Electric Valve Information and Installation

General Information

THE DV SERIES OF VALVES OFFERS AN ARRAY OF PRODUCTS in both sizes and features to meet the standard installation needs for residential and light commercial irrigation requirements.

♦ The valves offered are a 3/4" (20/27) non-flow control valve and a series of 1" (26/34) valves with or without flow control and threaded or slip x slip configurations on the inlet and outlet ports. The combination of forms available offers maximum versatility to the installing contractor.

♦ The 3/4" valve should be used on laterals with flow rates of 3 to 22 GPM (0,75 to 5,0 m^3/h or 11,4 to 83,4 L/m) or may be used on a drip master valve set-up with an RBY-075-200MX filter at flow rates as low as .2 GPM (0,05 m^3/h or 0,8 L/m.)

♦ The 1" valve series may be used on laterals with flows of 3 to 40 GPM (0.75 to 10 m^3/h or 11.4 to 151,6 L/m).

♦ In either 3/4" or 1" size, it is recommended that velocities be kept below 5 1/2 ft./sec. (1,68 m/sec.) DV valves will perform in an operating range of 15 to 150 psi (1 to 10 bars or 100 to 1,000 kPa.).

Tips on Installation

♦ **Adequately flush the main water source prior to plumbing in the valves** ♦

VALVES ARE NOT BACK FLOW PREVENTION DEVICES. You will need to install the appropriate device as mandated by local ordinance prior to the installation of the irrigation valve. Ensure that the selected device offers adequate flow and pressure to the downstream portion of the system to operate the sprinklers.

♦ Local practice may also dictate the installation of a master valve or isolation shut off valve prior to installation of the DV valve. This will be very useful in shutting down a portion of the irrigation system without affecting the entire system.

♦ Check the electrical specifications of the controller being installed on the job to ensure that you have adequate inrush and holding current to electrically activate the valves. This is particularly important if you intend to wire more than one valve to a controller station. The DV solenoid is rated at .30 A, 24 VAC (7,2 VA) inrush and .19 A, 24 VAC (4,6 VA) holding current to maintain activation of the solenoid for the scheduled run time. Except for the EZ-1, all Rain Bird controllers will allow you to run two valves plus a master valve at one time. The EZ-1 allows one valve plus a master or two valves without a master valve.

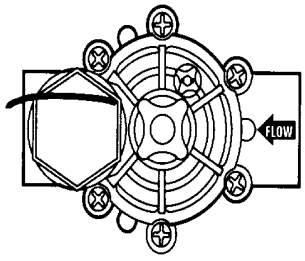
♦ Local practice will dictate standard installation procedures. However, it is always recommended that valves be installed in a valve box to allow access if servicing is required. This process will also allow easier identification of where the valves are actually installed on the job site.

Installation Steps

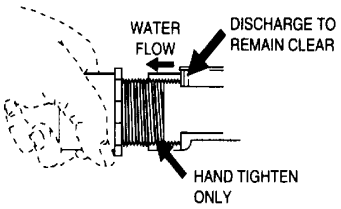
♦ **Adequately flush the main water source prior to plumbing in the valves** ♦

TAKE ALL NECESSARY STEPS TO CONNECT TO YOUR PRIMARY water source, install master valves, isolation valves and install back flow prevention devices prior to the installation of the irrigation valves.

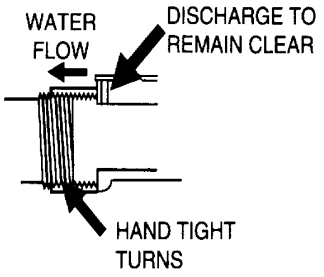
♦ Notice the directional arrows on the inlet and outlet ports which indicate the flow path of the water. Valves cannot be reversed. Ensure that you are installing the valve correctly. As a hint, you will find that the solenoid is always positioned on the downstream side of the valve where the water will be exiting to service the sprinklers.



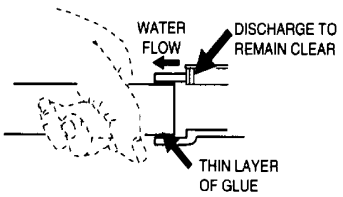
♦ The standard 3/4" and 1" DV comes with female threads. Use a 3/4" or 1" male by slip adapter to connect the valve to the water source. Use two wraps of teflon tape on the male threads of the adapters and screw them into the two water ports of the valve. Finger tighten the adapters into position and then turn one to two additional turns using a wrench to ensure water tight connections.



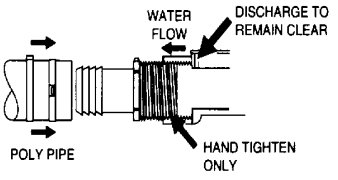
♦ Do not over tighten the adapter, or you could force the adapter to extrude over the solenoid exit port. The valve will not activate in this condition. Once properly attached, glue the slip portion of the adapter into the supply side pipe. Complete this step for all valves on a given master or isolation valve.



♦ The DV SxS eliminates the need for the adapter. In this case, simply glue the pipe directly into the supply side pipe. Use only minimal primer and glue to eliminate possible contamination of the valve ports from glue residue.



♦ In cold weather climates, it is more common to use poly pipe. Use appropriate installation techniques as specified by the manufacturer to properly attach and secure the poly adapter to the valve. Local practice will dictate the number of clamps used to secure the adapter.



♦ Slowly charge the water supply system to the installed valves. When water first enters the system, the valves will open until the upper diaphragm chamber charges and shuts down the valve.

Manually Activating the System

THE DV VALVE SERIES OFFERS TWO WAYS OF MANUALLY activating the system.

♦ The solenoid allows manual activation of the system with internal downstream bleed. Utilizing this method will eliminate water in the valve box. On the side of the solenoid arrows indicate the on and off position. You need turn only 1/4 turn CCW to manually activate the valve using the solenoid. Since the solenoid seat is subject to system pressure, it may be difficult to turn in high pressure situations. Turn 1/4 turn CW to close the valve after flushing.

♦ The external bleed screw offers an alternative manual option. Because it is assisted by the pressure of the system, it may is easier to engage than the solenoid under high pressures. It is located on top of the bonnet assembly and may be turned to activate the valve. You will only need to turn it one turn before water starts to exit the valve directly below the bleed screw. Do not turn any further as the screw is not captive and could come out.

♦ Use the external bleed screw to flush the valve prior to electrically activating it. Continue piping the system until completion of the valve installation. Activate the valves electrically from the controller to ensure proper functioning.

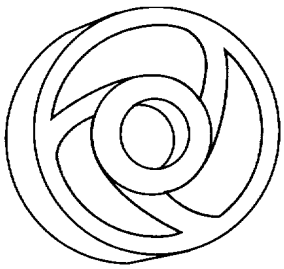
Flow Control Stem

THE FLOW CONTROL STEM ALLOWS YOU TO REDUCE valve output pressure by turning down the stem until the desired effect is seen in the sprinkler operation. You may turn the handle with your fingers or use a slotted screwdriver.

Filters

THE DV SERIES HAS TWO FILTERS IN THE WATER flow path to reduce plugging of the valve ports.

♦ One filter is on the diaphragm to filter the upper chamber supply water. Do not remove the diaphragm filter because the valve will not operate. The other filter is in the solenoid to prevent plugging of the solenoid ports and to keep debris off the plunger if the solenoid is removed. Both filters are sized to allow the proper flow of water to achieve the desired hydraulic effects.

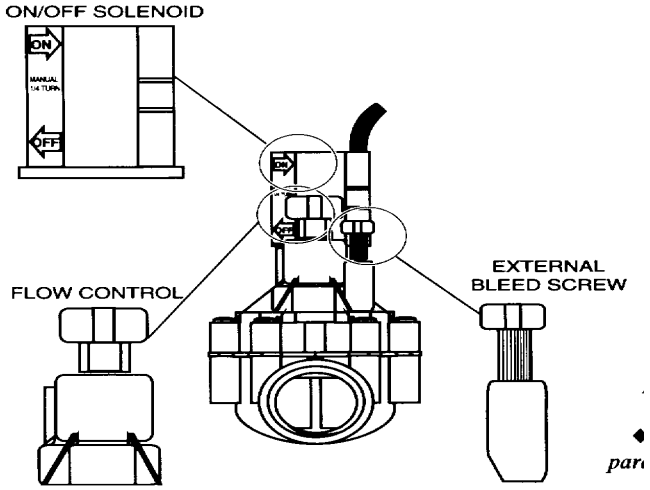


Winterization

AS WITH ALL IRRIGATION COMPONENTS, it is important to properly winterize the valves prior to the first hard freeze. Local practices will dictate how this is done, but blowing the system generally provides the best protection. Failure to properly winterize may result in damage to the valves as water captured in the valves freezes.

♦ Compressed air source should not exceed 60 psi.

♦ Upon completion of the winterization process, move the controller to the stand-by mode.



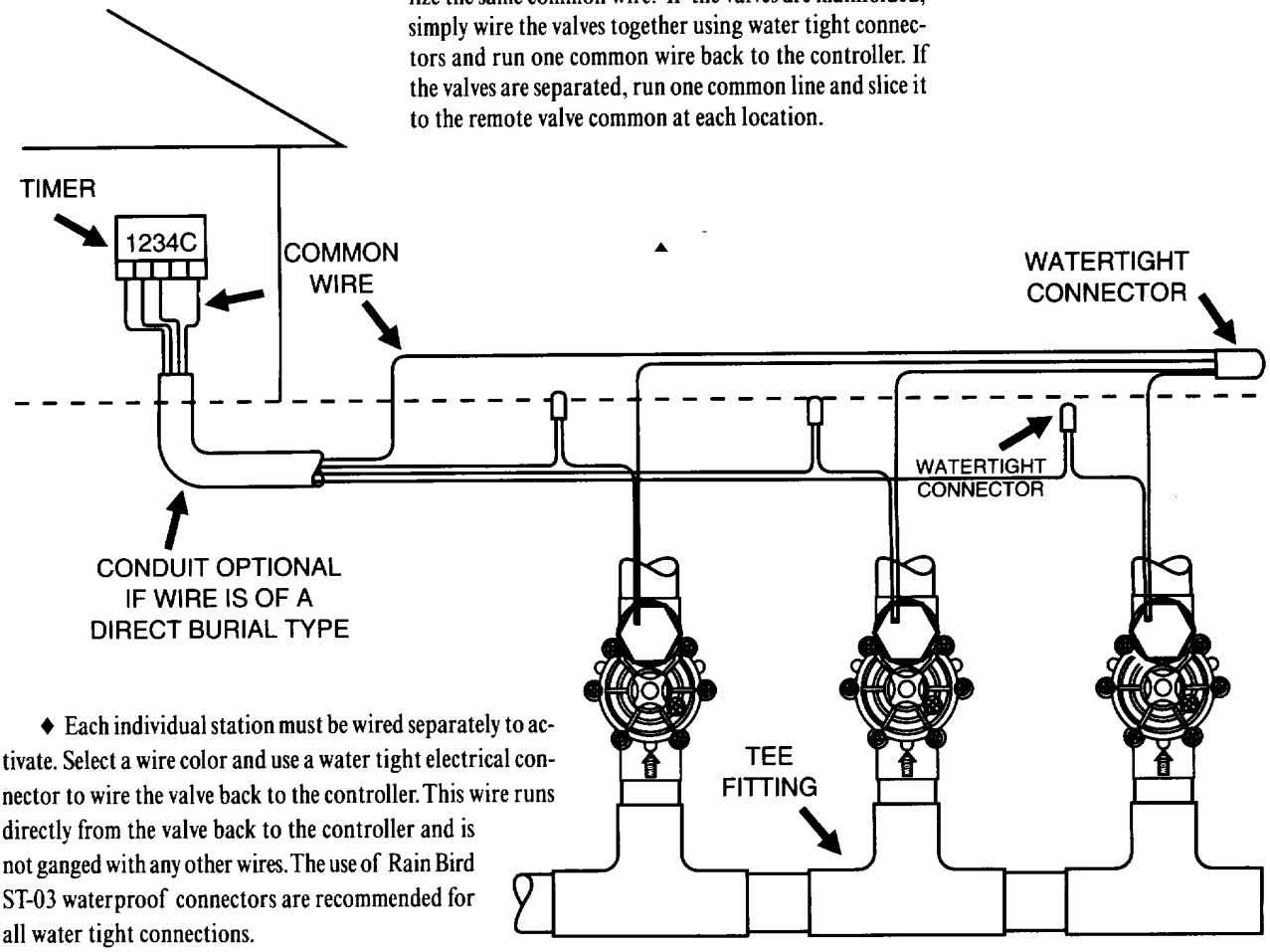
Wiring the Valve

THE DV SOLENOID COMES WITH TWO LEAD WIRES, BOTH BLACK. Either one may be used as the common or as the hot wire back to the controller.

♦ Select a wire gauge which will allow you to run back to the controller with minimal loss (see table on the next page). Most often, multi-strand, direct burial wire will be preferable.

♦

All valves going back to the same controller can utilize the same common wire. If the valves are mainfolded, simply wire the valves together using water tight connectors and run one common wire back to the controller. If the valves are separated, run one common line and slice it to the remote valve common at each location.



♦ Each individual station must be wired separately to activate. Select a wire color and use a water tight electrical connector to wire the valve back to the controller. This wire runs directly from the valve back to the controller and is not ganged with any other wires. The use of Rain Bird ST-03 waterproof connectors are recommended for all water tight connections.

♦ Hook up all wires back into the controller by positioning a hot wire for each valve onto a controller terminal strip and connecting all the commons back to the correct position on the controller.

Trouble Shooting in Electric Valves

Water (valve) will not shut off.

Time setting incorrect at controller.	Turn off clock. Check and reset watering time.
Valve in manual "ON" position.	Tighten Solenoid. Tighten bleed screw.
Diaphragm filter blocked or broken diaphragm.	Turn water off. Remove bonnet screws. Clean filter or replace with a new diaphragm kit.
Dirty or damaged solenoid.	Turn off water. Clean or replace solenoid.
Too much inlet pressure.	Turn flow control stem down. Do not force the flow control stem.

Water leaks through sprinklers when "OFF".

Dirt on diaphragm.	Use bleed screw to manually flush the valve.
Valve in Manual "ON" position.	Tighten solenoid. Tighten bleed screw.
Solenoid "O-Ring" damaged or twisted.	Turn water off. Inspect "O-ring" reinstall or replace "O ring".
Diaphragm damaged.	Turn off water. Remove bonnet screw. Replace diaphragm if damaged.
Dirt in solenoid.	Turn off water. Remove solenoid, solenoid screen and plunger retainer. Clean and reinstall or Replace solenoid if damaged.
Water leaking from the bonnet.	Tighten bonnet screws.

Valve will not turn "ON" electrically.

Controller power off.	Turn controller power on.
Station not set "ON".	Set controller according to instructions.
Water supply in "OFF".	Turn on water
Clock Fuse is "BLOWN".	Check clock fuse. Check each clock terminal for 24 volts.
Damaged solenoid or wire.	Turn water off. Without disconnecting wires, swap solenoid with a good valve (one that you know is working) and re test with the water on. If the good solenoid works on the valve the original solenoid or wire is bad. Replace solenoid or wire if necessary.
Flow control stem not open.	Open flow control stem.

Inadequate water flow through valve.

Water running elsewhere, reducing pressure.	Water at a different time when supply pressure is higher.
Too many sprinkler heads on valve.	Remove excess sprinkler heads, install an additional valve if necessary.
Supply valve not completely open.	Open valves completely.
Flow control stem not completely open.	Open flow control stem.

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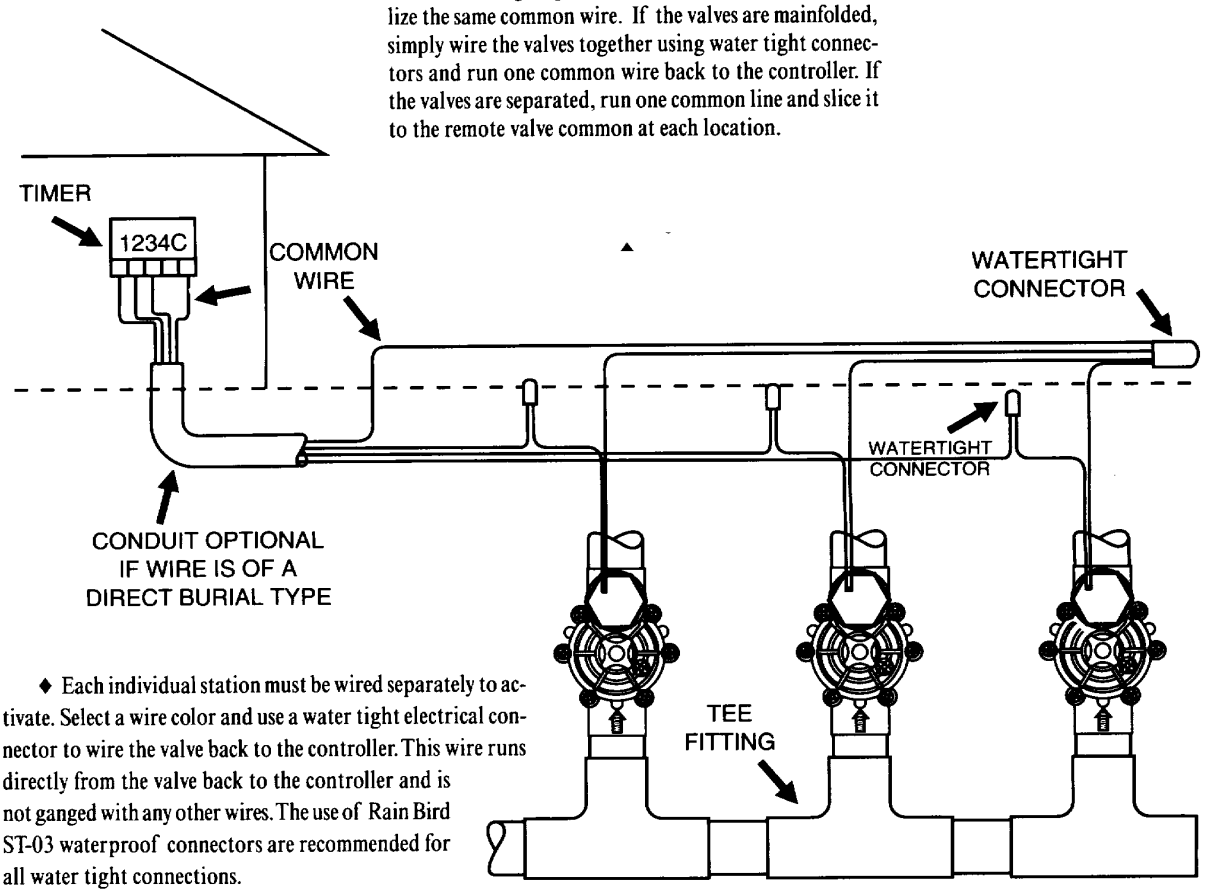

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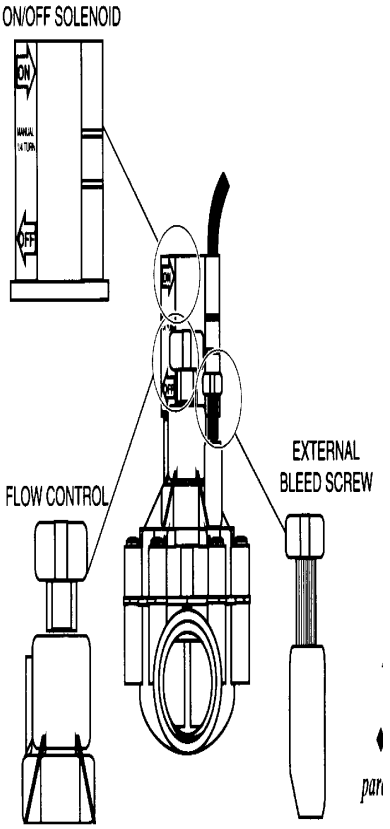

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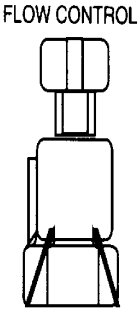

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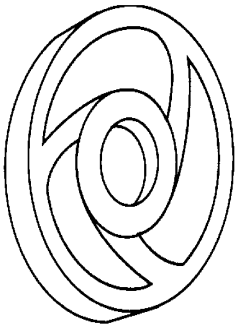

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