Wave

ECO WATER VALVE

Installation Instructions & User Guide

A&A Manufacturing

Rev. 20200429

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Plumbing the Wave Valve

IMPORTANT

All plumbing for the in-floor system must be a minimum of 2" schedule 40 PVC or equivalent, unless otherwise noted on the Certified Design Layout.

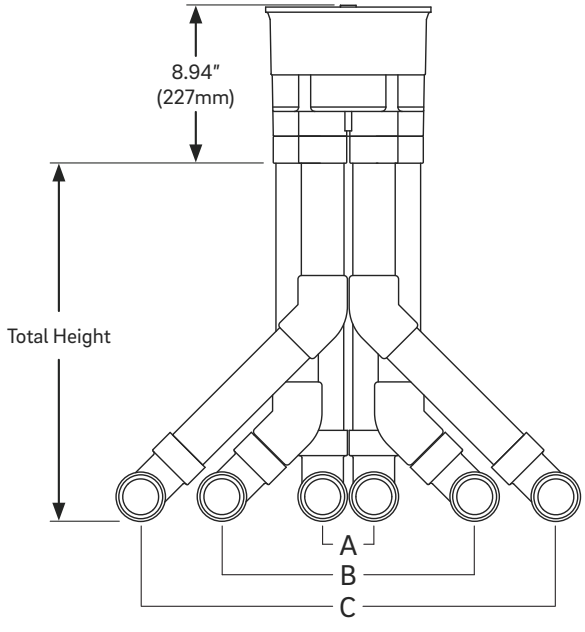
NOTE:

When gluing the 2" schedule 40 PVC to the housing of the Wave Valve, DO NOT USE PRIMER, use only a medium body PVC to PVC pipe cement.

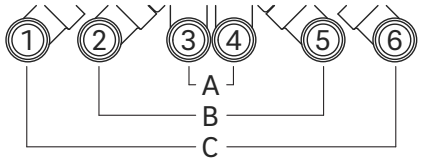
The Wave valve is shipped ready to pressurize. There is no need to open the valve to remove parts prior to pressurizing the system. A brass nut has been installed ahead of the band clamp knob. DO NOT REMOVE this nut until after the pressure test has been completed and the pressure released from the system This brass nut can discard after pressure testing is complete.

Height and Port Arrangement

The Wave valve rotates in a clockwise direction when viewed from above. When the water valve is plumbed as followed, the porting sequence should be arranged differently depending on whether the main-drains are located in the middle or in the deep end of the pool (Figure 1).



Pipes	Vertical Length
'A'	total height
'B'	subtract 2.5" from 'A'
'C'	subtract 8" from 'A'



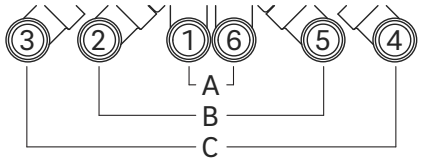


Figure 1

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Dimensions

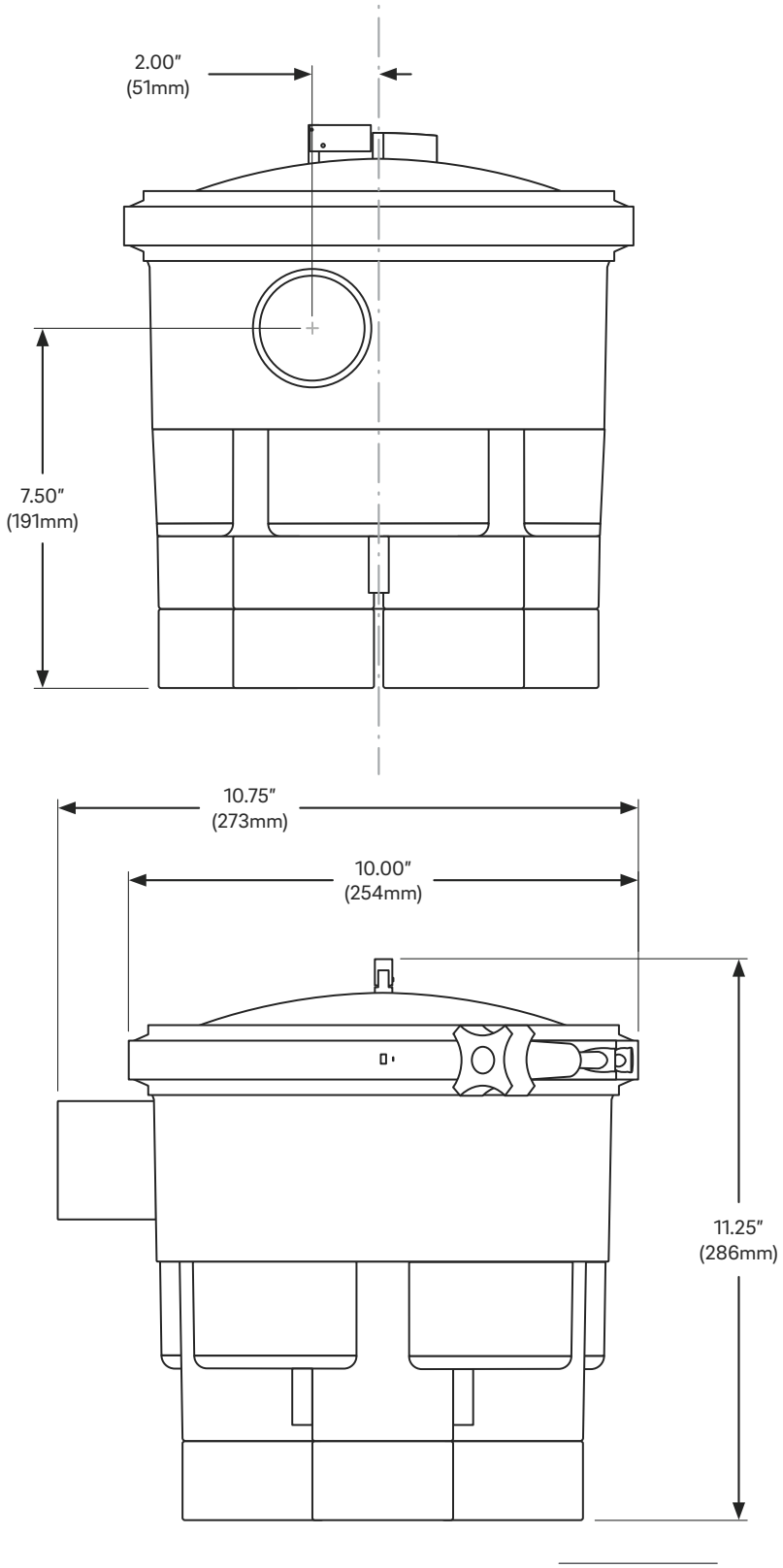

Figure 2

Locating the Wave Valve

Located in the Equipment Area

1. Determine the length of pipe that will be required to continue the feed line into the Wave valve, so that it remains at the same height as the rest of the equipment plumbing manifold and cut two pieces of 2" Schedule 40 PVC pipe to that length (Figure 10).

2. For vertical pipes 'A', the zones in the rear of the plumbing diagram, determine and set the grade height (Figure 8). ***Example: If the grade height is 16", cut two 16" lengths of pipe for vertical pipes 'A'.***

3. For vertical pipes 'B', cut two pipe lengths that are 2 ½" shorter than vertical pipes 'A'.

4. For vertical pipes 'C', cut two pipe lengths that are 8" shorter than vertical pipes 'A'.

5. Glue the feed line from the equipment plumbing manifold into the Wave valve using a level to ensure that the pipes from the valve are vertical. Now glue the 2" lines from each zone in the pool into the appropriate sweep 90° elbow at the bottom of the Wave valve.

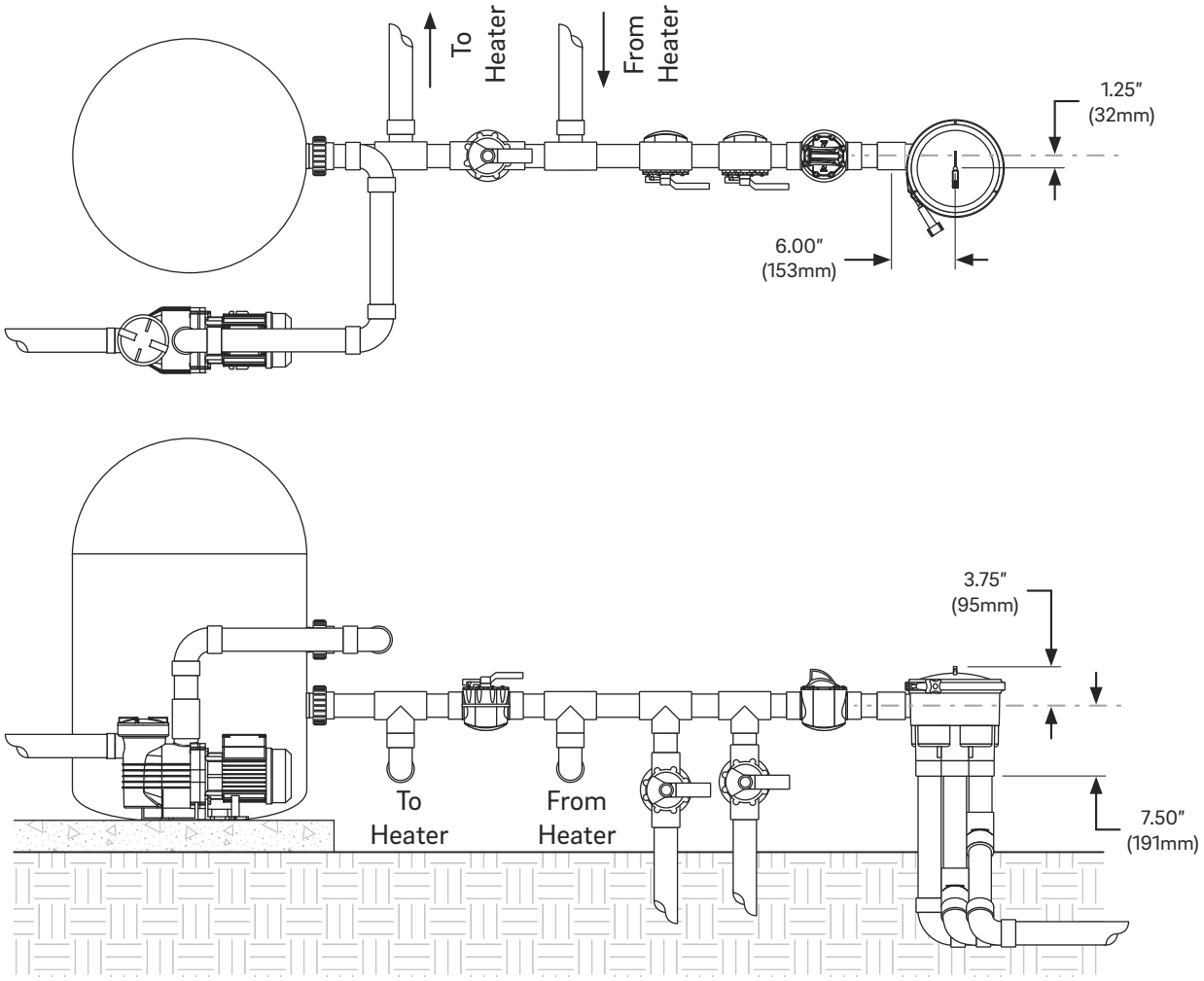

Figure 10

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IMPORTANT

The band clamp of the Low Profile Water Valve needs to be higher than the water level of the pool. If lower than the water level, excessive flooding will occur out of the valve when the clear lid is removed for service or repair.

However, if the height of the low profile water valve must be below water level, a shut-off valve will be required on each of the lines entering and exiting the water valve.
ALL SHUTOFF VALVES MUST BE ACCESSIBLE FOR SERVICE.

NOTE:

If the desired level of the low profile water valve is below the finished grade, the valve must be installed inside a housing similar to a sprinkler valve box. This housing must be large enough to allow access to the band clamp of the valve. Center the housing over the valve so that the band clamp knob is accessible (Figure 4).

Located Remotely

1. Run Schedule 40 PVC pipe size specified on the A&A Design Sheet, from the plumbing manifold in the equipment area, to the remote low profile water valve location.
2. Determine and set the grade height and plumb the water valve as specified in the previous section titled, "Located in the Equipment Area."

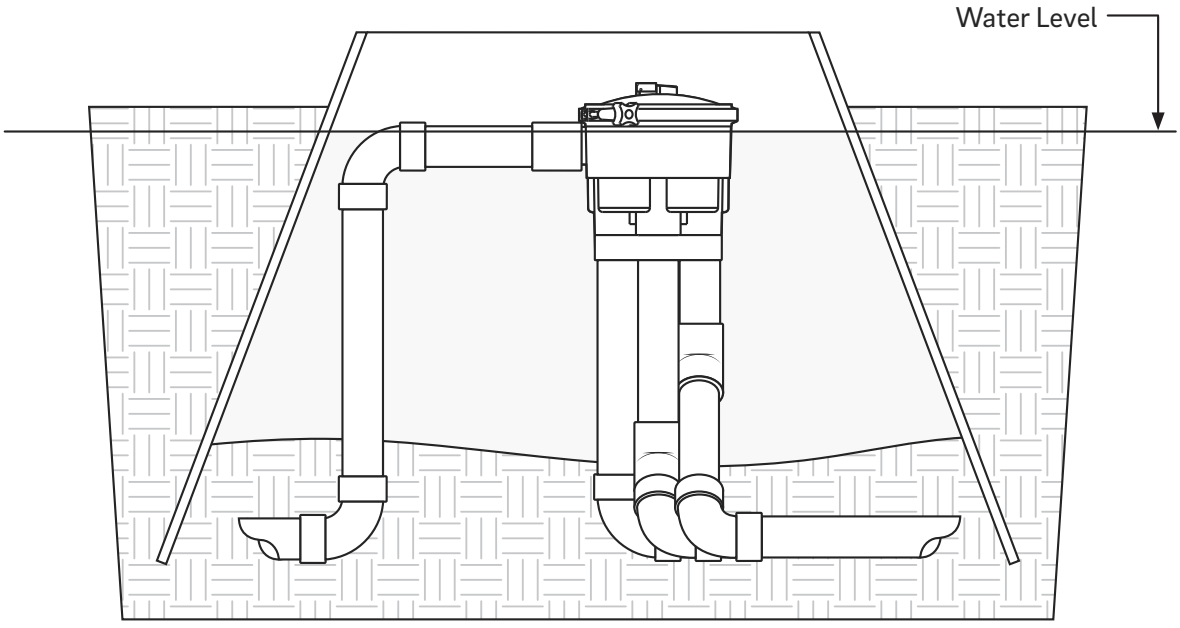

Figure 4

IMPORTANT

No chlorine feeders are to be installed before the Wave valve. This will cause damage to the internal mechanism inside of the valve. Any chemical injection or addition point is installed before the valve will constitute negligence on the part of the installer and will not be covered under the standard warranty.

Automatic Chlorine Feeders

Although the Wave valve components are 6x more resistant to oxidation than any other manufacturers valve, it can still be damaged. Therefore, a chlorine feeder or salt-cell should never be installed where it would allow the chlorine to pass through the valve. The best way to install a chlorine feeder or salt-cell is to install it on a bypass (Figure 5). It is highly recommended that a 2-Way valve is installed before the chlorine feeder or salt-cell to allow for adequate flow adjustment later.

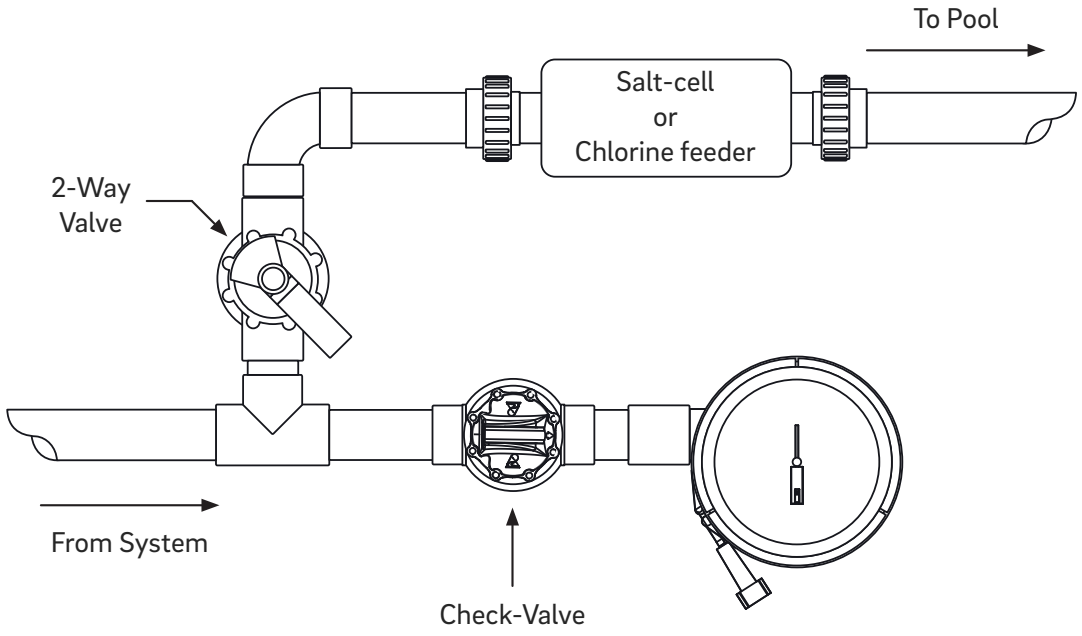

Figure 5

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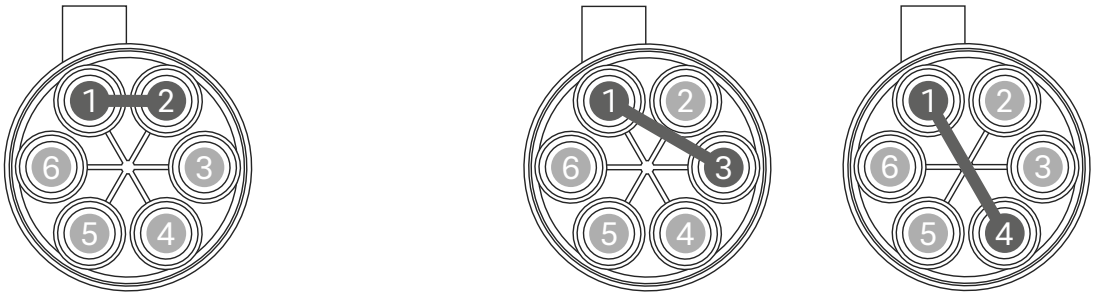
Wave Valve Configurations

NOTE:

Whenever plumbing two ports together, it is essential that neighboring ports, (Figure 6), are not plumbed together. This will allow discharged water from the valve, reversing flow and reentering the valve through the neighboring port. If this occurs, cleaning performance may be severely hindered or completely disabled.

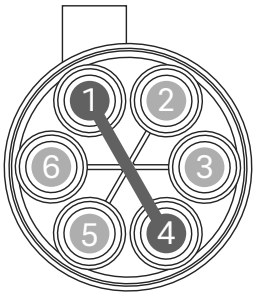


Incorrect connection

Correct connections

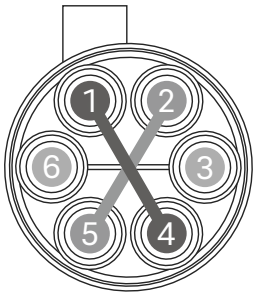
Figure 6

Standard Single-Valve Configurations



5-port configuration

Figure 7



4-port configuration

Figure 8

3-Port Valve Variations

The 3-Port (Figure 9) low profile water valve can be plumbed either manually in the field or by utilizing the factory prepared option.

1. The manually configured option will provide more indexing of the heads and standard operating time per zone (Figure 9a).

2. Alternatively, A&A Manufacturing offers a factory prepared 3-Port option (Figure 9b) that comes with three of the six ports sealed, utilizing a specially designed 3-port cam to switch between zones.

   This option will provide less indexing of the heads and greater run-times per zone.

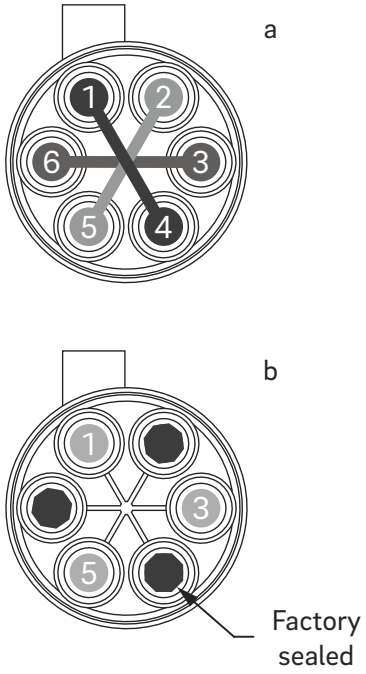


Figure 9

2-Port Valve Variations

The 2-Port (Figure 10) low profile water valve can be plumbed either manually in the field or by utilizing the factory prepared option.

1. The manually configured option will provide more indexing of the heads and standard operating time per zone (Figure 10a).

2. Alternatively, A&A Manufacturing offers a factory prepared 2-Port option (Figure 10b) that comes with four of the six ports sealed, utilizing a specially designed 2-port cam to switch between zones.

   This option will provide less indexing of the heads and greater run-times per zone.

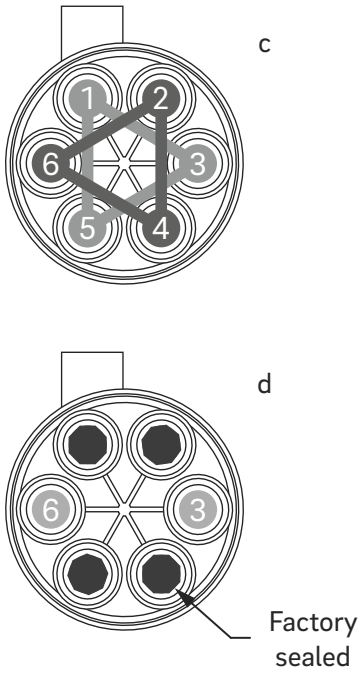


Figure 10

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9-Port Valve Configuration

In circumstances where up to nine zones may be required, a nine port configuration (Figure 11) may be utilized. This double valve configuration must not be utilized for an in-floor system that requires ten or more zones. If ten or more zones are required, one of the standard dual valve configurations (Figure 12) need to be utilized instead. Otherwise, balanced flow will not be achieved.

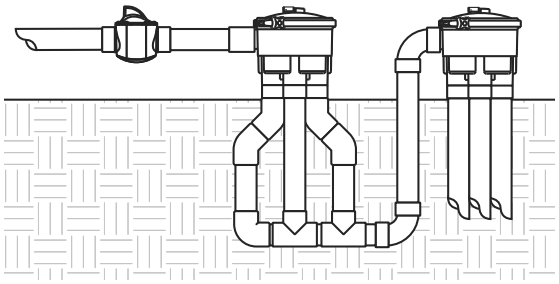

Figure 11

Standard Dual-Valve Configurations

In circumstances where larger pools are concerned, more than six zones may be required. When this is required, A&A Manufacturing offers two configurations that may be used. These configurations are designed to provide a balanced flow to each zone.

OPTION 1: the feed valve (shown as the center valve) (Figure 12) needs to be plumbed at the same height as both receiving valves.

OPTION 2: the feed valve (shown as the center valve) (Figure 12) must be plumbed with sweep 90° elbows. If sweep 90° elbows are unavailable or not used, option 1 must be utilized.

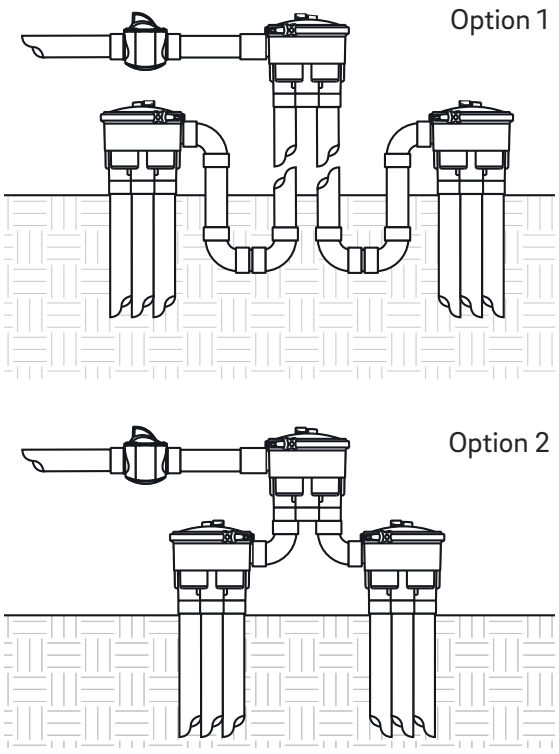

Figure 12

Properly Joining Ports

When making the connection between two ports it is strongly recommend that the lines are plumbed together as far away from the valve as possible. An absolute minimum distance of 24 inches will be required in order to prevent back-flow into the valve from the connected line (Figure 13).

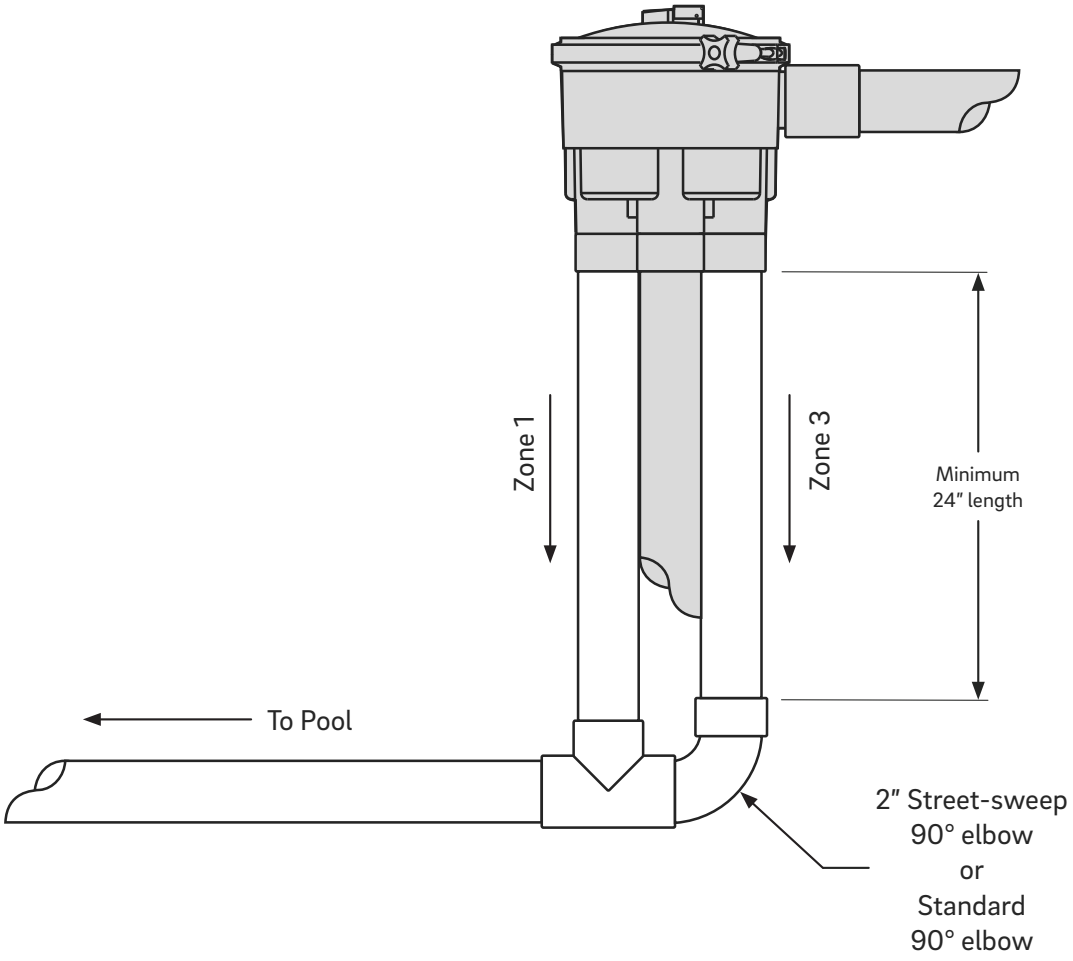

Figure 13

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Plumbing the Spa

1. If the spa shares common equipment with the pool, refer to the diagram provided (Figure 14 & Figure 15) for the proper method of plumbing.

2. When the spa shares common equipment with the pool, it will be necessary to provide a means for the water introduced to the spa, through the in-floor system, to be returned to the pool. This is required because the water used to clean the spa has been drawn from the pool. The recommended method of returning this water is with a spa spillway, although, it can also be accomplished by installing a 3" balance line between the pool and spa (balance line cannot exceed 10' in length).

3. If the spa is raised, it is imperative that a check valve be installed just below the actuator valve in the line that feeds the spa. Otherwise, water in the spa will drain back through the cleaning heads until the water in the spa reaches the same level as in the pool.

4. To provide water for a spa spillway feature, consult A&A Manufacturing for the modifications required to assume the cleaning efficiency of the in-floor system will not be reduced.

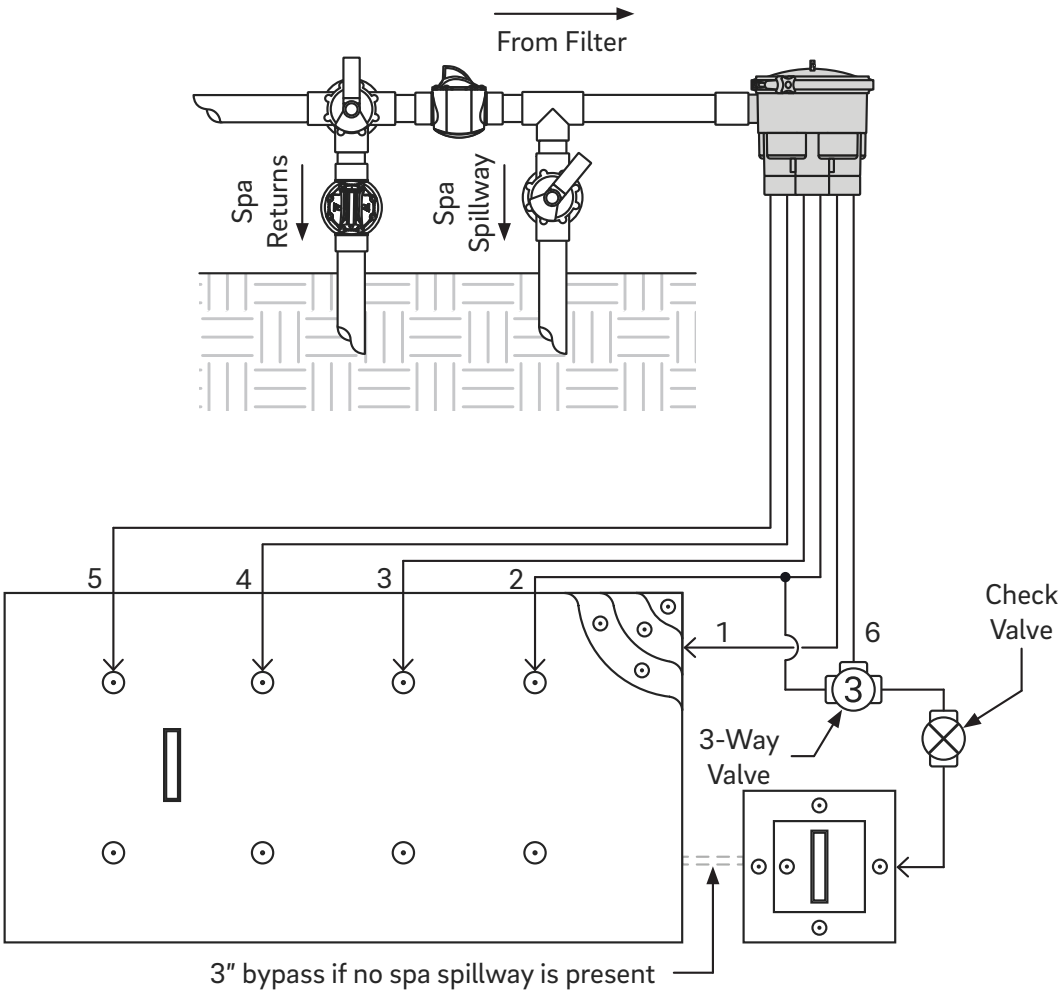

Figure 15

Pressurizing the System

WARNING

It is imperative that the pressure has been released from the system before removing the band clamp from the actuator valve. Failure to perform this task may cause injury or damage to the valve body.

NOTE:

The A&A Manufacturing Low Profile valve comes ready to pressure test. It is imperative that all lines from the actuator valve be cleared of debris before the pool is turned over to the customer. This will ensure that there will be no cleaning head malfunction due to debris plugging or restricting flow.

A 4" diameter PVC ring sits under all the 2" T-valves to keep them held up during the pressurizing process. Remove this ring and discard it before starting operating the system.

Once the pressure from the system pressure test has been released, remove the clamp knob and the brass pressure test lock nut from the band clamp and discard the nut (Figure 14).
Remove the clear lid from the top of the low profile water valve to gain access to the internal valve components. Now remove the impeller,gear plate and the 4" diameter PVC ring sits under the 2" T-valves.
Once the lines have been cleared, you may now replace the gear plate, impeller and clear lid. Now re-install the band-clamp by tapping around the outside of the clamp as you tighten the clamp knob to ensure a good seal. The system is now ready to start-up.

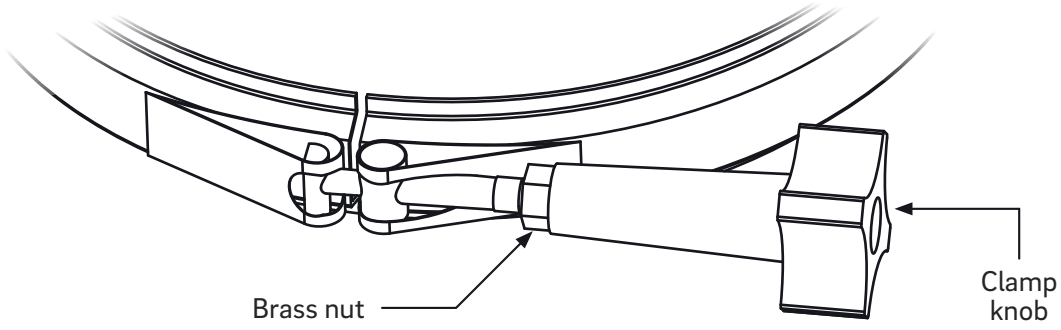

Figure 14

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Adjusting the Wave Valve

The Speed Control

The rotation speed of the low profile water valve is determined by the position of the clear top when it is placed on the valve. For maximum cleaning efficiency, it is recommended that the cycle time for each zone be adjusted to run between 30 to 45 seconds. The volume of water allowed to enter the impeller chamber of the actuator valve controls the speed. When the clear valve lid is removed from the housing of the water valve, a raised speed control guide can be seen on the top lip of the housing. When assembled, a molded groove in the clear lid will accept the speed control guide (Figure 15).

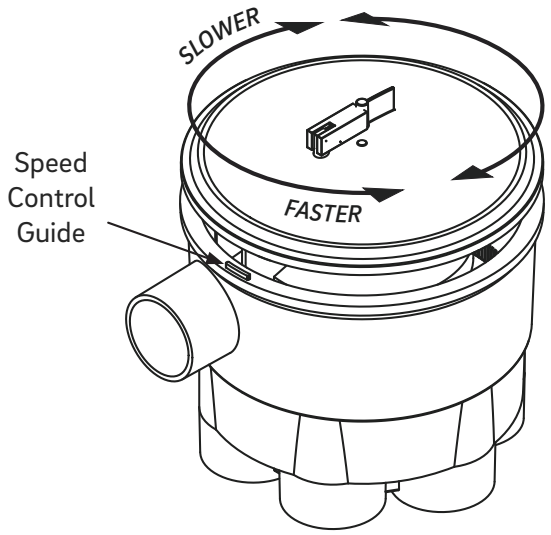

Figure 15

1. Place the clear lid on the valve housing so the molded groove in the lid is over the speed control guide.
2. Cycle time between zones will be increased by rotating the clear valve lid counterclockwise and decreased by rotating it clockwise.
3. Once the desired speed is achieved, remove the band-clamp and, with a marking pen, place a mark on the edge of the clear lid and valve housing as registration marks. This will allow the replacement of the clear lid to the same position if and when the valve is opened.

The QuikStop™

The QuikStop™ is a pause control for the low profile water valve. To pause the valve, raise the black lever on the clear lid to the full vertical position so that it locks in place. To restart the water valve, return the lever to its original horizontal position (Figure 16).

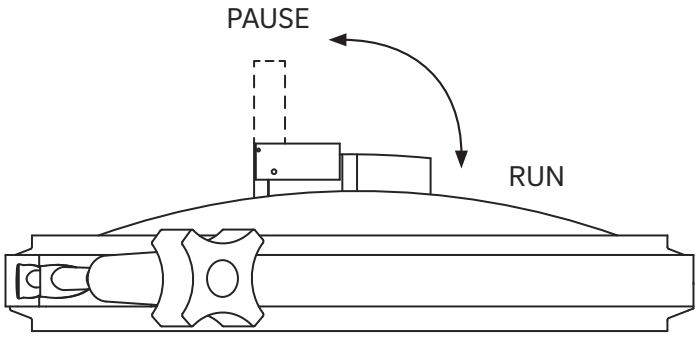

Figure 16

Winterizing the System

NOTE:

In geographic areas where freezing may be a possibility, it will be necessary to take precautionary steps to prevent any damage to the in-floor system. To prevent damage to the system, all the water in the feed lines that are located above the frost line and in the water valve must be removed.

General Winterization Procedure

1. Remove the upper housing from the standard top feed water valve or the lid from the low profile valve.

2. Remove all the internal parts from the water valve and store them for re-installation in the spring.

3. Remove the cleaning heads from the pool and spa that are above the frost line and store them until the spring.

4. Clear the lines by using either a portable tank type air compressor or a 2 hp spa blower. One at a time, blow all of the water out of each port of the A&A water valve. Once a line is cleared of all water, plug that port in the water valve and each of the floor fittings where the cleaning heads were removed in Step #2.

5. Remove the lid from the LeafVac™ canister and set the 3-way valve on the lines into the LeafVac™ so the skimmer side is open and the main drain side is closed. With the blower, blow the water from the suction port in the bottom of the skimmer back through the LeafVac™ canister and place a 2" test plug in the suction port of the skimmer. Switch the 3-way valve on the LeafVac™ from skimmer to main drains.

Winterizing Additional Components

6. With the compressor or spa blower, blow all the water from the LeafVac™ canister to the main drains through the upper port inside the LeafVac™ canister. Once the water has been blown out to the main drains, install a 2" plug in the upper port of the canister to prevent water from rising back up into the pipe.

7. After the filter has been drained for winterizing, turn the pump on for a short time to evacuate all the water from the LeafVac™ canister. While the pump is still running, quickly install another 2" test plug in the bottom threaded fitting of the canister. Shut the pump off. The filter should drain a little more water than was pulled from the LeafVac™.

8. After lowering the pool water level below the skimmer, remove the venturi fitting from the inlet fitting of the venturi skimmer. This will allow the water in the return line to the skimmer to drain into the skimmer when the return header is drained back at the pool equipment.

9. For those feed lines that supply cleaning heads below the frost line, fill the lines with air and quickly install winterizing plugs in that port of the water valve to create air locks that will prevent the water from rising back up the lines to above the frost line.

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Preparing the Wave Valve for Winterization

NOTE:

The 2" T-valve removal or winterization tool kit (Figure 17) consists of 3 tools; the extractor tool, the seat protection disc and the T-valve installation tool.

1. With the pump shut OFF, remove the band clamp and lid from the 2" T-valve.

2. Remove all the internal parts (impeller, 2 shims, gear plate, 2 stainless steel anti-friction washers and the center shaft) and place these parts in a box or plastic bag for storage over the winter.

3. With the extractor tool, remove each T-valve assembly from the valve base. Raise the T-valve assembly in a vertical position and insert the extractor tool under the valve. Pry the assembly out of the pin seats by pulling the extractor tool rearward (Figure 18).

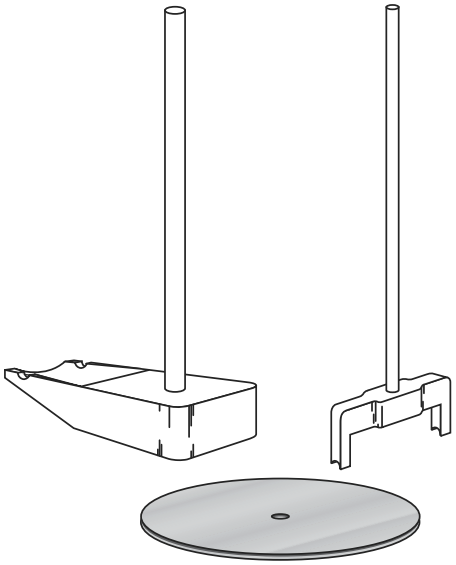

Figure 17

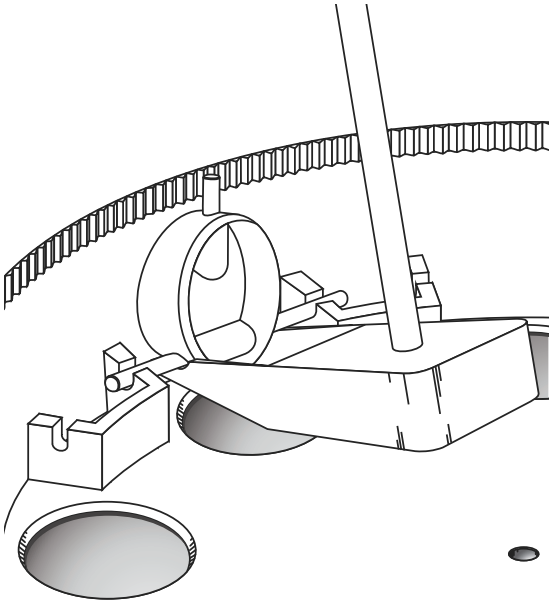

Figure 18

1. Immediately insert the plug of your choice into the cleared port. Repeat this procedure for the remaining five ports. Replace the lid and band clamp for the duration of the winter.

2. Remove the lid from the LeafVac™ canister and close the 3-way valve on the line into the LeafVac™ so the skimmer side is open and the main drain side is closed. With the blower, blow the water from the suction port in the bottom of the skimmer back through the LeafVac™ canister and place a 2" test plug in the suction port of the skimmer. Switch the 3-way valve on the LeafVac™ from skimmer to main drains.

Configuring the Wave Valve After Winterization

1. Remove the band clamp and lid from the 2" T-valve.

2. Remove the winterizing plugs from all six ports of the T-valve.

3. Place the Seal Protection Disc at the bottom of the T-valve base. This will be used to give a slight lift to the T-valve assembly while reinstalling.

4. Now place the pins of one of the T-valve Assemblies into the notches above one of the valve seats, allowing the front of the T-valve Assembly to rest on the Seal Protection Disc. Failure to lift the T-valve Assembly during re-installation will result in damage to the valve seats and the T-valve Assembly.

5. Place the forked ends of the T-valve Installation Tool on the pins resting on the outside of the notches (Figure 19). With a mallet, firmly tap the top of the installation tool, driving the pins down into the notches until they are fully seated. Test the assembly to make sure it raises and lowers freely.

6. Repeat this procedure with each of the remaining five assemblies.

7. Reinstall the rest of the valve internals (center shaft, 2 seal protection discs, gear plate, 2 stainless steel washers and the impeller).

8. Remove the cam from the gear plate assembly and install it down over the center shaft. If multiple valve configurations are present, make sure the correct cam is added to the correct valve.

9. Lift at least three of the T-valve assemblies and stand them in the vertical position so the cam can drop to the bottom of the valve base. Then allow the three vertical assemblies fall back down on the cam.

10. Take the remaining portion of the gear plate assembly and start it over the center shaft holding the 2 stainless steel shims in place so that the center shaft passes through them as it exits the top of the gear plate assembly.

11. While looking down through one of the holes in the gear plate, line up the square shaft with the square hole in the cam and line the pin in the support post with the small round hole in the cam.

12. Push the gear plate down till the square pin and the support post pin have locked completely into the cam and then install the impeller.

13. Install the valve lid making sure that the speed control guide is lined up with the groove in the underside of the lid. Install the band clamp and hand tighten snuggly.

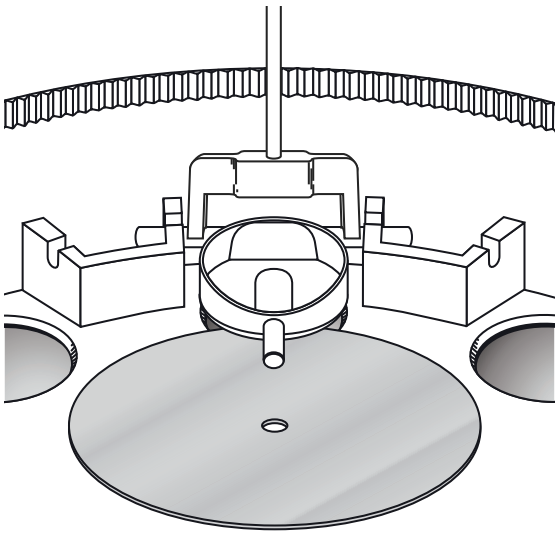

Figure 19

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Limited Warranty

To original purchasers of this equipment, A&A Manufacturing will warranty the Wave Valve from defects in materials and workmanship for a period of one year from the date of purchase.

The limited warranty excludes damage from freezing, negligence, improper installation, improper use or care or any Acts of God. Parts that fail or become defective during the warranty period shall be repaired or replaced, at A&A Manufacturing's option, within 90 days of the receipt of defective product, barring unforeseen delays, without charge. Proof of purchase is required for warranty service. In the event proof of purchase is not available, the manufacturing date of the product will be the sole determination of the purchase date. To obtain warranty service, please contact the place of purchase. A&A Manufacturing shall not be responsible for cartage, removal, repair or installation labor or any other such costs incurred in obtaining warranty replacements or repair.

The A&A Manufacturing warranty does not apply to components manufactured by others. For such products, the warranty established by the respective manufacturer will apply. The express limited warranty above constitutes the entire warranty of A&A Manufacturing with respect to its pool products and is in lieu of all other warranties expressed or implied, including warranties of merchantability or fitness for a particular purpose. In no event shall A&A Manufacturing be responsible for any consequential, special or incidental damages of any nature.

Please retain for your records.

Date of Installation _____

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Wave Valve Warranty Registration Card

Directions: Please Fill out bottom portion completely and mail within 30 days of purchase or register your product online at www.aamfg.com

Please Mail to:
ATTN: WARRANTY DEPT,
A&A Manufacturing
3750 W Indian School Dr, Phoenix AZ 85019

PLEASE PRINT CLEARLY

Owner Information

First Name _____ Last Name _____

Street Address _____

City _____ State _____ Zip _____

Phone Number _____ Purchase Date _____

E-Mail Address _____

Product Model Number _____

Original Purchase Information

Company Name _____

Address _____

City _____ State _____ Zip _____

Phone Number _____

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