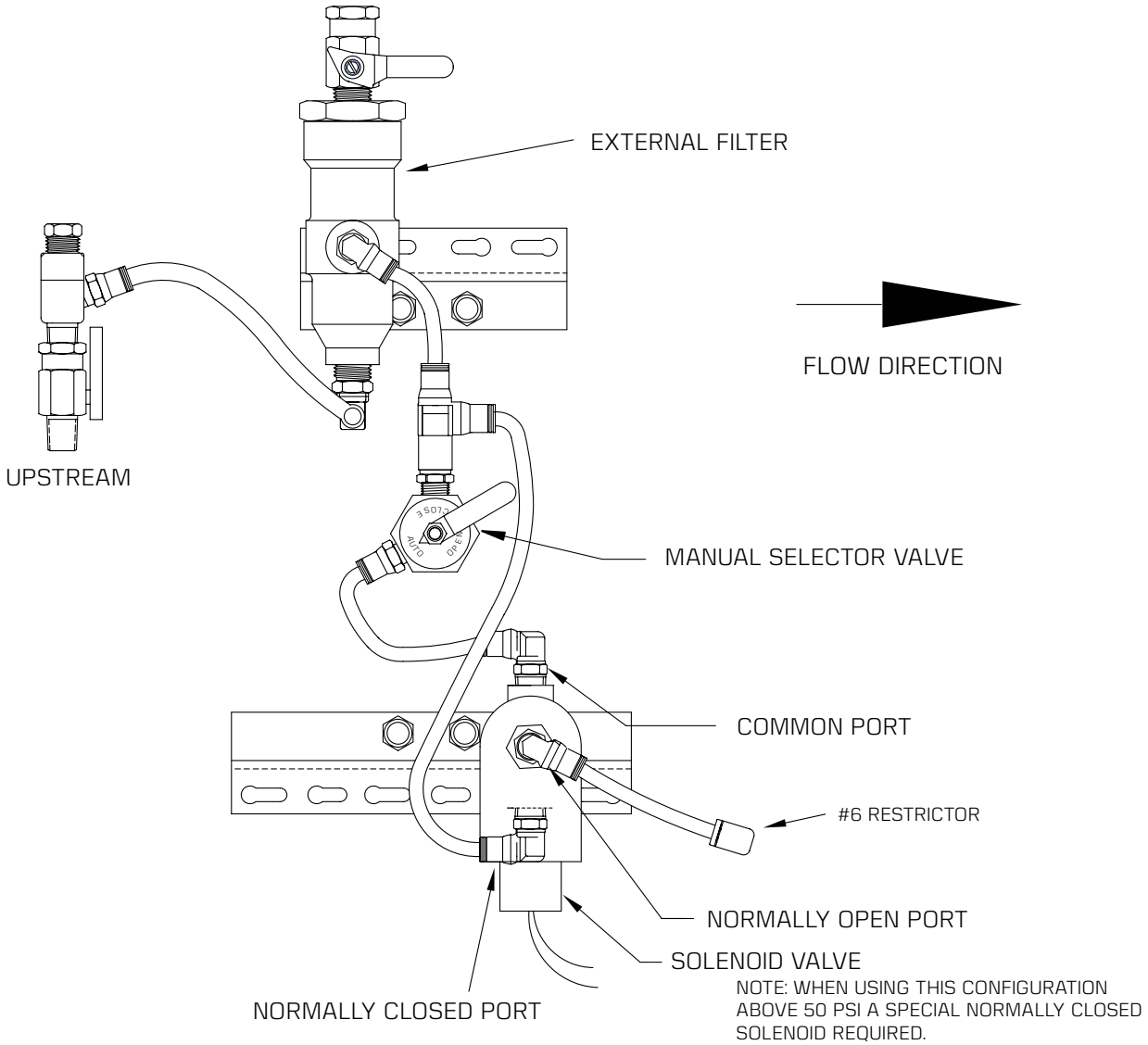
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L02

S45 - NORMALLY OPEN, ELECTRIC ON/OFF

SOLENOID DE-ENERGIZED: VALVE WILL OPEN BY VENTING CONTROL CHAMBER TO ATMOSPHERE.

SOLENOID ENERGIZED: VALVE WILL CLOSE BY APPLYING UPSTREAM PRESSURE TO CONTROL CHAMBER.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

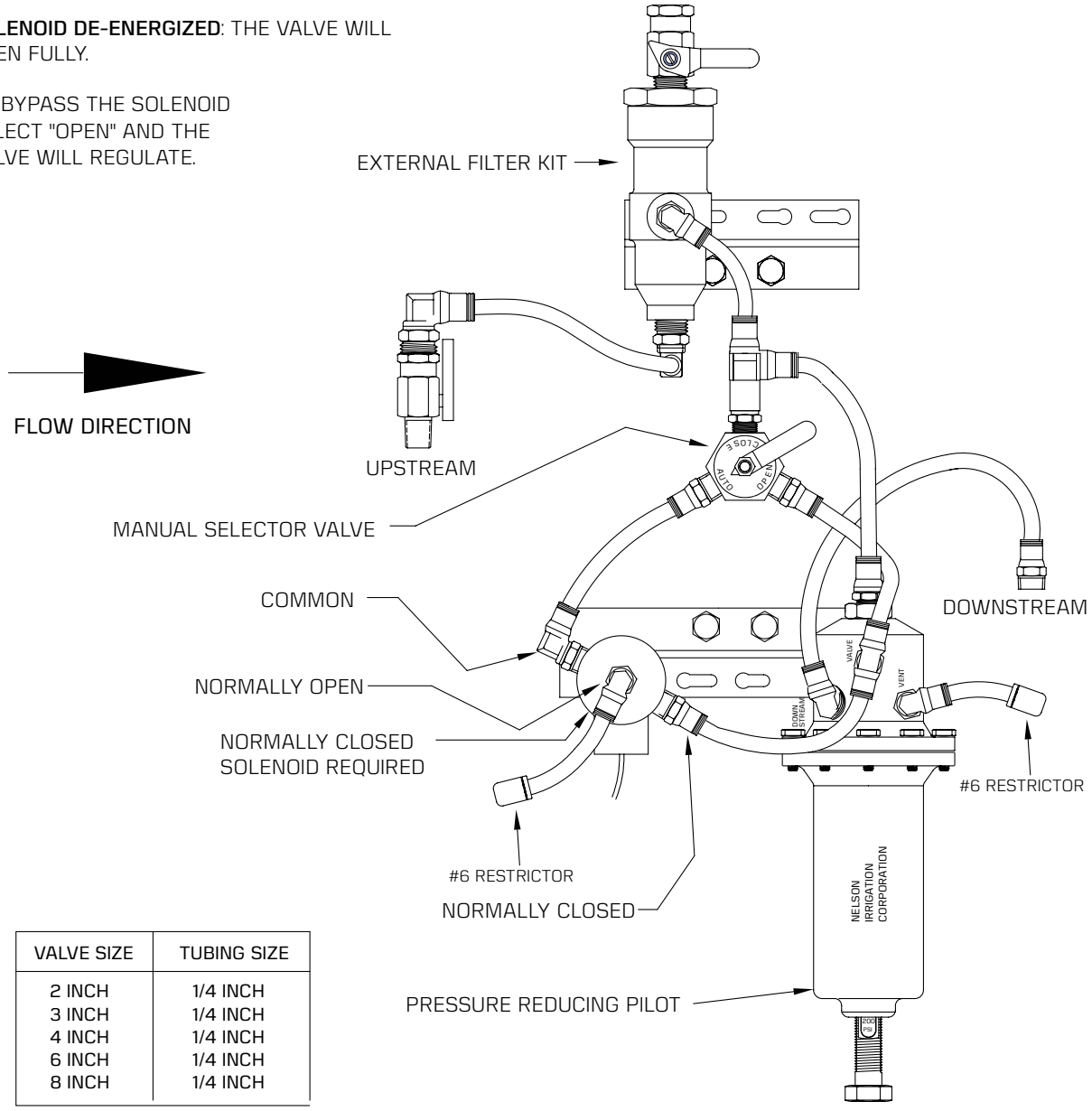
DISCONTINUED
SEE L13

S46 - PRESSURE REDUCING, NORMALLY OPEN VALVE, WITH EXTERNAL FILTER

SOLENOID ENERGIZED: PRESSURE-REDUCING VALVE AUTOMATICALLY REDUCES A HIGHER INLET PRESSURE TO A CONSTANT OUTLET PRESSURE REGARDLESS OF VARYING INLET PRESSURE AND/OR CHANGING FLOW RATE.

SOLENOID DE-ENERGIZED: THE VALVE WILL OPEN FULLY.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

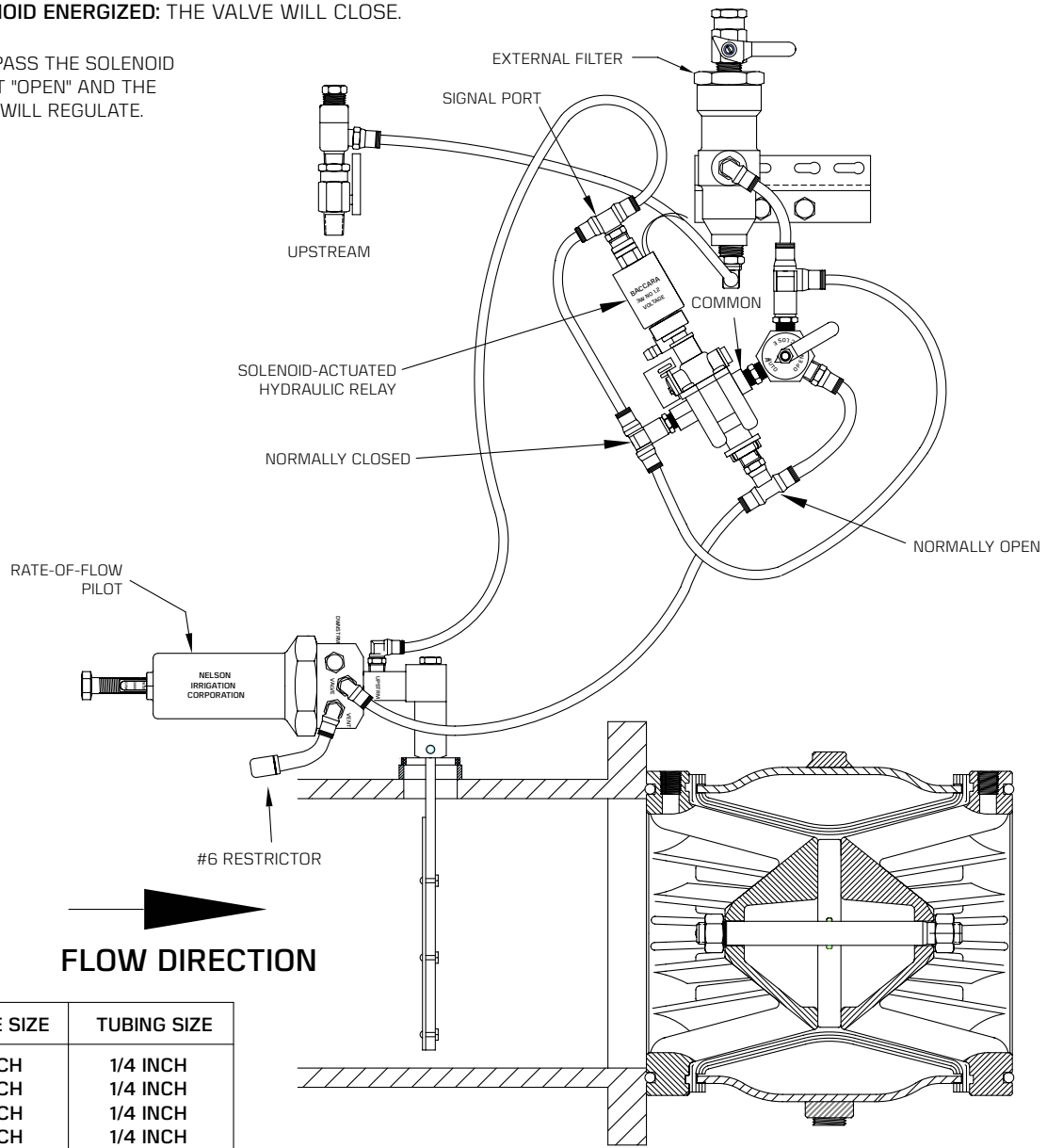
DISCONTINUED
SEE L02

S47 - RATE-OF-FLOW WITH SOLENOID ACTUATED HYDRAULIC RELAY & EXTERNAL FILTER

SOLENOID DE-ENERGIZED:
RATE-OF-FLOW CONTROL LIMITS THE FLOW RATE PASSING THROUGH THE VALVE.
RATE-OF-FLOW CONTROL IS SET TO 100% OF SYSTEM FLOW RATE USAGE.
DURING SYSTEM FILLING, RATE-OF-FLOW CONTROL WILL RESTRICT FLOWRATE TO DESIRED SETPOINT. AFTER SYSTEM FILLS, THE FLOWRATE WILL CONTINUE TO SUPPLY THE SYSTEM WITH THE SAME DESIRED SETPOINT GPM.
OR
RATE-OF-FLOW CONTROL IS SET TO 110-120% OF SYSTEM FLOW RATE USAGE.
DURING SYSTEM FILLING, RATE OF FLOW WILL RESTRICT FLOWRATE TO DESIRED SETPOINT. AFTER SYSTEM FILLS, THE FLOWRATE DROPS BELOW DESIRED FILL FLOWRATE AND VALVE GOES FULL OPEN.

SOLENOID ENERGIZED: THE VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

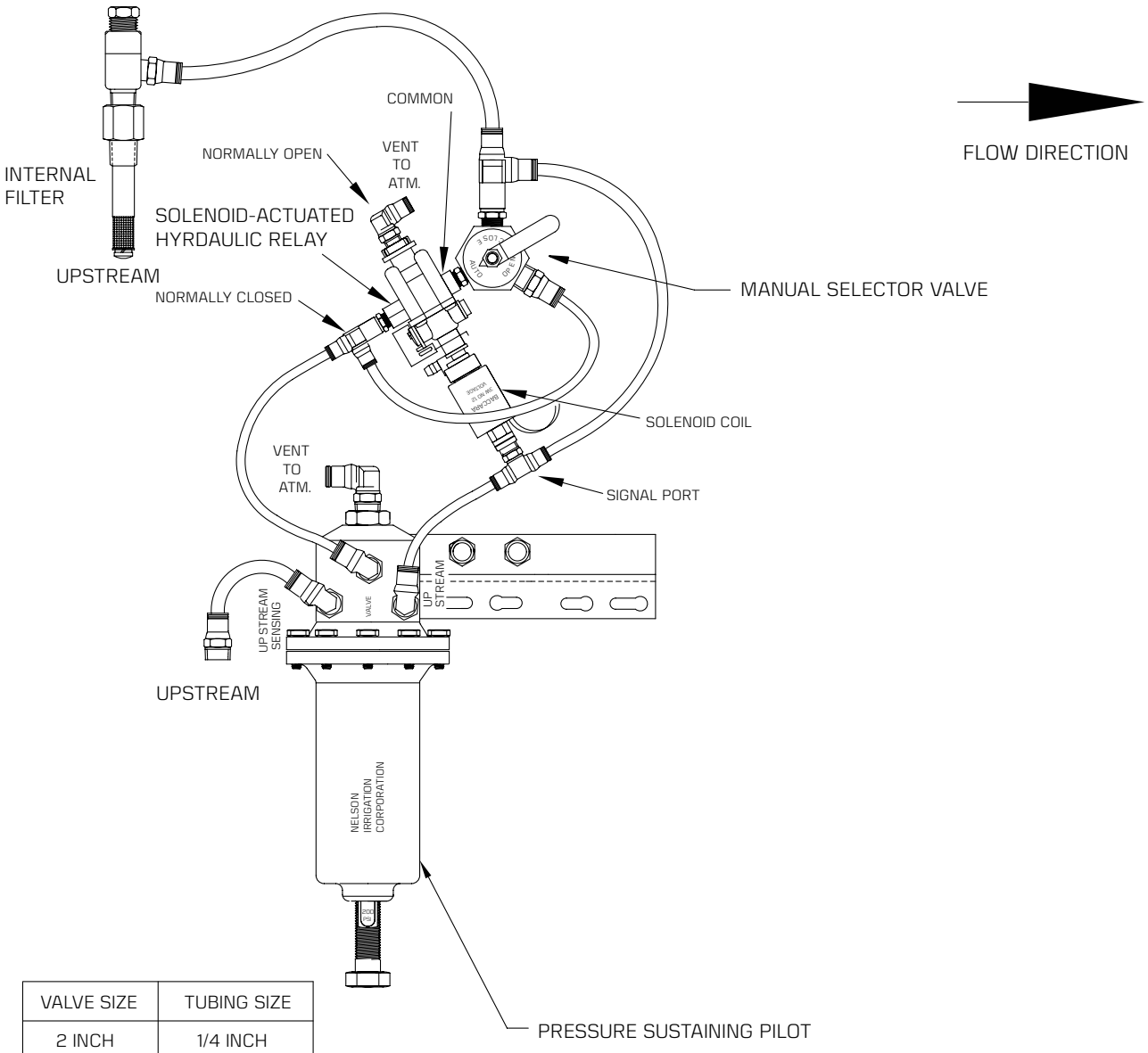
DISCONTINUED
SEE L04

S48 - PRESSURE SUSTAINING, SOLENOID-ACTUATED HYDRAULIC RELAY & INTERNAL FILTER

SOLENOID DE-ENERGIZED: VALVE WILL OPEN.

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

TO BYPASS THE SOLENOID
SELECT "OPEN" AND THE
VALVE WILL REGULATE.



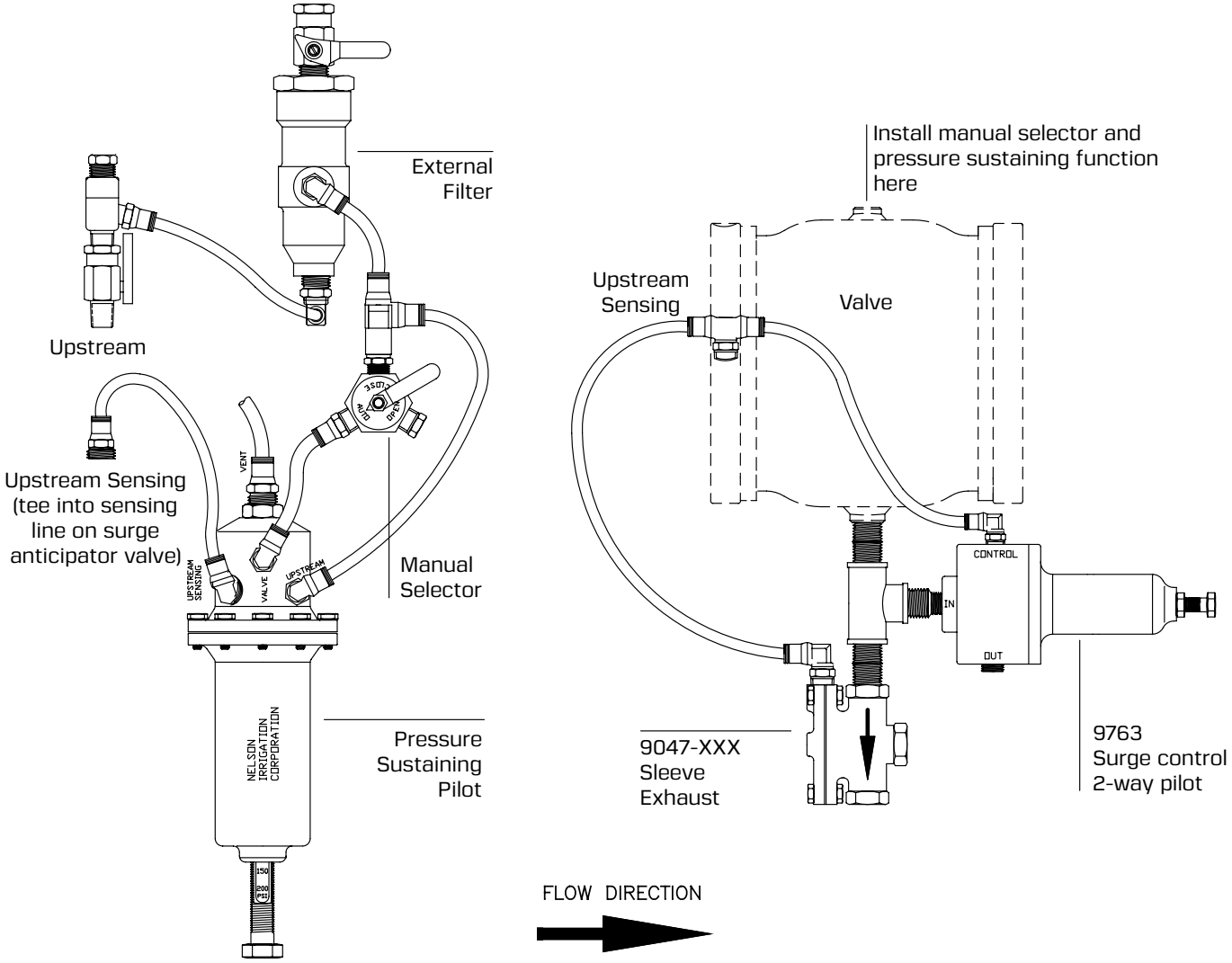
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

S50 - SURGE ANTICIPATOR VALVE WITH PRESSURE SUSTAINING

The Pressure Sustaining function (left) is installed on the surge anticipator valve (right)

Pressure Sustaining Function
(external filter shown)

Surge Anticipator Valve
(See S38)



The S50 Valve adds the pressure sustaining function to the S38 Surge Anticipator valve in order to provide a second pressure relief setting. It is set at a value between the D06 Sleeve Exhaust and the 2-way surge control pilot.

The purpose of S38 is to open rapidly when water arrives at the valve upon system startup, and also when there is power failure. It is typically installed as a relief at large pump stations, where the pilots work to reduce the potential for damage due to flow reversal.

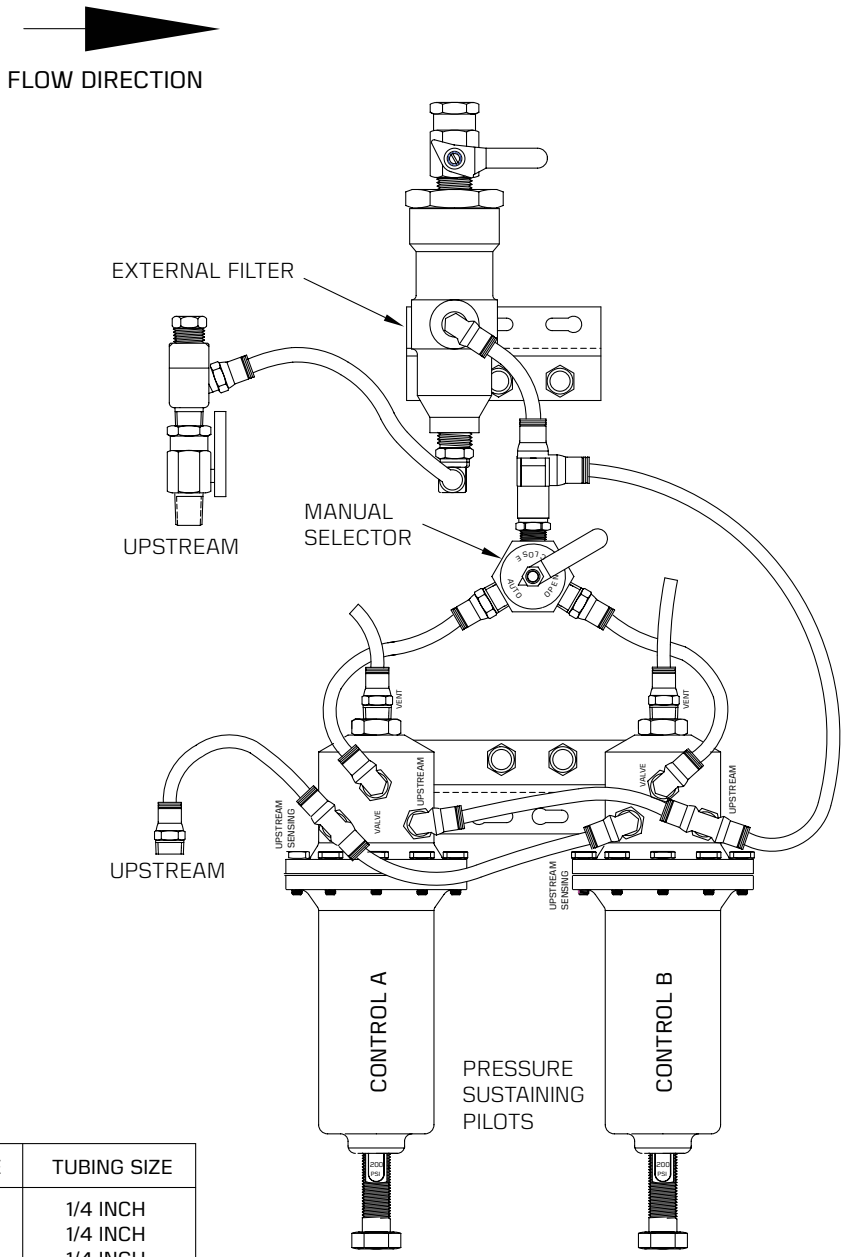
When water first hits this valve, the sleeve exhaust is open so the main valve fully opens letting all the water pass. Once the upstream pressure exceeds the nominal pressure rating of the sleeve exhaust (10 or 30 psi, depending on the model), the sleeve exhaust closes and water is slowly added to the valve control chamber until it closes completely. The surge control 2-way pilot quickly exhausts water if upstream pressure exceeds upper setpoint on the pilot.

CONTACT FACTORY FOR AVAILABILITY.

S51 – TWO-LEVEL PRESSURE SUSTAINING WITH EXT. FILTER

SELECTOR IN **AUTO** POSITION: THE VALVE ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE (**CONTROL A**) BY DISCHARGING WATER AS REQUIRED.

SELECTOR IN **OPEN** POSITION: THE VALVE ACCURATELY MAINTAINS A CONSTANT PRESET UPSTREAM PRESSURE (**CONTROL B**) BY DISCHARGING WATER AS REQUIRED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

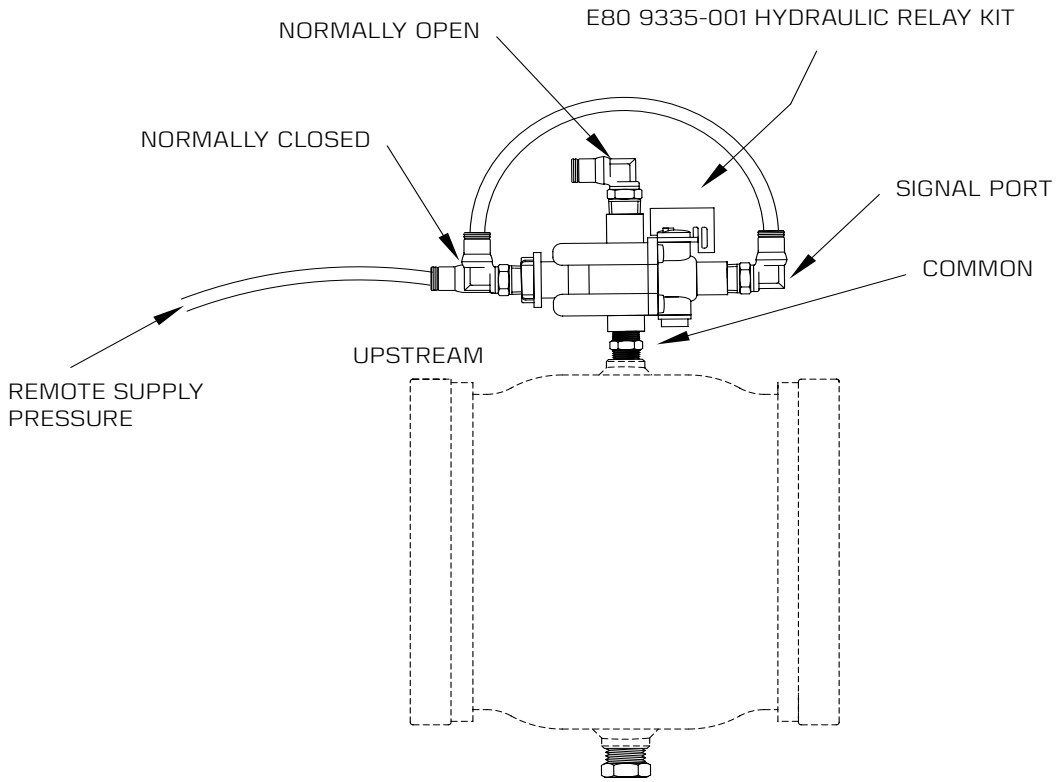
CONTACT FACTORY FOR AVAILABILITY.

S52 – HYDRAULIC RELAY WITH REMOTE SUPPLY

CLOSED: WHEN THE RELAY HAS PRESSURE APPLIED TO THE SIGNAL PORT, REMOTE PRESSURE IS ALSO APPLIED TO THE CONTROL CHAMBER TO CLOSE MAIN VALVE.

OPEN: WHEN THE HYDRAULIC RELAY DOES NOT HAVE PRESSURE AT THE SIGNAL PORT, MAIN VALVE IS OPENED BY VENTING THE CONTROL CHAMBER TO ATMOSPHERE.

NOTE: SIGNAL PORT PRESSURE MUST BE EQUAL TO OR GREATER THAN UPSTREAM PRESSURE IN ORDER TO ACTIVATE HYDRAULIC RELAY CORRECTLY.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

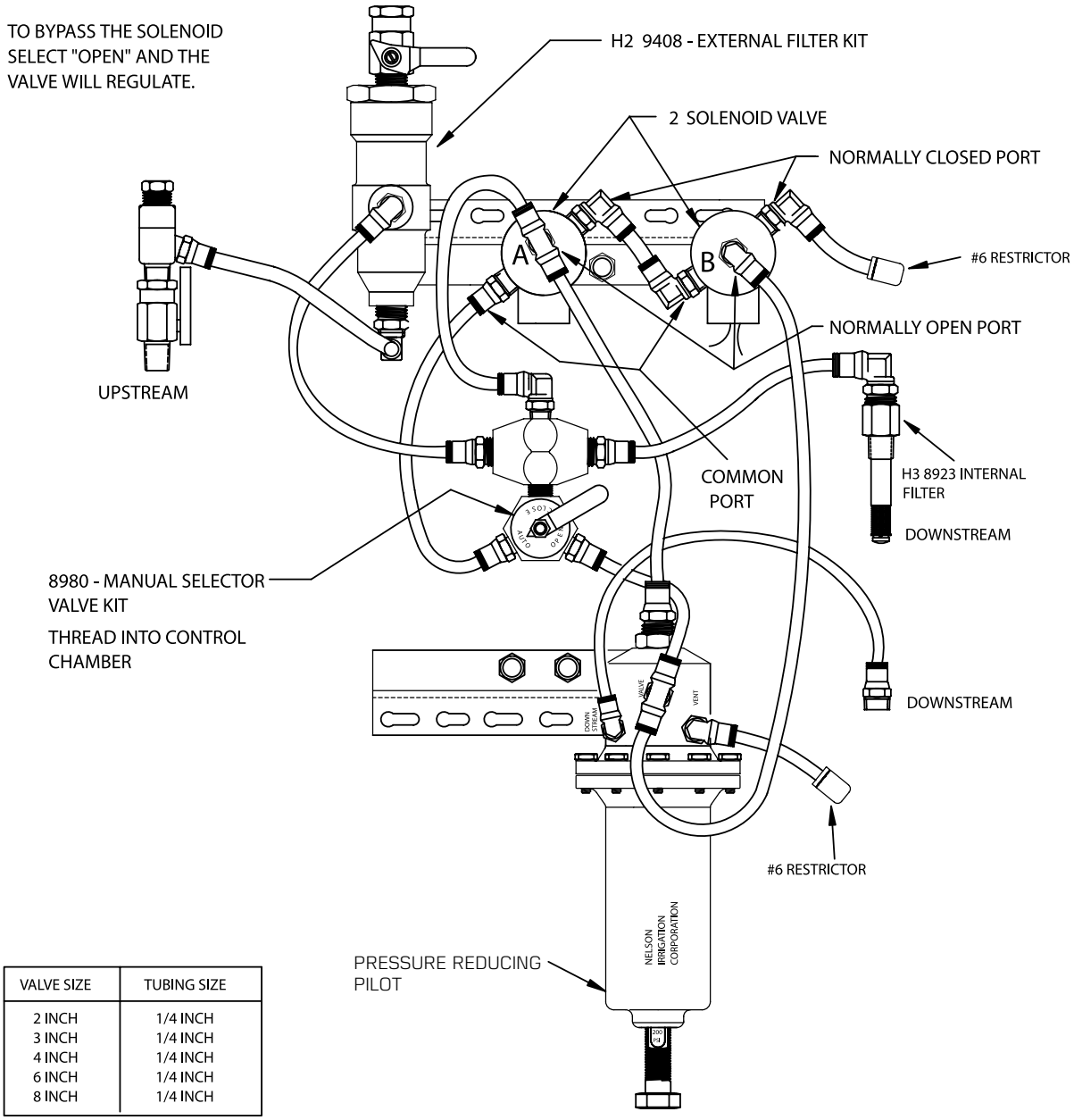
S54 - TWO SOLENOID PRESSURE REDUCING WITH EXTERNAL FILTER

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	VALVE WILL OPEN WIDE
ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL WILL REGULATE

CHECK FEATURE:
WITH SOLENOID DE-ENERGIZED AND DOWNSTREAM PRESSURE EXCEEDS THE UPSTREAM PRESSURE THE MAIN VALVE WILL CLOSE.

FLOW DIRECTION

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L02

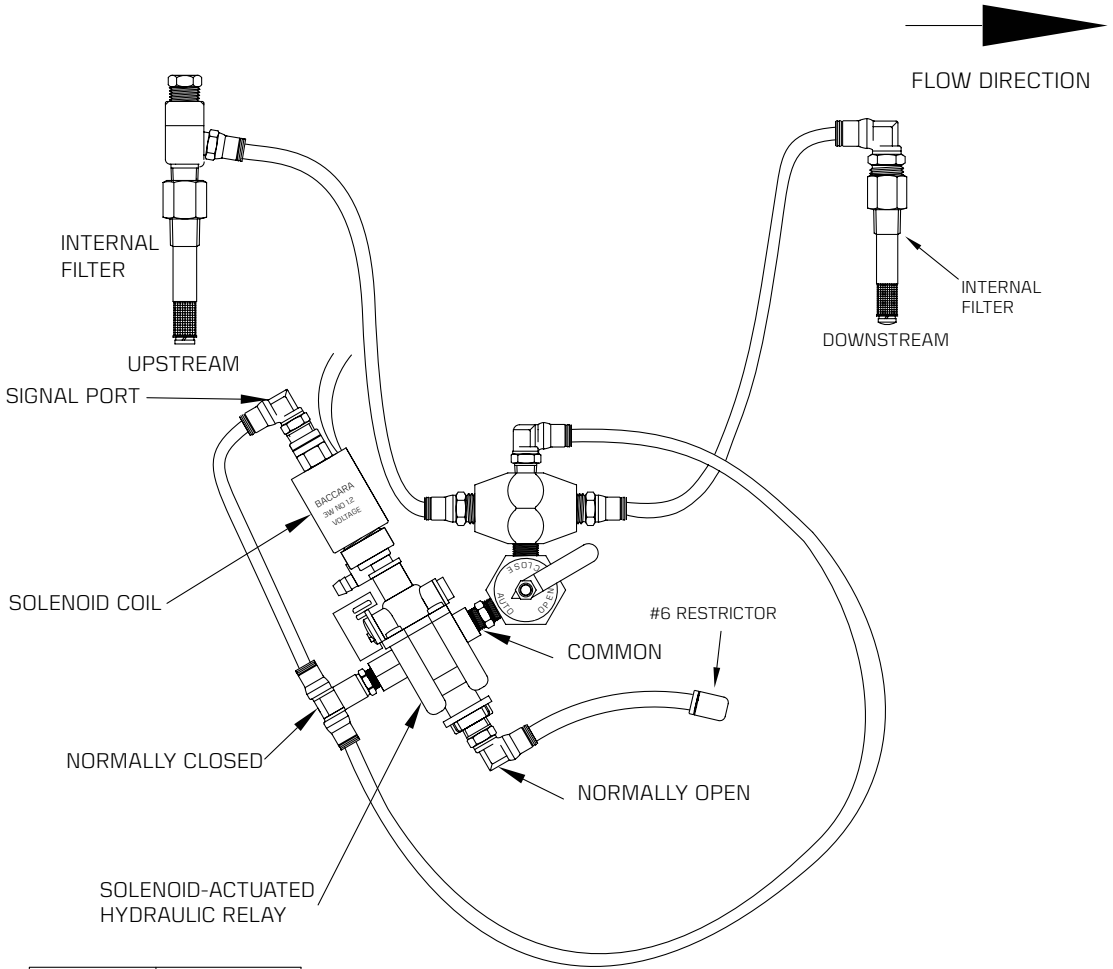
S55 - NORMALLY OPEN, SOLENOID-ACTUATED HYDRAULIC RELAY, WITH CHECK

THE VALVE WILL REMAIN OPEN AS LONG AS THE SOLENOID ATTACHED TO THE HYDRAULIC RELAY IS DE-ENERGIZED. ONCE THE SOLENOID IS ENERGIZED THE VALVE BEGINS TO CLOSE.

SOLENOID DE-ENERGIZED: VALVE WILL OPEN BY VENTING CONTROL CHAMBER TO ATMOSPHERE.

SOLENOID ENERGIZED: VALVE WILL CLOSE BY APPLYING UPSTREAM PRESSURE TO CONTROL CHAMBER.

CHECK FEATURE: WITH SOLENOID ENERGIZED (VALVE CLOSED), IF THE DOWNSTREAM PRESSURE EXCEEDS THE UPSTREAM PRESSURE THE MAIN VALVE WILL REMAIN CLOSED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

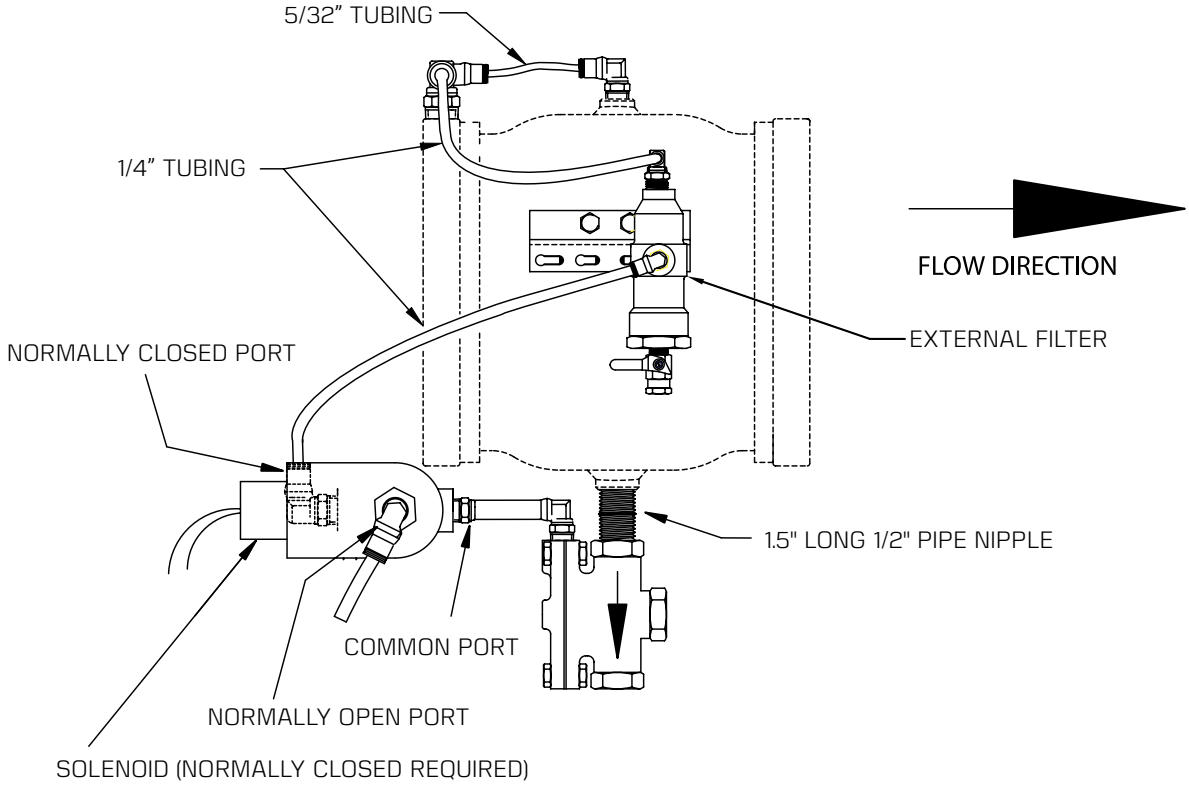
CONTACT FACTORY FOR AVAILABILITY.

S57 - RAPID RELIEF VALVE WITH SOLENOID CONTROL

WHEN WATER FIRST HITS THIS VALVE, THE SLEEVE EXHAUST IS OPEN SO THE MAIN VALVE FULLY OPENS, LETTING ALL THE WATER PASS THROUGH. ONCE THE UPSTREAM PRESSURE EXCEEDS THE RATING OF THE SLEEVE EXHAUST (10 OR 30 PSI DEPENDING ON THE MODEL), THE VALVE WILL RESPOND TO THE SOLENOID CONTROL AS FOLLOWS:

SOLENOID DE-ENERGIZED:
VALVE WILL OPEN RAPIDLY BY VENTING THE SLEEVE EXHAUST

SOLENOID ENERGIZED:
VALVE WILL CLOSE SLOWLY BY APPLYING PRESSURE TO THE SLEEVE EXHASUT



THE SLEEVE EXHAUST NEEDS TO BE ORIENTED NOT ONLY WITH THE FLOW ARROW POINTED OUT OF THE 800 SERIES VALVE, BUT ALSO WITH THE TOP COVER POINTED TOWARDS THE UPSTREAM END OF THE 800 SERIES VALVE. (IF IT IS ORIENTED 90 DEG. TO THIS, THEN IT WILL NOT FIT BETWEEN THE BOLTS IN THE MATING FLANGES DURING FIELD ASSEMBLY.)

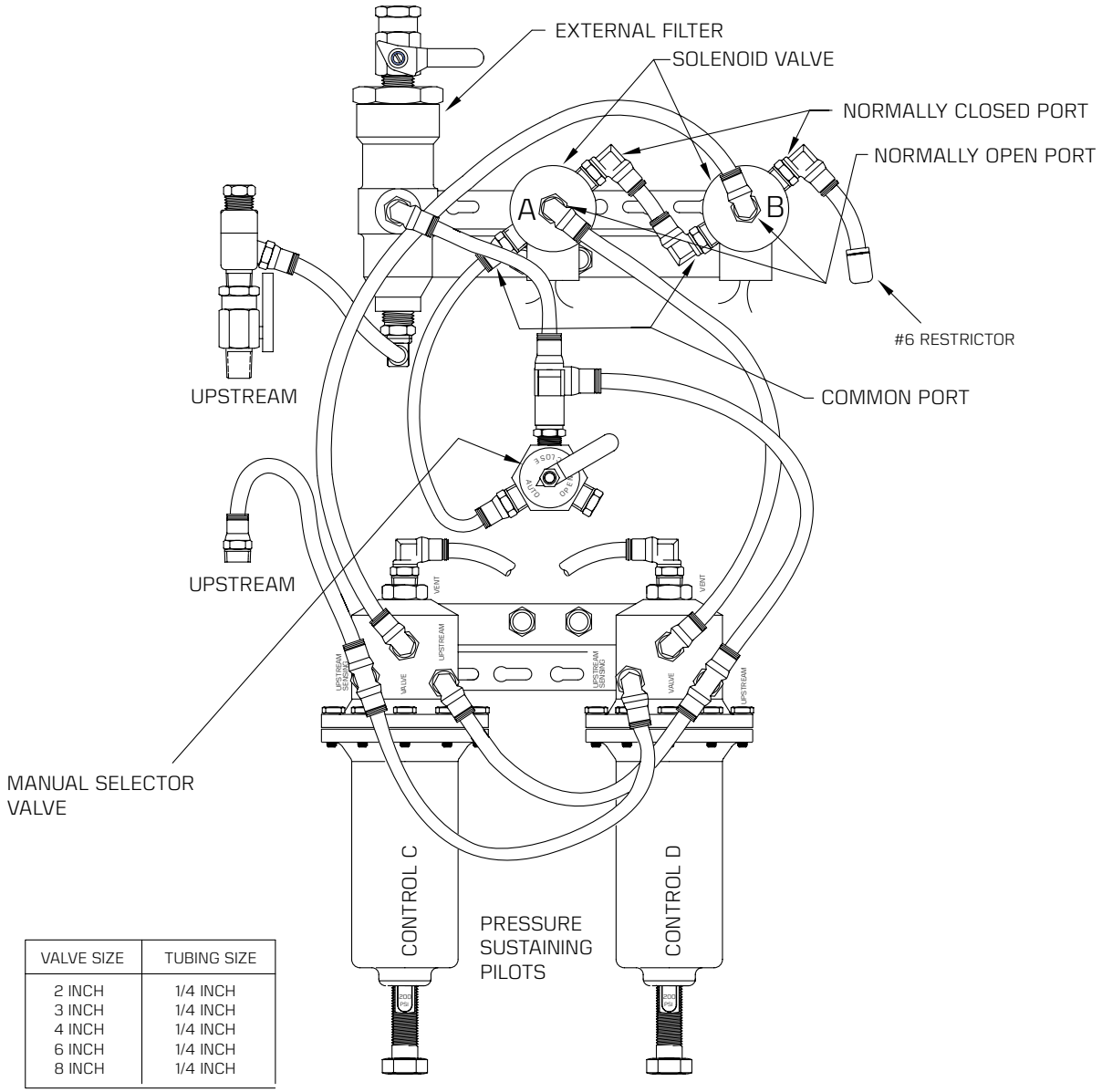
CONTACT FACTORY FOR AVAILABILITY.

S59 – TWO LEVEL PRESSURE SUSTAINING WITH EXTERNAL FILTER

SOLENOID A	SOLENOID B	VALVE STATUS
ENERGIZED	ENERGIZED	OPEN
DE-ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL D WILL SUSTAIN
ENERGIZED	DE-ENERGIZED	PRESSURE CONTROL C WILL SUSTAIN

FLOW DIRECTION

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

DISCONTINUED
SEE L02

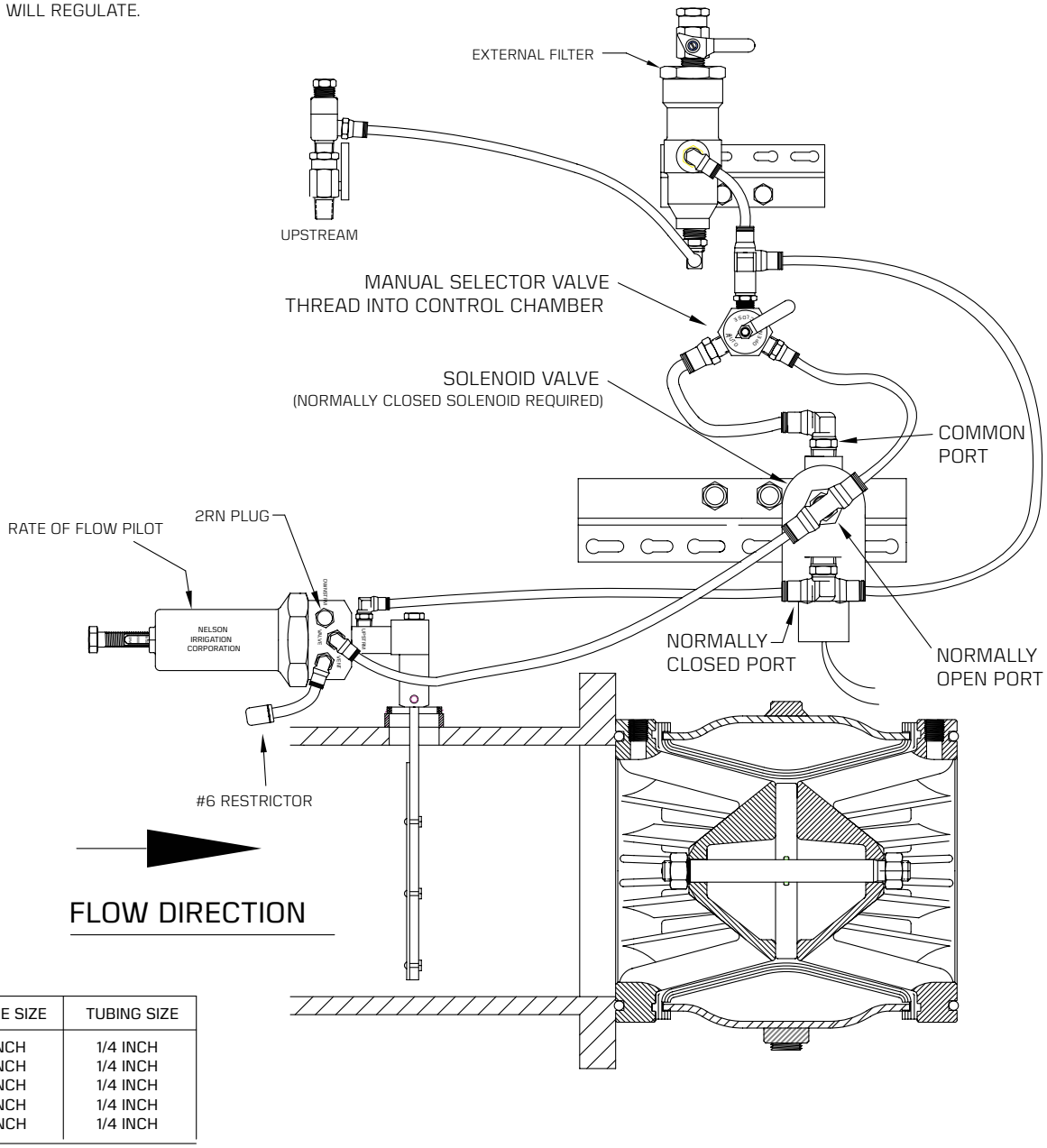
S60 - NORMALLY OPEN, RATE OF FLOW WITH SOLENOID & EXTERNAL FILTER

SOLENOID DE-ENERGIZED:
RATE-OF-FLOW CONTROL LIMITS THE FLOW RATE PASSING THROUGH THE VALVE.

RATE-OF-FLOW CONTROL IS SET TO 110-120% OF SYSTEM FLOW RATE USAGE. DURING SYSTEM FILLING, RATE OF FLOW WILL RESTRICT FLOWRATE TO DESIRED SETPOINT. AFTER SYSTEM FILLS, THE FLOWRATE DROPS BELOW DESIRED FILL FLOWRATE AND VALVE GOES FULL OPEN.

SOLENOID ENERGIZED: THE VALVE WILL CLOSE.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

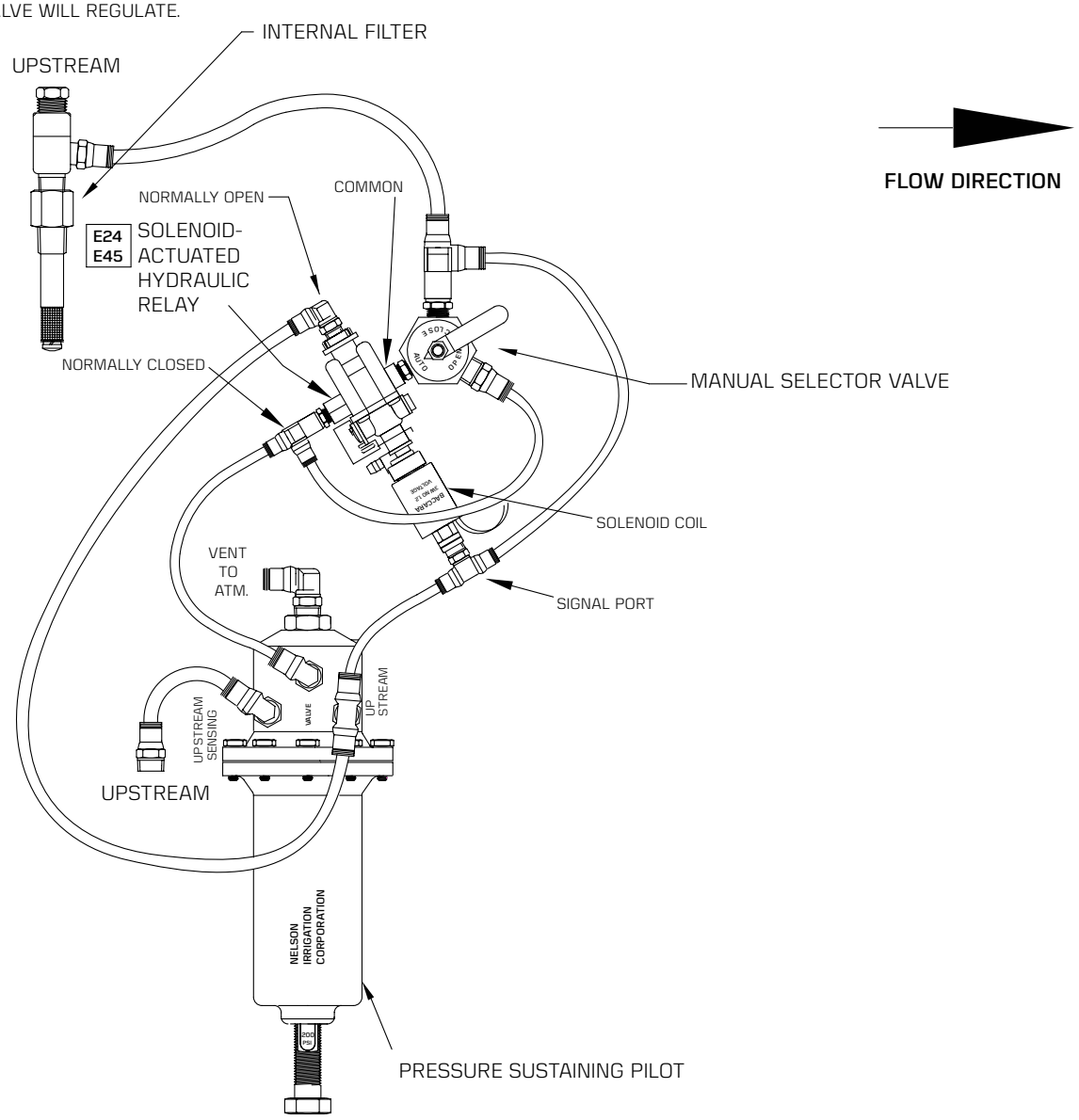
DISCONTINUED
SEE L03

S61 - PRESSURE SUSTAINING, SOLENOID-ACTUATED HYDRAULIC RELAY & INTERNAL FILTER

SOLENOID DE-ENERGIZED: VALVE WILL CLOSE.

SOLENOID ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.

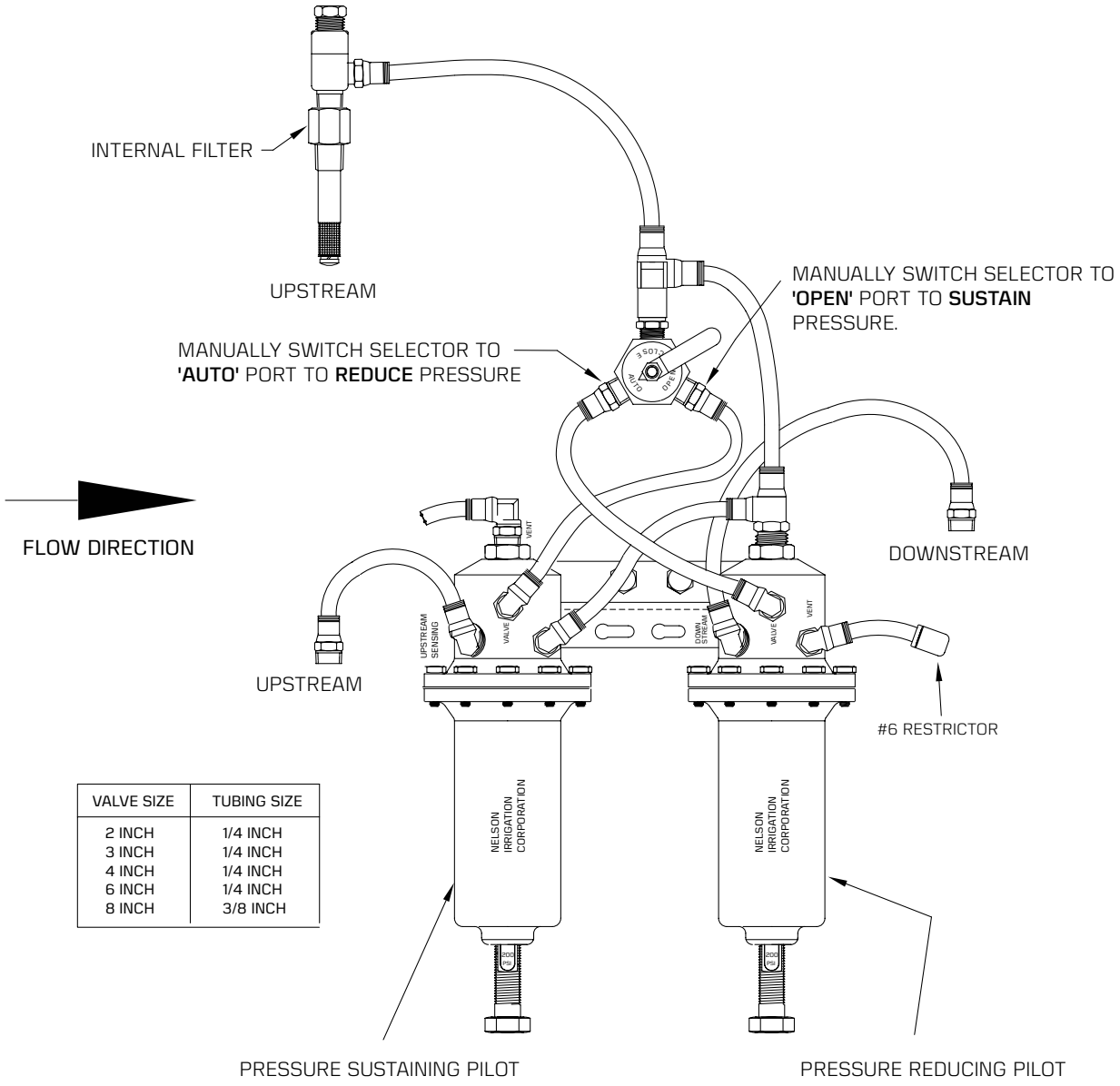


VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S62 - MANUAL SWITCH PRESSURE SUSTAINING/ REDUCING & INT. FILTER

USE THE MANUAL SELECTOR TO CHOOSE BETWEEN PRESSURE REDUCING AND PRESSURE SUSTAINING.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	3/8 INCH

CONTACT FACTORY FOR AVAILABILITY.

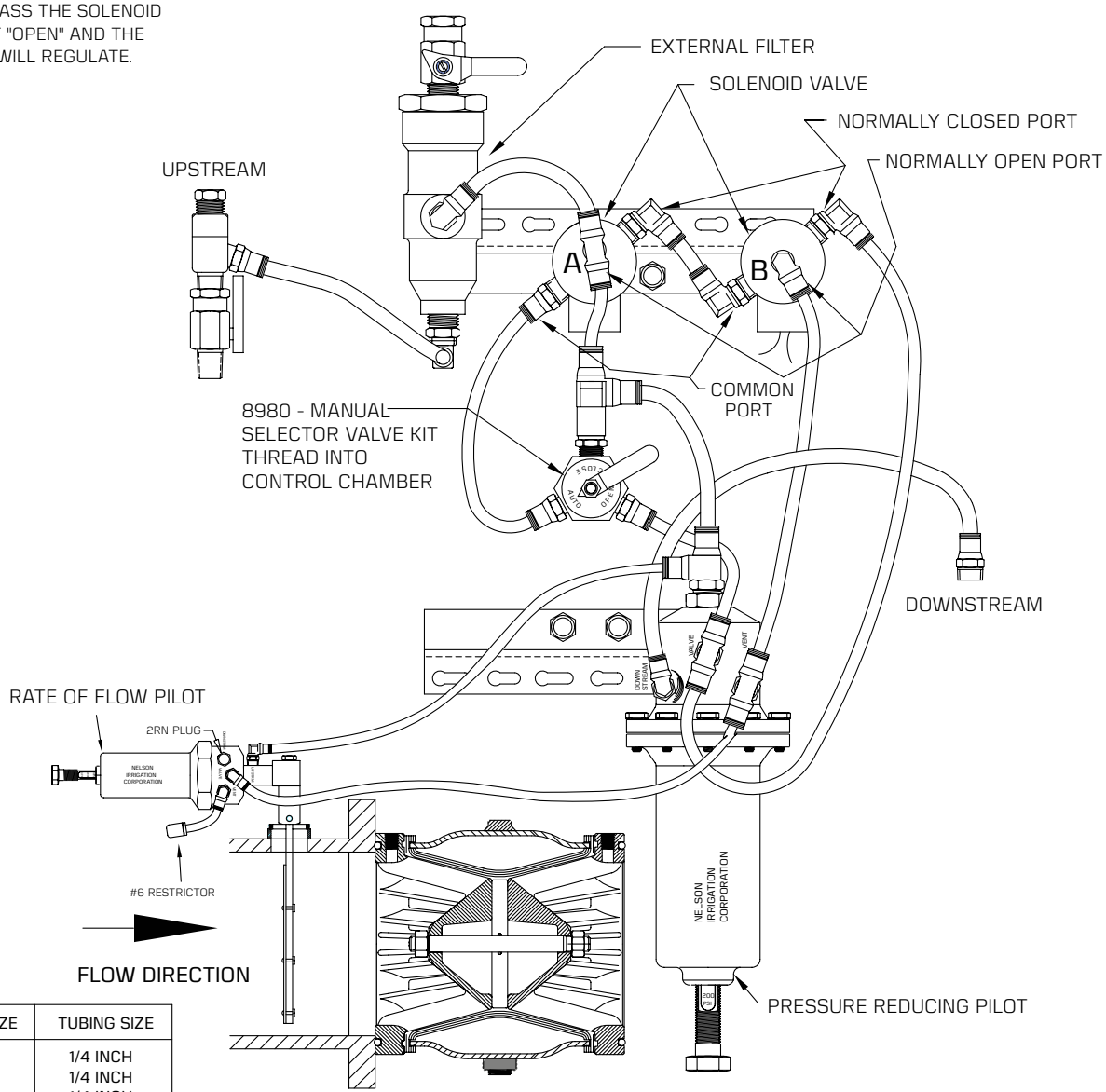
S63 – TWO SOLENOID PRESSURE REDUCING AND RATE-OF-FLOW WITH EXTERNAL FILTER

SOLENOID A	SOLENOID B	VALVE STATUS
DE-ENERGIZED	DE-ENERGIZED	CLOSED
ENERGIZED	ENERGIZED	PRESSURE CONTROL & RATE-OF-FLOW WILL REGULATE
ENERGIZED	DE-ENERGIZED	VALVE WILL OPEN TO RATE-OF-FLOW

FLOW DIRECTION

DESCRIPTION: SOLENOIDS ARE THREE-WAY NORMALLY OPEN.
WHEN ENERGIZED, PORTS "COMMON" & "NORMALLY CLOSED" ARE CONNECTED.
WHEN DE-ENERGIZED, PORTS "COMMON" & "NORMALLY OPEN" ARE CONNECTED.

TO BYPASS THE SOLENOID SELECT "OPEN" AND THE VALVE WILL REGULATE.



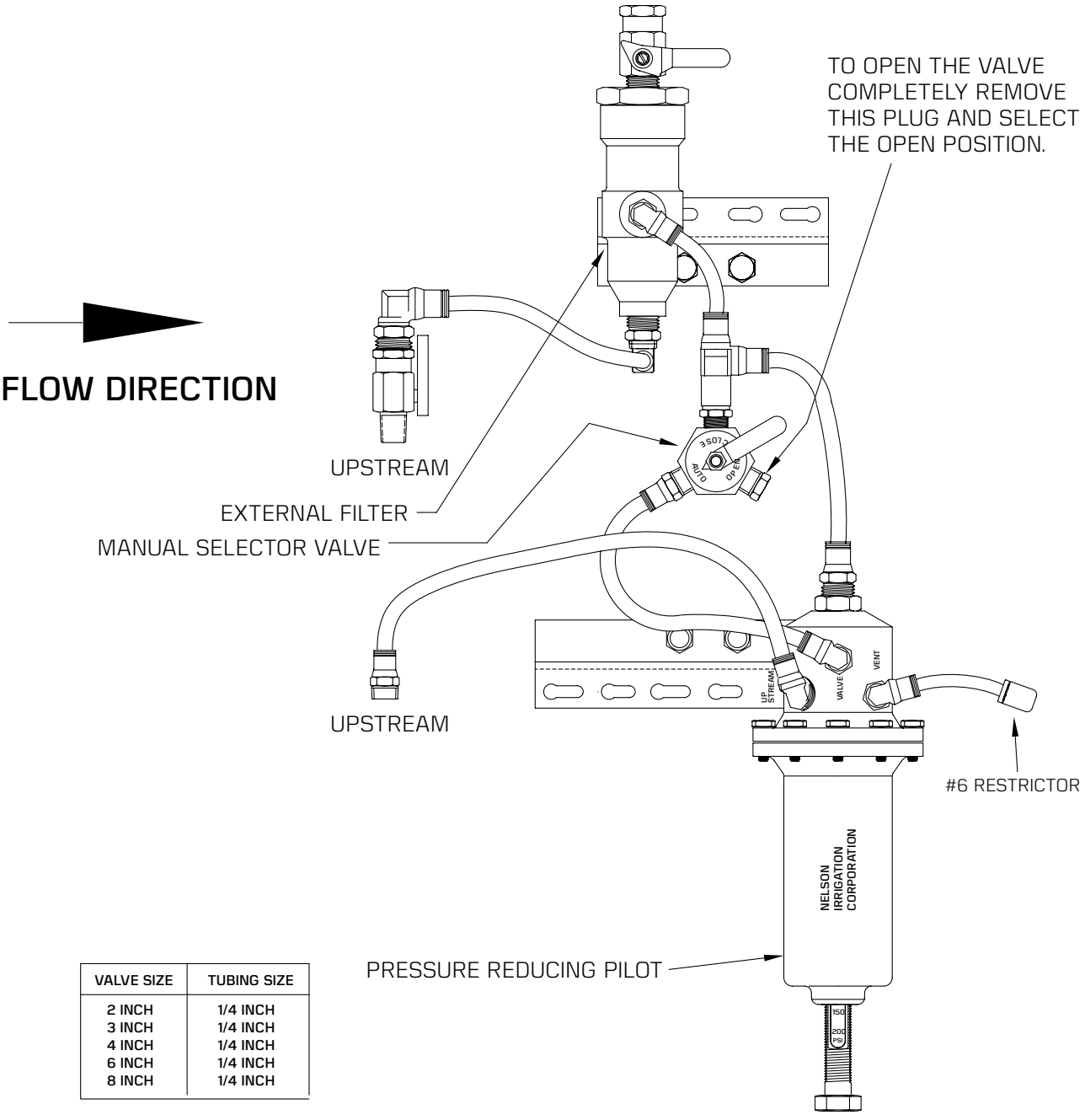
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S64 - LOW PRESSURE RELIEF VALVE W/ EXT. FILTER

Normally open, low pressure relief valve with external filter. Purpose is for the control valve to divert water when pressure falls below a set point. This valve functions just like a valve with the D06 Sleeve Exhaust feature; the difference is this valve has an adjustable pilot, and the opening speed is slower. When pressure is below the pilot control set point the valve is open.

- In order for the valve to open satisfactorily the inlet pressure must be above the minimum pressure rating of the valve sleeve.
- Pressure control must be set to point at which shutoff is desired. Valve will remain open until system pressure reaches setpoint on pressure control and then valve will automatically close.



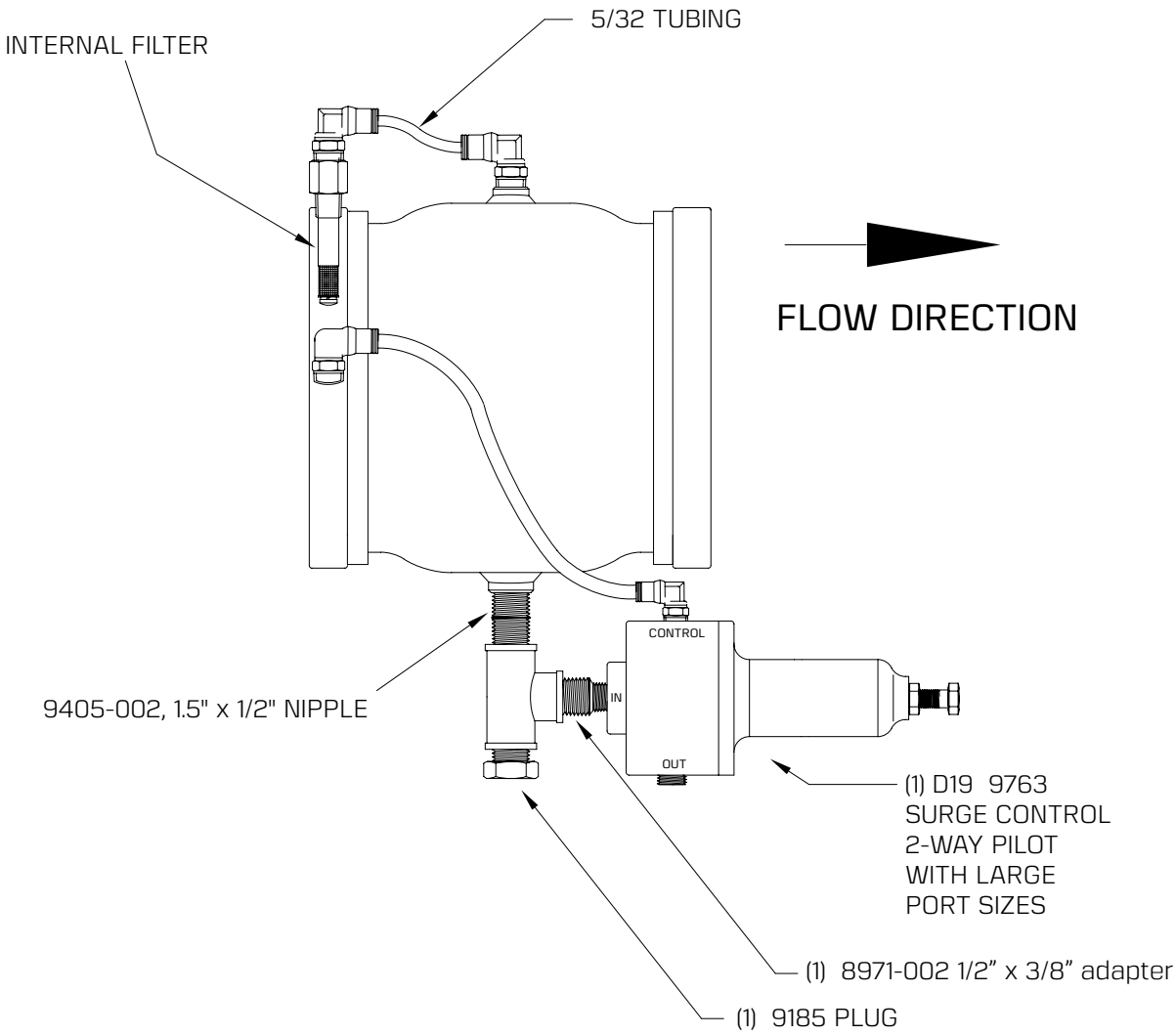
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S65 - HIGH PRESSURE RAPID RELIEF VALVE

THE SURGE CONTROL 2-WAY PILOT QUICKLY EXHAUSTS WATER IF UPSTREAM PRESSURE EXCEEDS THE SETPOINT ON THE PILOT TO FULLY OPEN VALVE.

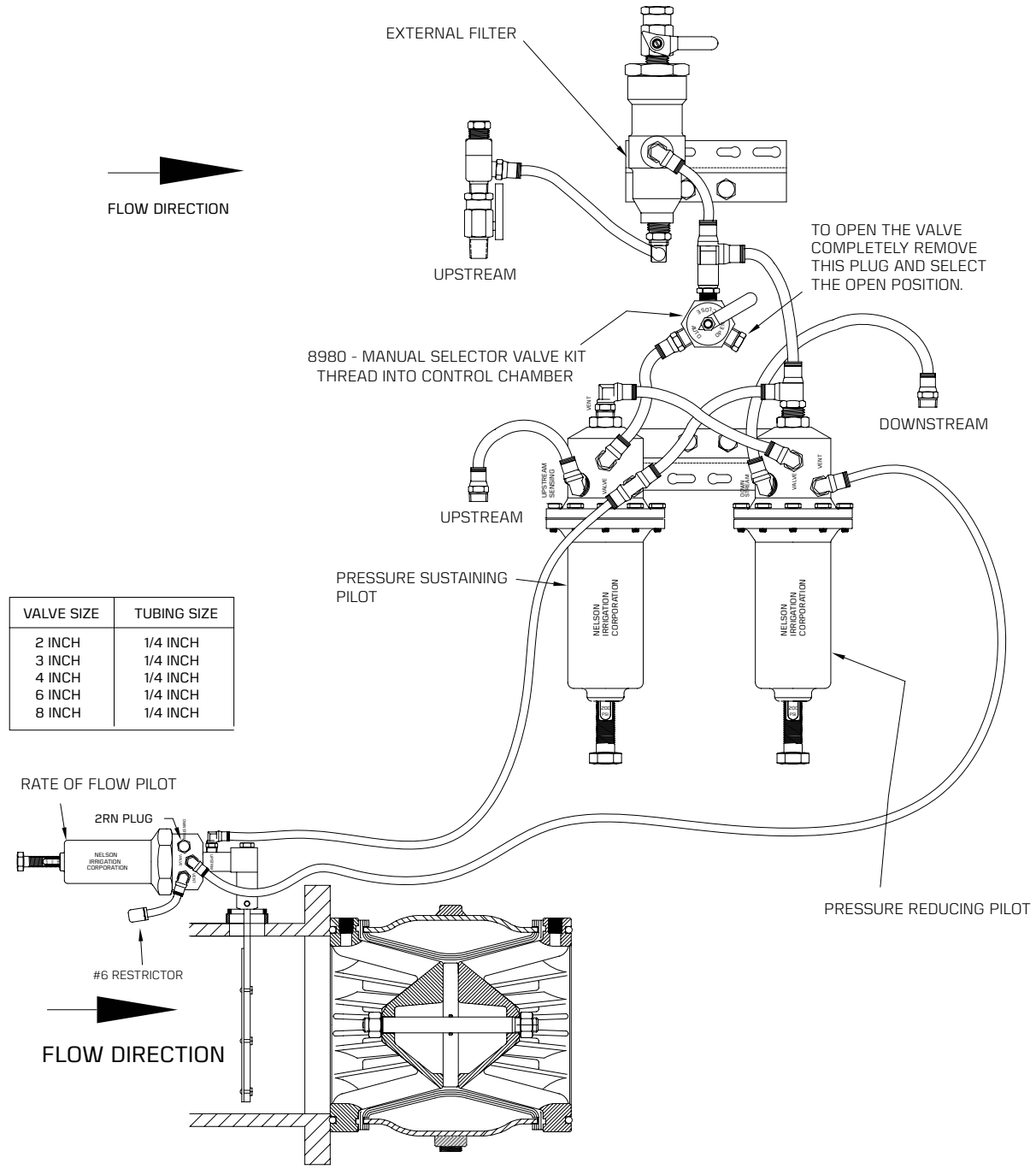
THE VALVE WILL SLOWLY CLOSE WHEN PRESSURE DROPS BELOW THE PILOT SETPOINT.



CONTACT FACTORY FOR AVAILABILITY.

S66 – PRESSURE SUSTAINING & REDUCING AND RATE-OF-FLOW WITH EXTERNAL FILTER

This valve functions just like a regular combination sustaining-reducing valve, but adds the rate-of-flow function. The valve will open (up to the limit of the rate-of-flow pilot setting) when upstream pressure exceeds the sustaining pilot setting, thereafter it will reduce downstream pressure to the setting on the reducing pilot. The rate-of-flow pilot will throttle the valve any time the flow exceeds the setting on the pilot. If upstream pressure drops below the sustaining pilot setting at any time, the valve will close.



VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

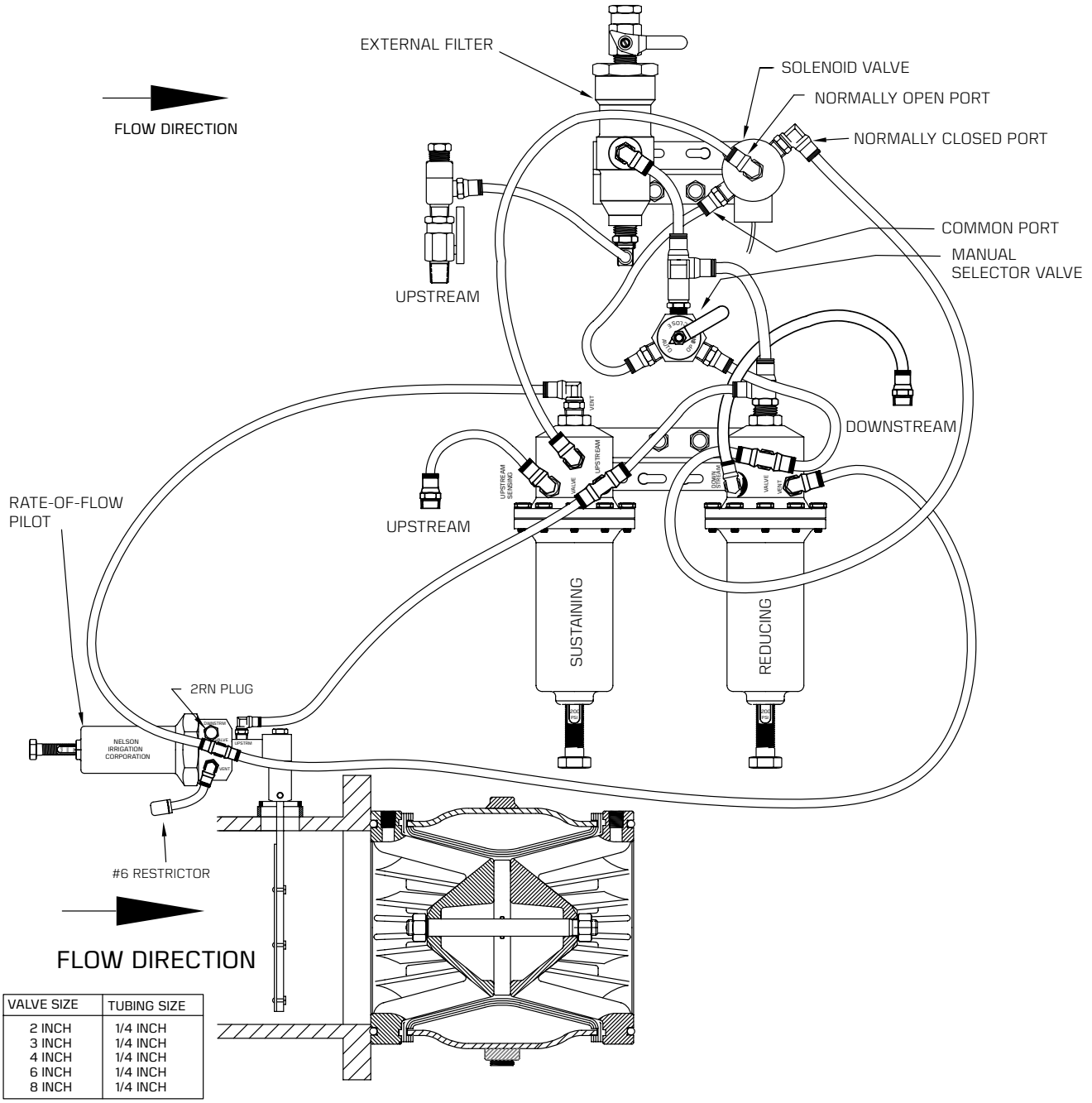
S68 – PRESSURE SUSTAINING OR REDUCING, WITH RATE-OF-FLOW, SOLENOID & EXT. FILTER

SOLENOID DE-ENERGIZED: THE VALVE MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED, UP TO RATE-OF-FLOW SETTING.

SOLENOID ENERGIZED: THE VALVE REDUCES A HIGHER INLET PRESSURE TO A STEADY DOWNSTREAM PRESSURE REGARDLESS OF CHANGING FLOW RATE AND/OR VARYING INLET PRESSURE, UP TO RATE-OF-FLOW SETTING.

APPLICATIONS: CONNECT THE SOLENOID TO A TIME DELAY RELAY SO THE VALVE FILLS THE SYSTEM IN A SUSTAINING MODE AND THEN IS SHIFTED TO PRESSURE-REGULATING MODE.

NOTE: RATE-OF-FLOW CONTROL IS SET TO 110-120% OF SYSTEM FLOW RATE USAGE.



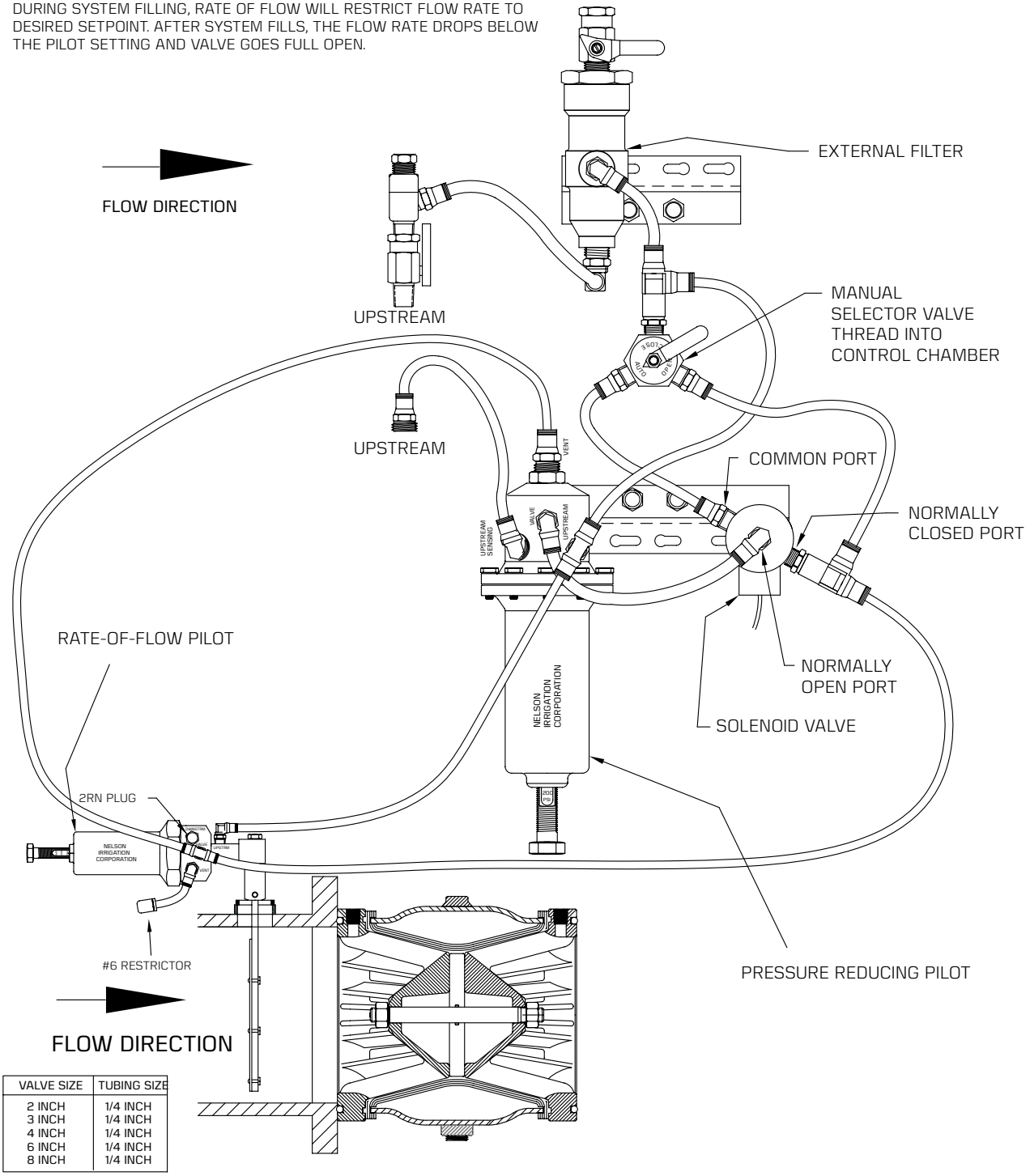
VALVE SIZE	TUBING SIZE
2 INCH	1/4 INCH
3 INCH	1/4 INCH
4 INCH	1/4 INCH
6 INCH	1/4 INCH
8 INCH	1/4 INCH

CONTACT FACTORY FOR AVAILABILITY.

S69 - PRESSURE SUSTAINING, RATE-OF-FLOW, & SOL. W/ EXT. FILTER

SOLENOID DE-ENERGIZED: ACCURATELY MAINTAINS A CONSTANT, PRESET UPSTREAM PRESSURE BY DISCHARGING WATER AS REQUIRED, UP TO RATE-OF-FLOW SETTING.

SOLENOID ENERGIZED: VALVE WILL FULLY OPEN, UP TO SETTING ON THE RATE-OF-FLOW PILOT. RATE-OF-FLOW CONTROL IS SET TO 110-120% OF SYSTEM FLOW RATE. DURING SYSTEM FILLING, RATE OF FLOW WILL RESTRICT FLOW RATE TO DESIRED SETPOINT. AFTER SYSTEM FILLS, THE FLOW RATE DROPS BELOW THE PILOT SETTING AND VALVE GOES FULL OPEN.



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