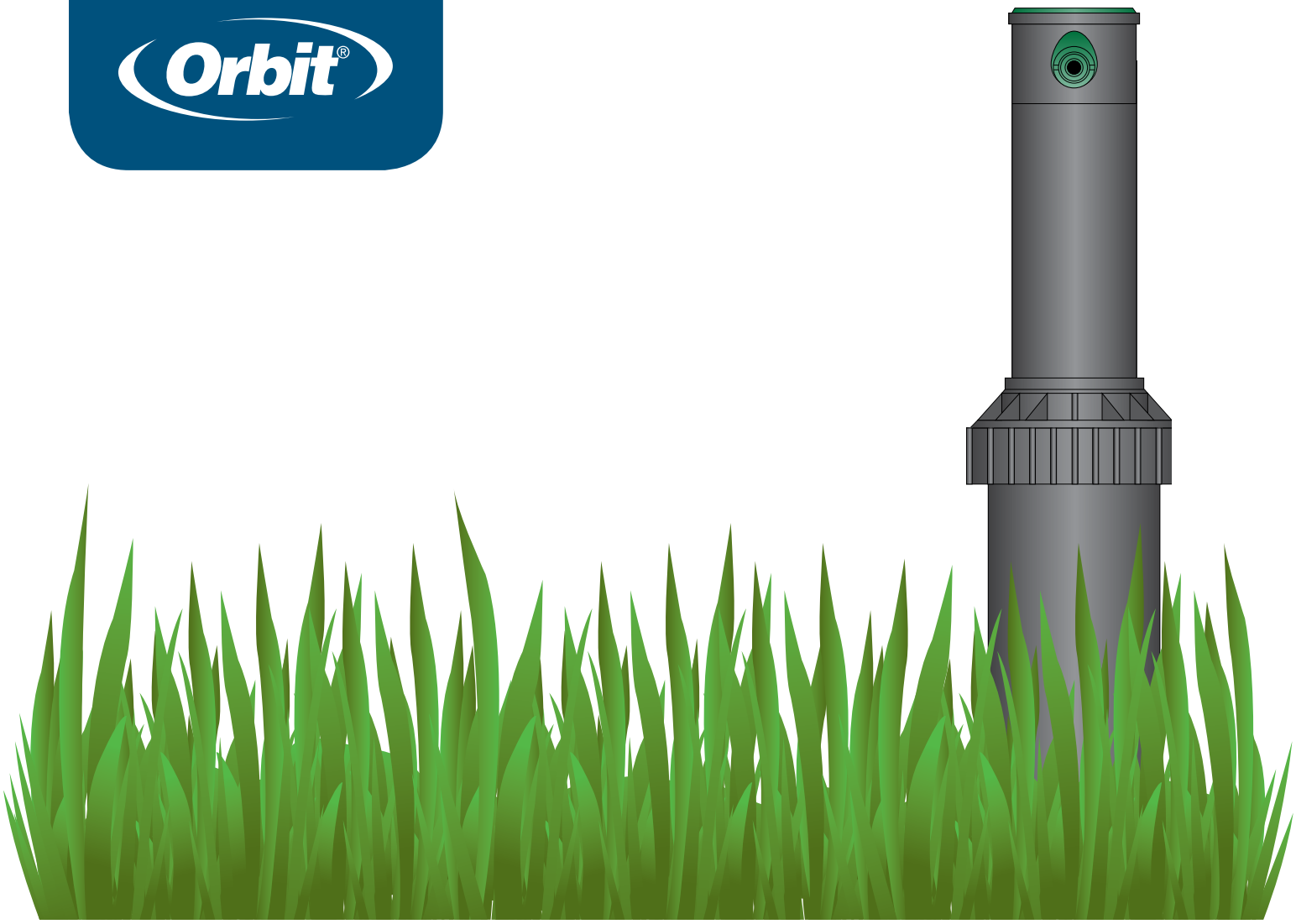
Blu-Lock®

BY HYDRO-RAIN®

INSTALLATION GUIDE

Orbit®



53251-27 rA

ORBIT SPRINKLER SYSTEM LEGAL NOTICE

For your information Orbit Irrigation Products, Inc. (“Orbit®”) has established its Terms of Use for ORBIT SPRINKLER SYSTEM DESIGNER™.

DISCLAIMER
The ORBIT SPRINKLER SYSTEM DESIGNER™ Application (“application”) and ORBIT SPRINKLER SYSTEM DESIGNER™ Output (“output”) are provided by Orbit® on an “as is” basis. You, as the user, agree that the use of the application and output is at the user’s own risk. Neither Orbit®, nor its affiliates, officers, directors, employees, consultants or agents warrant that the application will be uninterrupted or error-free. Nor do they make any warranty as to the output that may be obtained from the use of the application, or as to the accuracy, reliability or currency of any information, content, or service provided. Orbit® may withdraw the application and its content at any time without further claim by the user.

The sole intent of the application and output is to provide homeowners with a fast, efficient method by which to design and purchase an outdoor cold water sprinkler system for personal installation and use. The output represents one possible way of many to install a sprinkler system. This software, the resulting schematics, parts list, and assembly guide are intended to be used as a help guide only. The user is responsible for reviewing the design and methods of installation with a qualified local expert prior to installation. Although every effort has been made to ensure that the application and output produce accurate designs, parts lists, and assembly instructions, the user is responsible for verifying all details, dimensions, quantities, methods, and conformance to local codes, and shall be solely responsible for the same. While the application and output follows generally accepted irrigation design and installation practices, state and local codes and practices vary widely, and Orbit® shall be held harmless for any and all errors. The user is solely responsible for learning the methods of installation, verifying code and permit requirements, including those related to backflow prevention, and checking for all possible utilities and hazards prior to digging or trenching.

The application and output cannot and do not presume to take into account site specific factors such as slope, soil type, vegetation type, local climate or property peculiarities such as location of property lines, utilities, structures, window wells, stair wells, fences, footings, foundations, driveways, sidewalks, trees, shrubs, pools, ponds or other physical factors which may materially affect design, installation, performance, safety, or code requirements for a sprinkler system. The user is solely responsible for identifying, evaluating and addressing all risks associated with designing, installing and maintaining any system which derives from the use of the application or output.

ORBIT® MAKES NO REPRESENTATIONS OR WARRANTIES OF ANY KIND, EXPRESS OR IMPLIED, AS TO THE CONTENT OR MATERIALS INCLUDED ON THE APPLICATION, THE OPERATION OF THE APPLICATION, OR THE OUTPUT PRODUCED FROM THE APPLICATION. TO THE FULL EXTENT PERMISSIBLE BY APPLICABLE LAW, ORBIT® EXPRESSLY DISCLAIMS ALL WARRANTIES, EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF SELLERS, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT. IN NO EVENT SHALL ORBIT® BE LIABLE FOR ANY DIRECT, INDIRECT, INCIDENTAL, SPECIAL, EXEMPLARY, PUNITIVE OR CONSEQUENTIAL DAMAGES (INCLUDING WITHOUT LIMITATION, LOSS OF USE, LOST PROFITS OR LOST DATA) WITHOUT REGARD TO THE FORM OF ANY ACTION, INCLUDING BUT NOT LIMITED TO, CONTRACT, NEGLIGENCE, TORT OR OTHER LEGAL THEORY, ARISING FROM THE USE OF THE APPLICATION OR OUTPUT.

INTELLECTUAL PROPERTY NOTICE
ORBIT SPRINKLER SYSTEM DESIGNER™ is a trademark of Orbit®. Orbit’s trademarks may not be used in connection with any product or service that is not Orbit’s without express written permission.

All content included in the application, including all logos, graphics, photographic images, illustrations, paintings, text and software is the sole and exclusive property of Orbit® and is protected by U.S. and international intellectual property laws. All software used on this application is the property of Orbit® or its software suppliers. The compilation of the content on this application is the exclusive property of Orbit®. Any use of this content, except for the express purpose of linking back to the application, is forbidden. Any reproduction, modification, distribution, republication or display of content is strictly prohibited.

In the event the provisions herein are void or voidable, the remainder of the terms of use shall be in full force and effect.

WELCOME

Thank you for using ORBIT® SPRINKLER SYSTEM DESIGNER™. In the following pages you will find:

- Step-by-Step Installation Guidelines
- Personalized Sprinkler Plan - www.irrigationdepot.ca
- Assembly and Installation Drawings
- Personalized Parts List - www.irrigationdepot.ca

Please use the provided Checklist below as you go through the installation process to ensure you have an irrigation system you will be proud of and enjoy for many years to come.

Please see www.irrigationdepot.ca for all Blu-Lock or Eco-Lock fittings.
If you have any questions or concerns please email us at info@irrigationdepot.ca

CHECKLIST

1 ❒ Become Familiar with the Installation Guide
2 ❒ Consult a Local Expert and Check Local Codes
3 ❒ Call Utility Providers to Mark Utility Lines
4 ❒ Purchase Additional Materials
5 ❒ Install Backflow Prevention Device and Shut-off Valve
6 ❒ Mark Sprinkler, Trench and Manifold Locations
7 ❒ Dig Trenches
8 ❒ Install Valve Manifolds
9 ❒ Install Poly Mainline Pipe with Insert Fittings
10 ❒ Install Pipe and Fittings for Sprinkler Zones
11 ❒ Install Auto-Drains (Freezing Areas only)
12 ❒ Install Sprinkler Timer
13 ❒ Install Sprinkler Wires
14 ❒ Turn Water Source On
15 ❒ Check Poly Mainline and Manifolds for Leaks
16 ❒ Test Each Zone
17 ❒ Install Heads and Nozzles and Adjust Patterns
18 ❒ Install Valve Boxes and Backfill Trenches
19 ❒ Fine Tune Nozzles and Patterns
20 ❒ Set Sprinkler Timer

BEFORE YOU BEGIN

1. BECOME FAMILIAR WITH THE INSTALLATION GUIDE

We recommend that you read through the entire Installation Guide before you begin. Keep track of the items not provided and make a list of those things you will need to purchase. This will help keep the number of trips back to the store to a minimum.

2. CONSULT A LOCAL EXPERT AND CHECK LOCAL CODES

Before you begin consult a local sprinkler expert to learn the best practices for sprinkler installation in your area.

It is important that you check with your city, county, state and municipal water agencies to learn the local codes and permit requirements for sprinkler systems.

3. CALL UTILITY PROVIDERS TO MARK UTILITY LINES

Call before you dig – in most areas dial 8-1-1. We recommend you call well in advance to give the utility companies time to mark their lines on your property.

The following table shows what each color represents in most areas. Please consult the marking service provider or your utilities to better understand the color code used in your area.

UNIFORM COLOR CODE	
RED	Electric power lines, cables, conduit, and lighting cables
ORANGE	Telecommunication, alarm or signal lines, cables or conduit
YELLOW	Natural gas, oil, steam, petroleum, or other gaseous or flammable material
GREEN	Sewers and drain lines
BLUE	Drinking water
VIOLET	Reclaimed water, irrigation and slurry lines
PINK	Temporary survey markings, unknown/unidentified facilities
WHITE	Proposed excavation limits or route

BEFORE YOU BEGIN

4. PURCHASE ADDITIONAL MATERIALS

Check that you received all the materials listed on the packing list that came with your delivery. Check the packing list against the Installation Guide Parts List to determine what you need to buy at your local Home hardware.

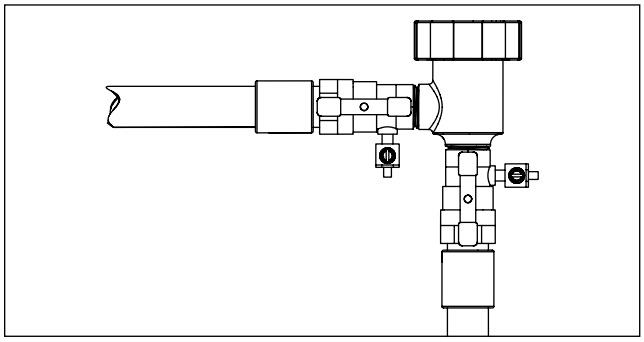
Following is a list of the additional items that you will need to install your system. **Please check your personalized parts list at the back of this guide for the section titled ADDITIONAL REQUIRED SUPPLIES and add them to this list.**

- ❒ 4" or 5" Trenching Shovel
- ❒ Trenching Machine (optional)
- ❒ Round-nosed Shovel
- ❒ Poly Pipe
- ❒ Insert Fittings
- ❒ Poly Pipe Cutters
- ❒ 100' Measuring Tape
- ❒ Marking Paint
- ❒ Marking Pen
- ❒ PTFE Pipe Tape
- ❒ Latex-dipped Work Gloves
- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____
- ❒ _____

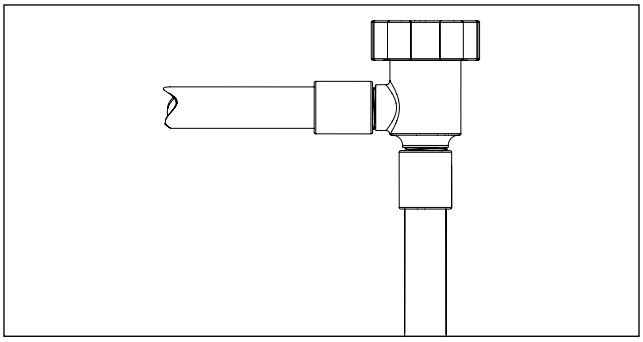
5. INSTALL BACKFLOW PREVENTION DEVICE AND SHUT-OFF VALVE

Check your local code to determine the backflow prevention requirements for your area. You may need to hire a professional to do the installation. Following are a few examples of backflow prevention devices.

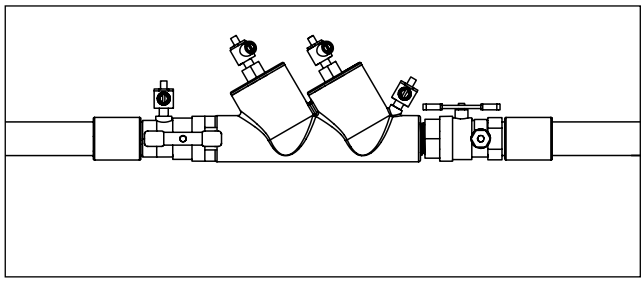
Pressure Vacuum Breaker



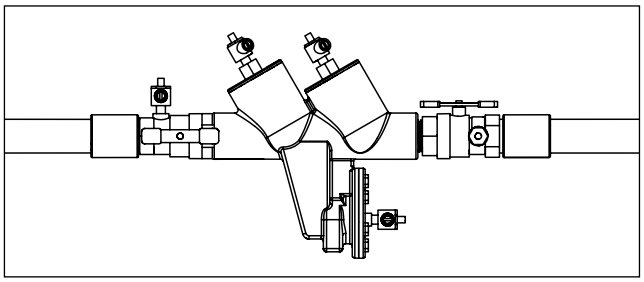
Atmospheric Vacuum Breaker / Anti-Siphon Valve



Double Check Valve Assembly



Reduced Pressure Backflow Preventer



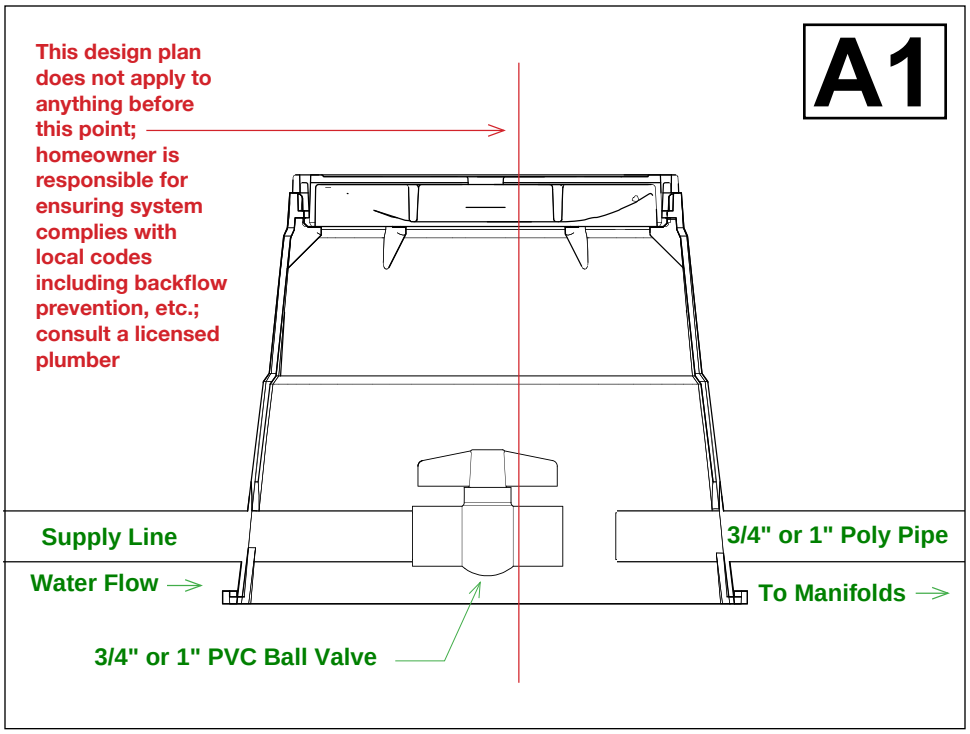
5. (CONT'D) →

BEFORE YOU BEGIN

5. INSTALL BACKFLOW PREVENTION DEVICE AND SHUT-OFF VALVE (CONT'D)

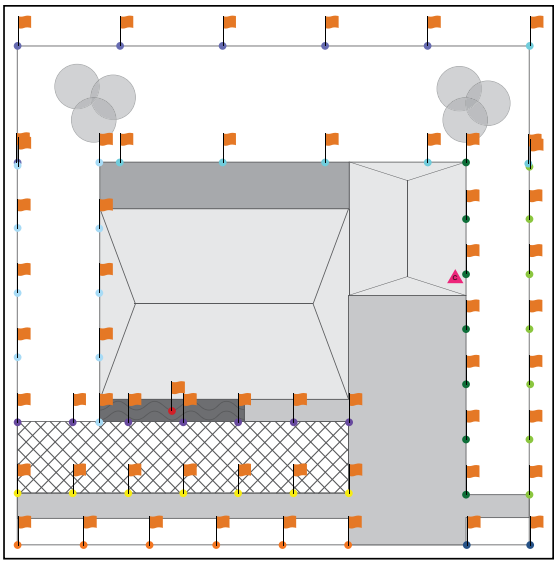
We recommend that you install a 3/4" or 1" PVC Ball Valve immediately following the backflow prevention device.

If you are using an atmospheric vacuum breaker or anti-siphon valve, you must place he shut-off valve before the backflow prevention.



6. MARK SPRINKLER, TRENCH AND MANIFOLD LOCATIONS

Before you begin this step you should study the maps carefully and make adjustments to head placement, sprinkler zones, piping, and manifold placement as necessary.



Please note that the maps provided are for guidance only and can and should be adjusted based on actual conditions (i.e. utilities, window wells, trees, etc.).

Use sprinkler flags to mark each head location. Use a measuring tape to help ensure even spacing between heads in the same zone.

Once the flags are all placed use marking paint to outline the location of each manifold and all trenches. Remember the 24" safety zone for utility lines and adjust your trenches and manifolds accordingly.

⚠ Manifold Caution: Do not place manifolds near stairwells, window wells, utilities, or in areas with a downward slope to the house; avoid areas where the manifolds will be an annoyance or hazard, such as walkways or the middle of play areas.

⚠ Trench Caution: Trench at least 2' away from any structures, foundations, window wells, stair wells, utilities or any other areas which are highly susceptible to water damage in the event of broken sprinkler lines or equipment.

Double check your trenching lines with your plan to make sure you have minimized the trenching and that no trenches or manifolds were forgotten.

7. DIG TRENCHES

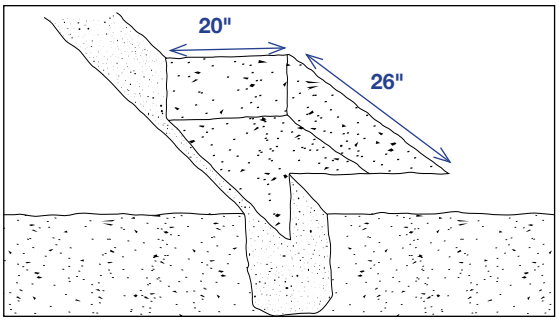
Before you dig it is important that you check with your city, county, state and water municipality agencies to ensure you are installing in compliance with local code and permit requirements.

You may chose to dig the trenches by hand or you can hire a professional to do it for you using a trenching machine. This is usually the best route if significant trenching is required or if the ground is hard. You may also consider renting a trenching machine and do it yourself if local code permits.

Trenches that will have more than four pipes in them need to be widened to accommodate all the pipes. Trenches should not be less than 8" deep. If freezing is a concern then trenches should be at least 12" deep. If you are installing anti-siphon valves please reference section 8 for placement guidance.

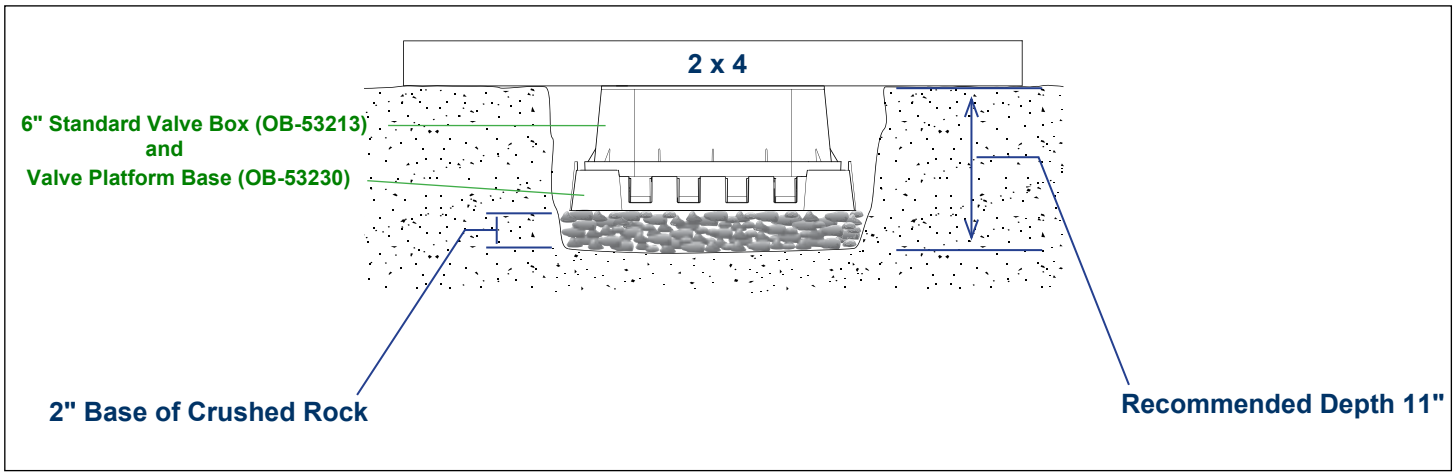
8. INSTALL VALVE MANIFOLDS

For each valve box dig a 26" x 20" hole to the recommended depth (shown below). For best installation the valve box should run parallel to the pipe trench as shown to the right.



Add 2" of crushed rock to serve as a drainage base for the valve manifold.

Place the valve box platform and valve box on the base of crushed rock. Lay a 2 x 4 across the hole to ensure the top of the valve box is level with the ground (as shown below).

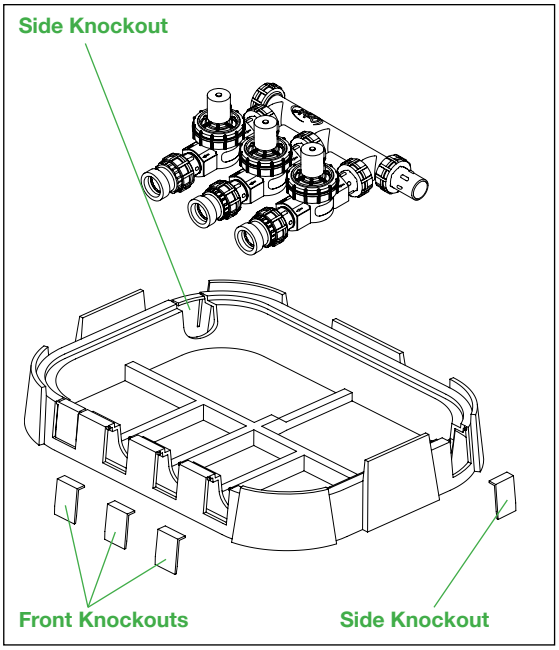


Assemble all the manifolds called out on the **MAINLINE MAP** - example A2 - A4. Match the assembly call out with one of the following assembly drawing pages. Use the assembly drawings as your guide.

⚠ Do not make any Poly or PVC pipe and glued connections at this point. We will walk you through that in another step.

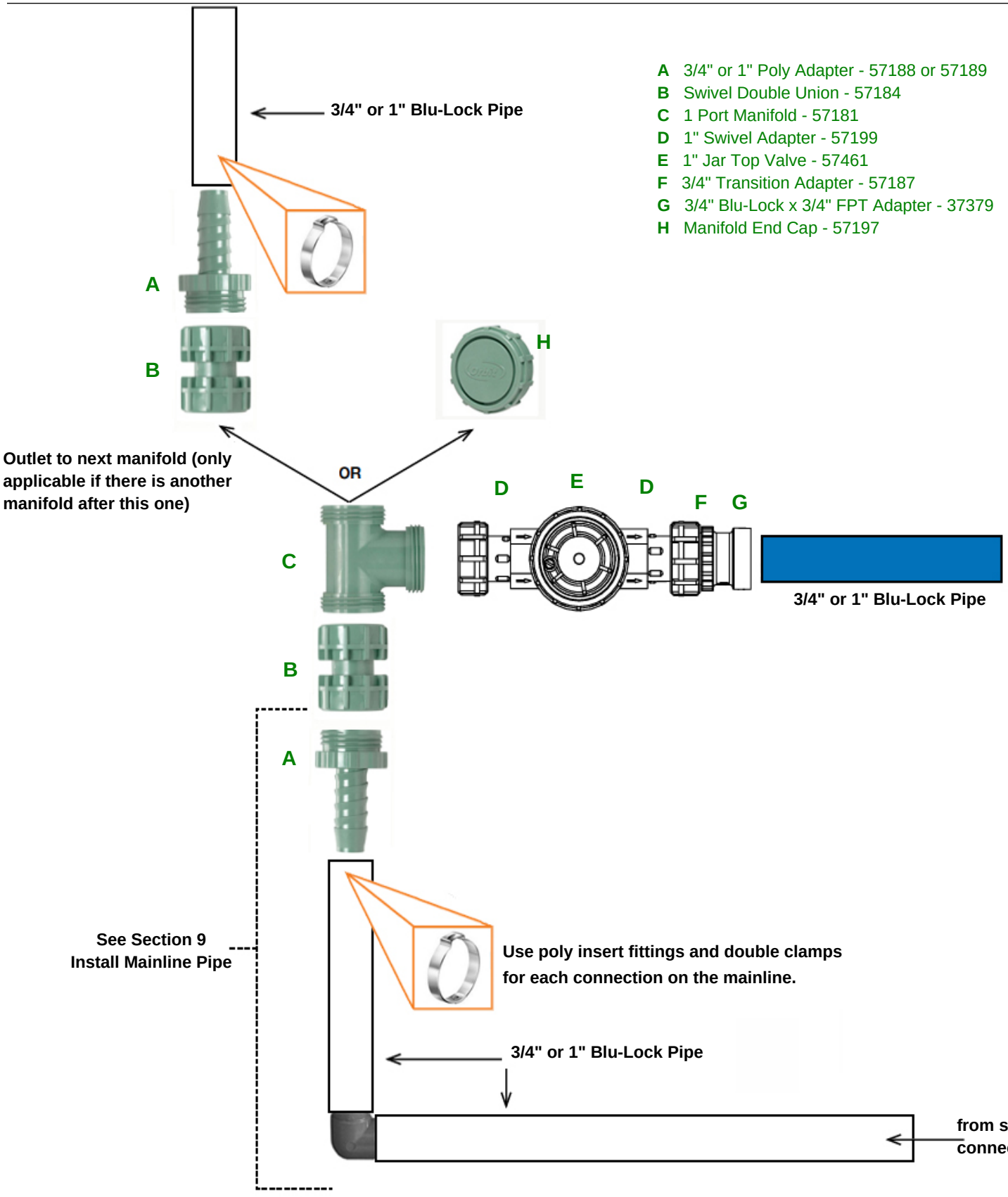
If A6 is called out on a **SPRINKLER ZONE MAP** then reference assembly A6 in the following pages for instructions on creating a drip zone valve.

Prepare the valve box platform for the manifold by removing one front knockout for each valve in the manifold. Remove the side knockout that is closest to the water source connection. Place each manifold in its respective valve box platform.



1 VALVE MANIFOLD

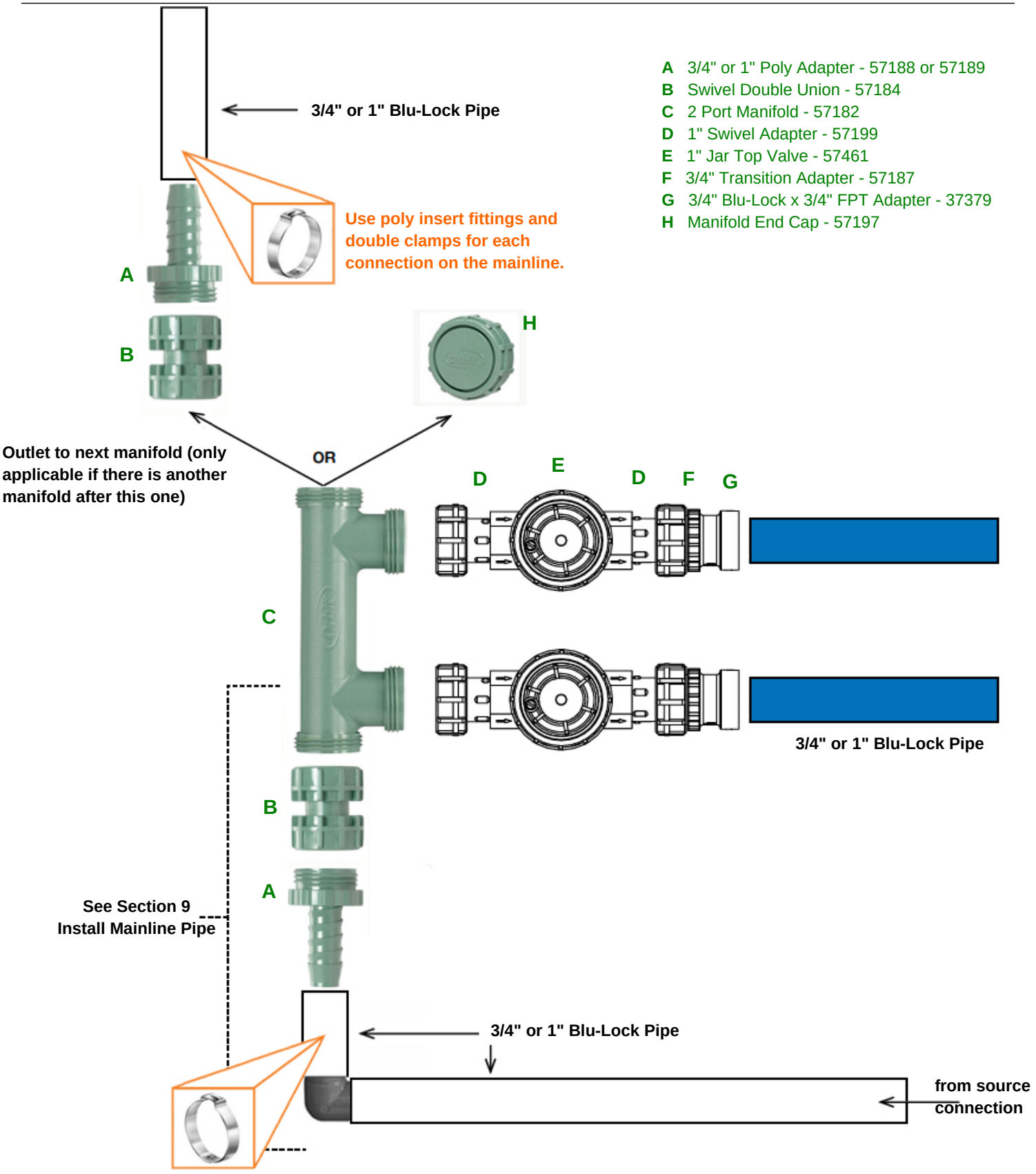
A2



A 3/4" or 1" Poly Adapter - 57188 or 57189
B Swivel Double Union - 57184
C 1 Port Manifold - 57181
D 1" Swivel Adapter - 57199
E 1" Jar Top Valve - 57461
F 3/4" Transition Adapter - 57187
G 3/4" Blu-Lock x 3/4" FPT Adapter - 37379
H Manifold End Cap - 57197

2 VALVE MANIFOLD

A3

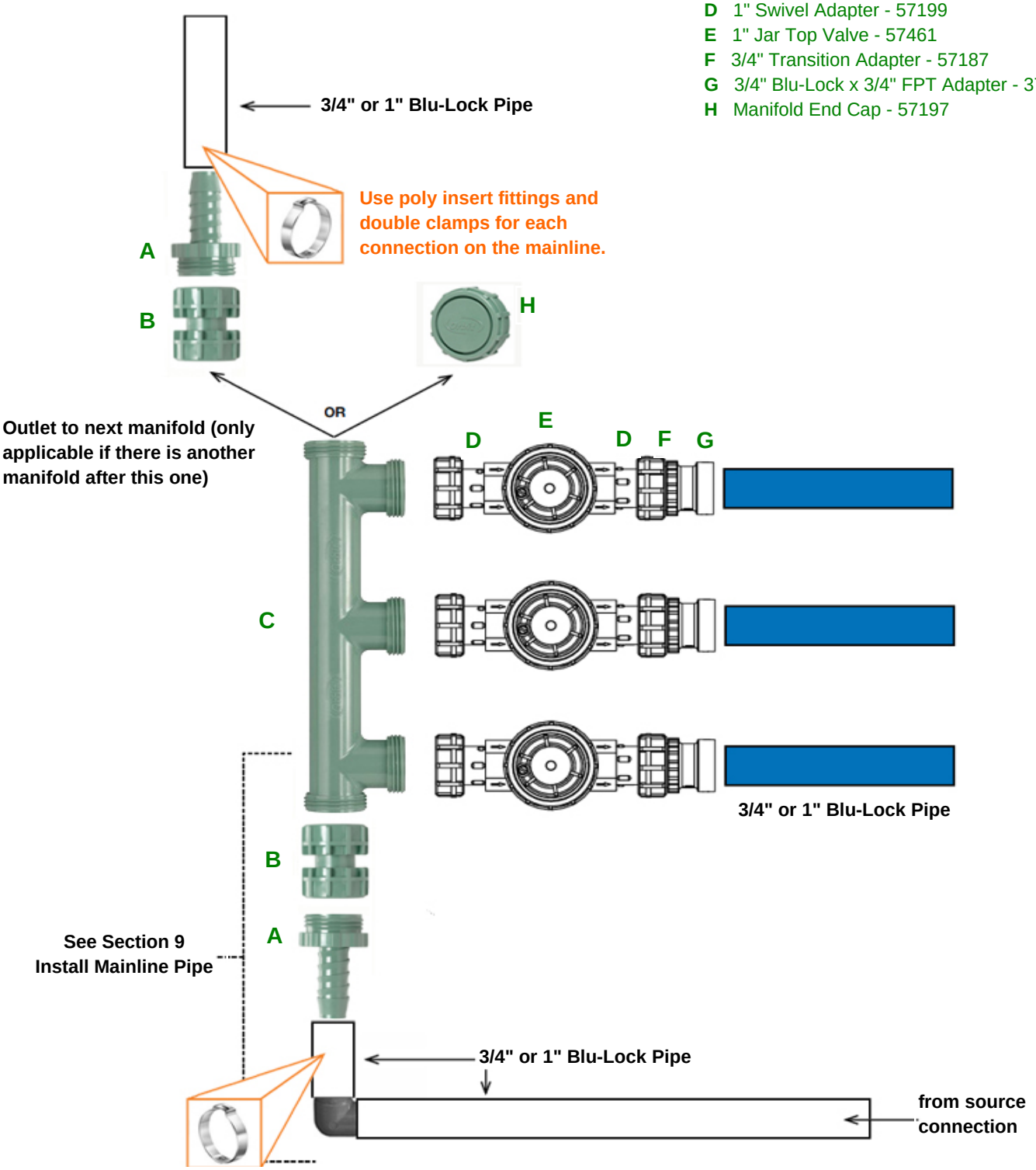


A 3/4" or 1" Poly Adapter - 57188 or 57189
B Swivel Double Union - 57184
C 2 Port Manifold - 57182
D 1" Swivel Adapter - 57199
E 1" Jar Top Valve - 57461
F 3/4" Transition Adapter - 57187
G 3/4" Blu-Lock x 3/4" FPT Adapter - 37379
H Manifold End Cap - 57197

3 VALVE MANIFOLD

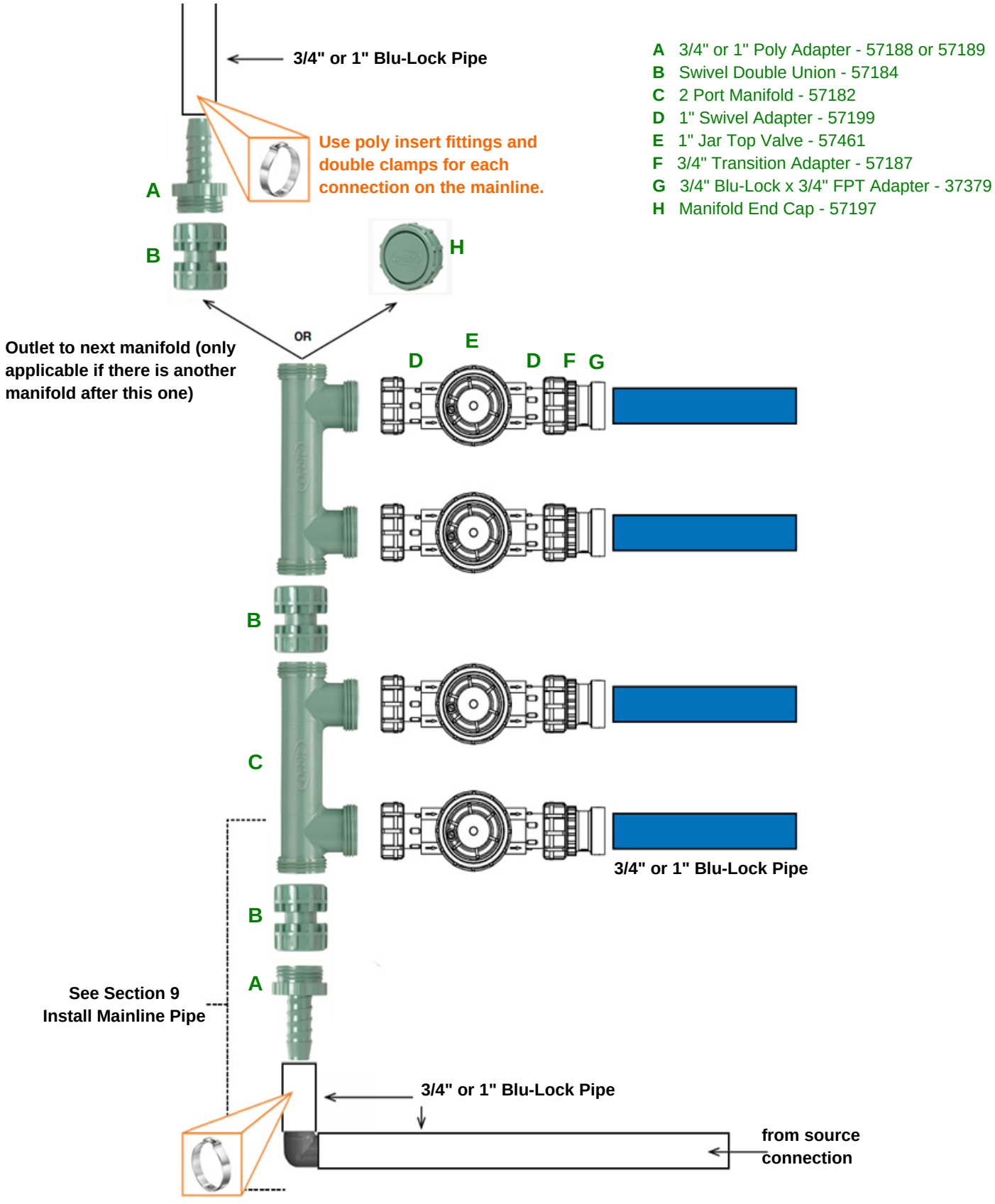
A4

- **A** 3/4" or 1" Poly Adapter - 57188 or 57189
- **B** Swivel Double Union - 57184
- **C** 2 Port Manifold - 57182
- **D** 1" Swivel Adapter - 57199
- **E** 1" Jar Top Valve - 57461
- **F** 3/4" Transition Adapter - 57187
- **G** 3/4" Blu-Lock x 3/4" FPT Adapter - 37379
- **H** Manifold End Cap - 57197



4 VALVE MANIFOLD

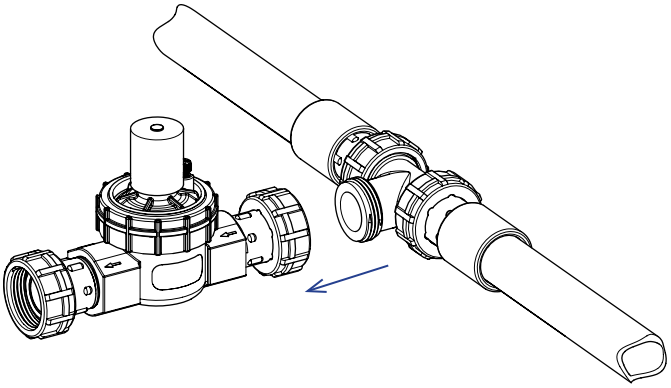
A5



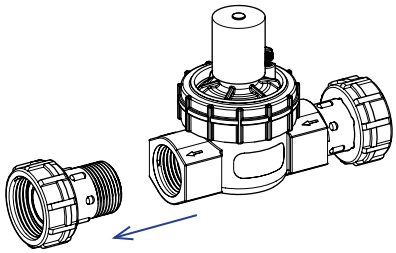
A 3/4" or 1" Poly Adapter - 57188 or 57189
B Swivel Double Union - 57184
C 2 Port Manifold - 57182
D 1" Swivel Adapter - 57199
E 1" Jar Top Valve - 57461
F 3/4" Transition Adapter - 57187
G 3/4" Blu-Lock x 3/4" FPT Adapter - 37379
H Manifold End Cap - 57197

DRIP ZONE ASSEMBLY

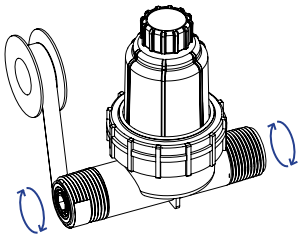
A6



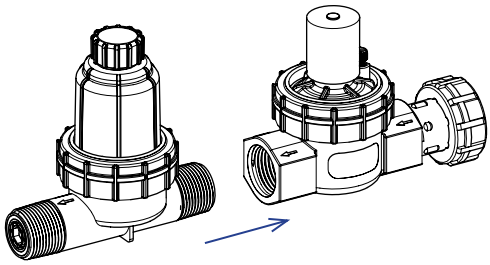
Step 1: Remove valve from manifold



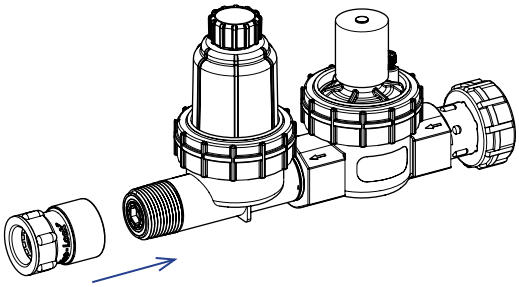
Step 2: Remove adapter from valve



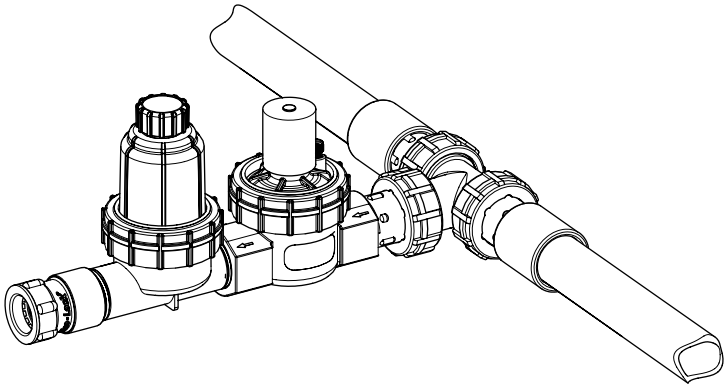
Step 3: Put 5 complete turns of tape around the threads of each end of the Filter Pressure Regulator



Step 4: Thread the Filter Pressure Regulator into the valve until snug



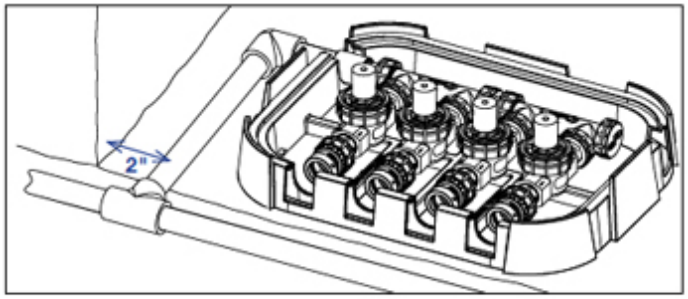
Step 5: Thread 1" FPT x 3/4" Blu-Lock Adapter onto the Filter Pressure Regulator until snug



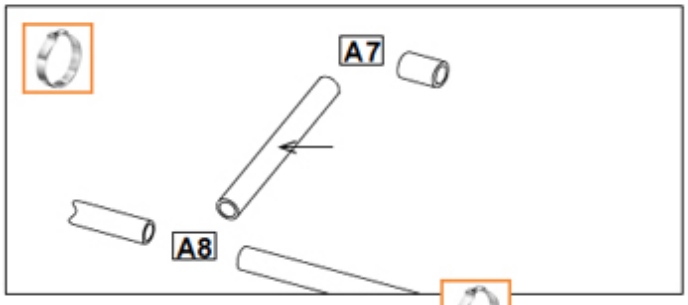
Step 6: Reattach valve to manifold

9. INSTALL PVC MAINLINE PIPE

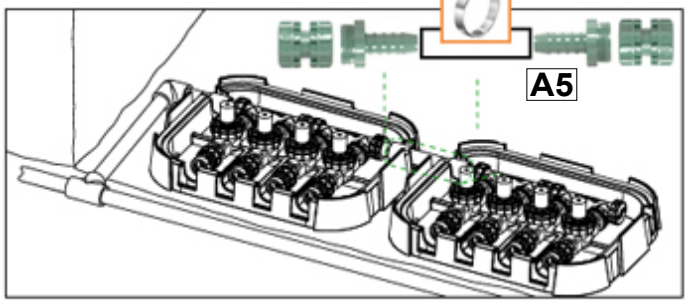
Starting from the Water Source Connection lay and connect the Blu-Lock Pipe or Poly Pipe going to the manifolds (see "Working with Poly" in the appendix of this guide for additional information).



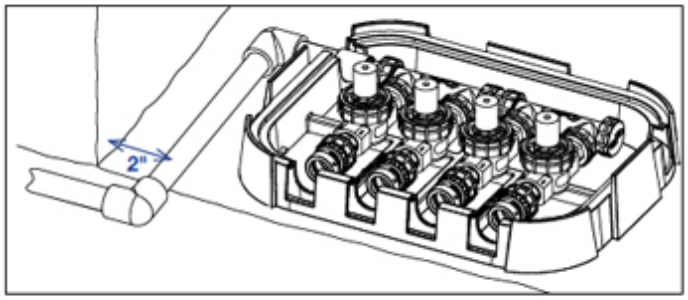
As the mainline passes in front of a manifold complete the following steps to connect the mainline to the manifold as shown. Cut the water source pipe about 2" past the wall of the manifold hole.



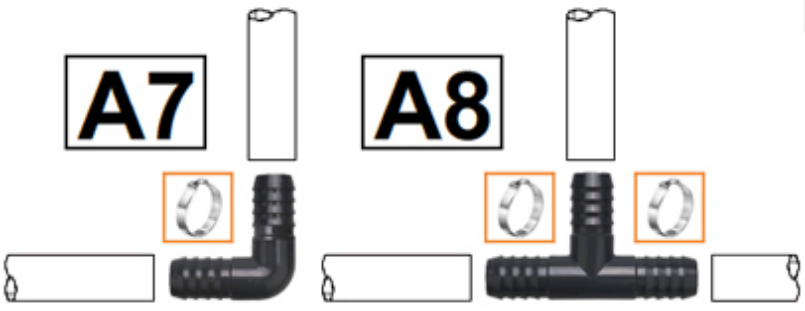
If two manifolds need to be placed immediately next to each other follow the instructions above for the first manifold and then reference assembly **A5**

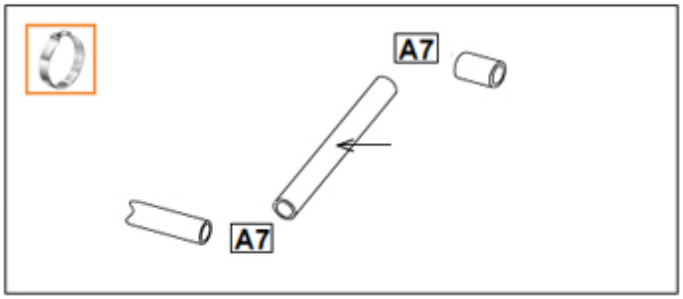


Connect the last manifold on the mainline as shown. Follow the instructions above but instead of a tee you will use an elbow.



⚠ It is important that the mainline pipe be as deep as possible in the trenches in order to provide room for the pipes coming from each valve to the sprinkler zones.





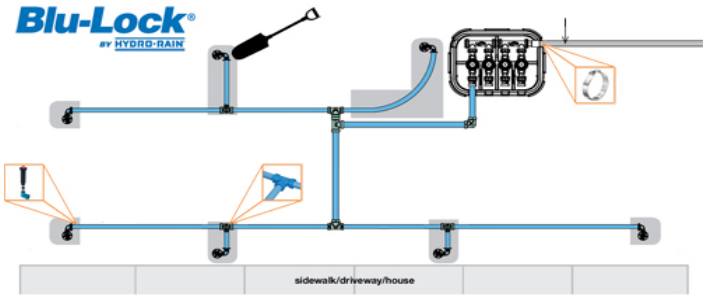
⚠ **Use poly insert fittings and double clamps for each connection on the mainline.**

10. INSTALL PIPE AND FITTINGS FOR SPRINKLER ZONES

We will now step you through the process of installing the Blu-Lock pipe from the heads to the valve for each sprinkler zone (see "Working with Blu-Lock" in the appendix of this guide for additional helpful information).

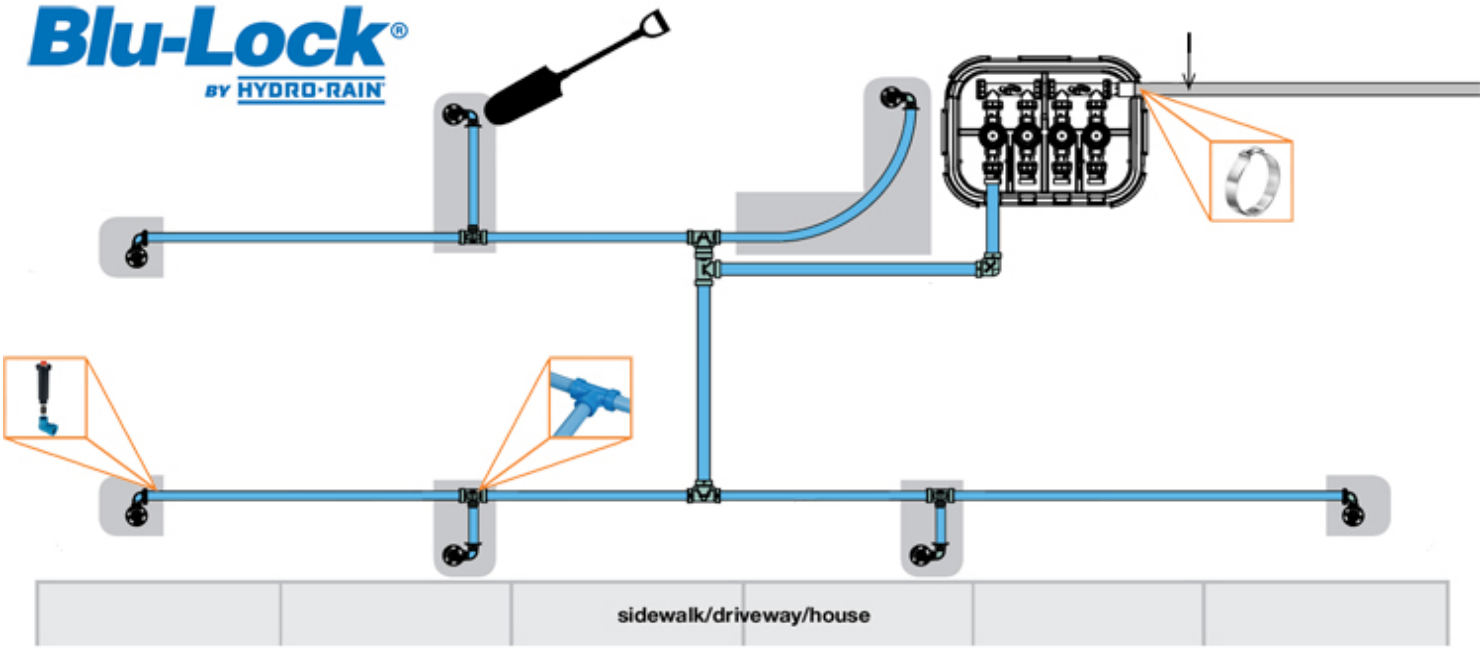
Start with one sprinkler zone and install the Blu-Lock pipe and fittings for that zone using the map as a guide. It is important that you finish one zone before you start another to avoid confusion. Adjust the sprinkler zone pipe head placement to actual conditions (i.e. utilities, window wells, trees, etc.).

As we walk you through this section we will use the zone layout shown here to help you better understand each step. Install all zones following these steps, then go on to the next section.



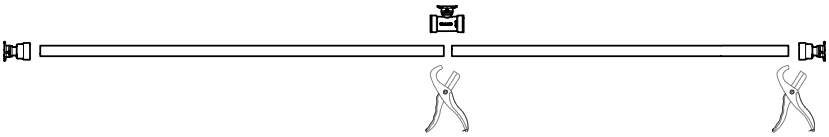
1. Dig trenches for heads as needed to place the head as close as possible to the outside edges of the sprinkler zone.

⚠ For heads located along sidewalks, driveways, or curbs plan on spacing heads 1" to 2" from the edge or according to local code.

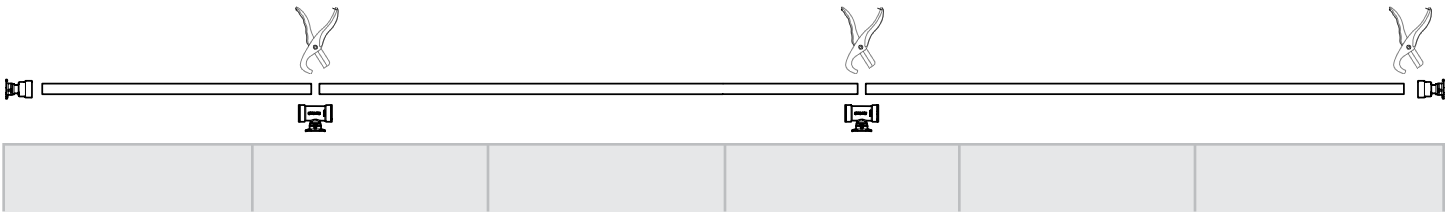


10. INSTALL PIPE AND FITTINGS FOR SPRINKLER ZONES (CONT'D)

2. Lay 3/4" Blu-Lock pipe in the trench and install end head fittings as shown.



3. Cut the pipe at the next head location and install the fittings as shown.

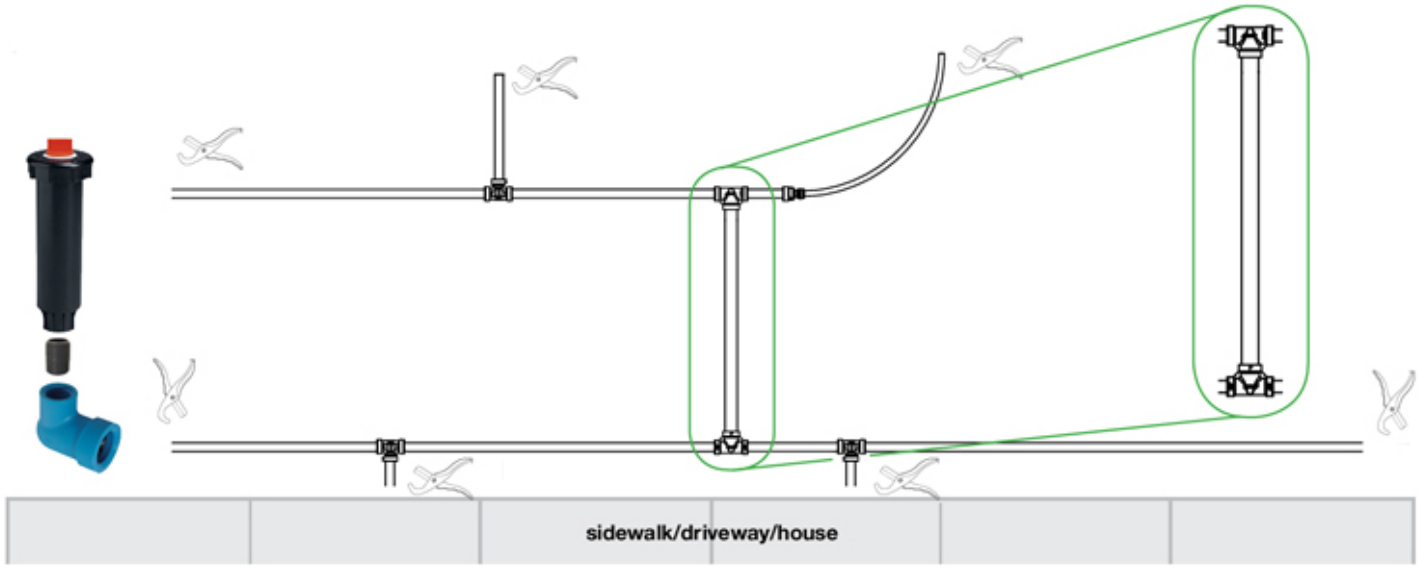


4. Repeat for all remaining head locations on this zone.

5. Install 3/4" Blu-Lock pipe at head location. Lay pipe in head trench and cut pipe to ground level at head location.

6. Repeat step 5 for all remaining heads on this sprinkler zone.

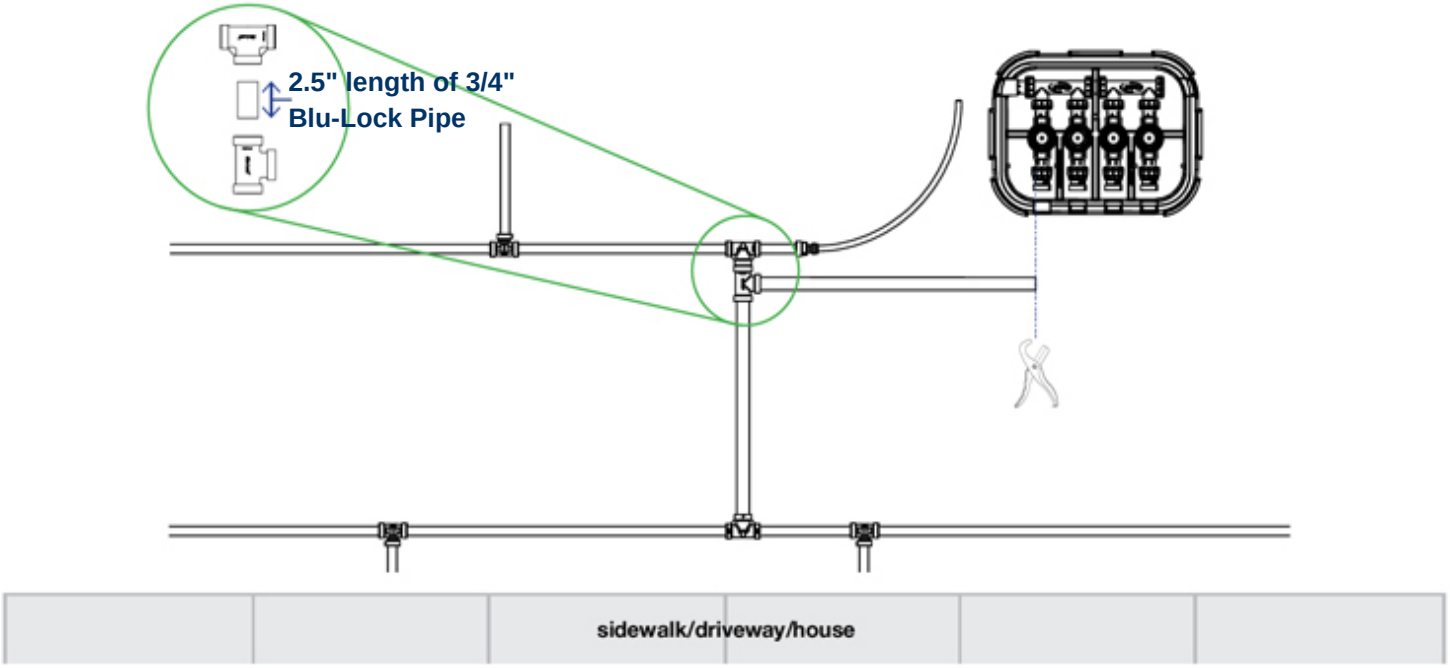
7. Connect 3/4" lines using 3/4" tees and 3/4" Blu-Lock pipe.



10. INSTALL PIPE AND FITTINGS FOR SPRINKLER ZONES (CONT'D)

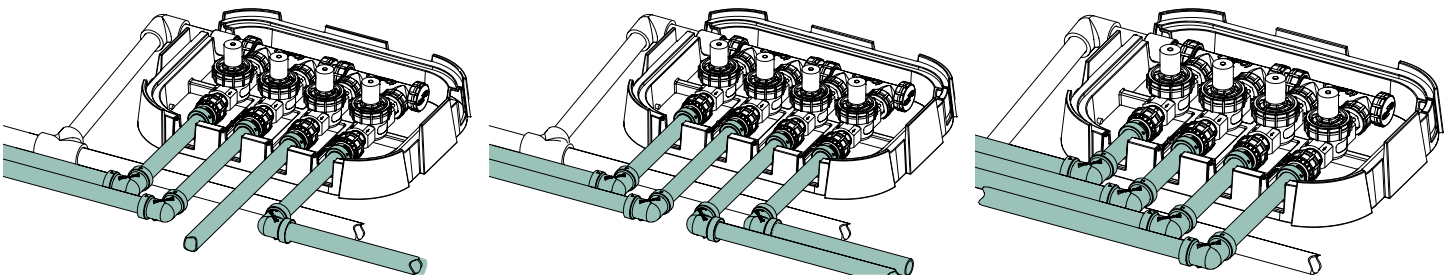
8 Install 3/4" tee or 3/4" x 3/4" x 1" tee and 3/4" or 1" pipe at the location of the trench that leads from this zone back to the manifold.

9 Cut pipe in line with the edge of the valve to which it will connect.



⚠ Do not install heads at this time. We will install heads in another section.

10 Install 3/4" elbow and cut and install pipe. Stagger the pipes from the valves so there is room for all the zones (see below).

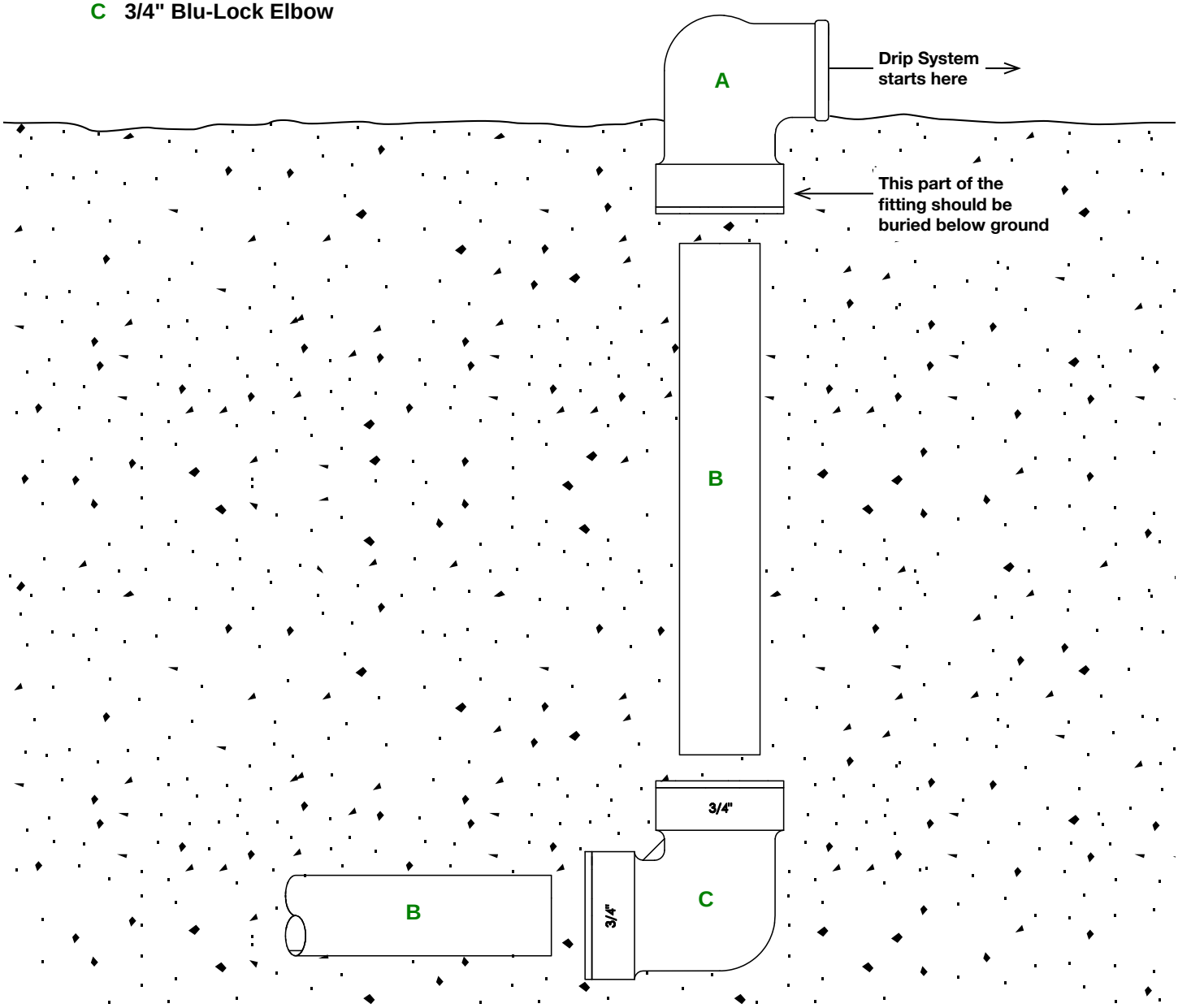


DRIP STUB FITTING

A22

See **www.irrigationdepot.ca** for drip design options

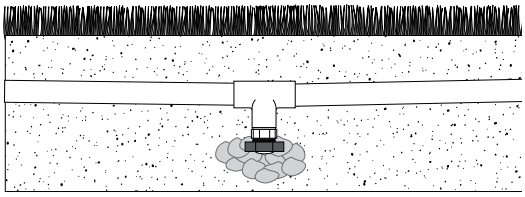
A **3/4" x 1/2" FPT Blu-Lock Elbow**
B **3/4" Blu-Lock Pipe**
C **3/4" Blu-Lock Elbow**

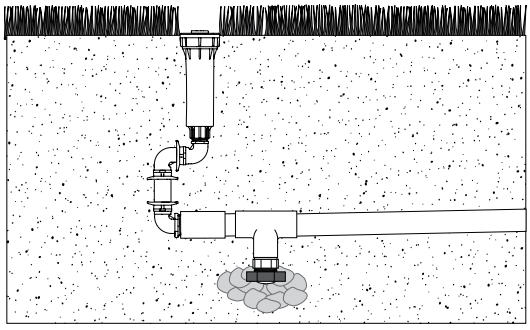


11. INSTALL AUTO-DRAINS (FREEZING AREAS ONLY)

Where freezing is a concern we recommend you install auto-drain valves at the low spots in the system and on the downhill ends of sloping pipes. The auto drains must be at the lowest points in the line.

⚠ Do Not install auto-drains on the Poly mainline

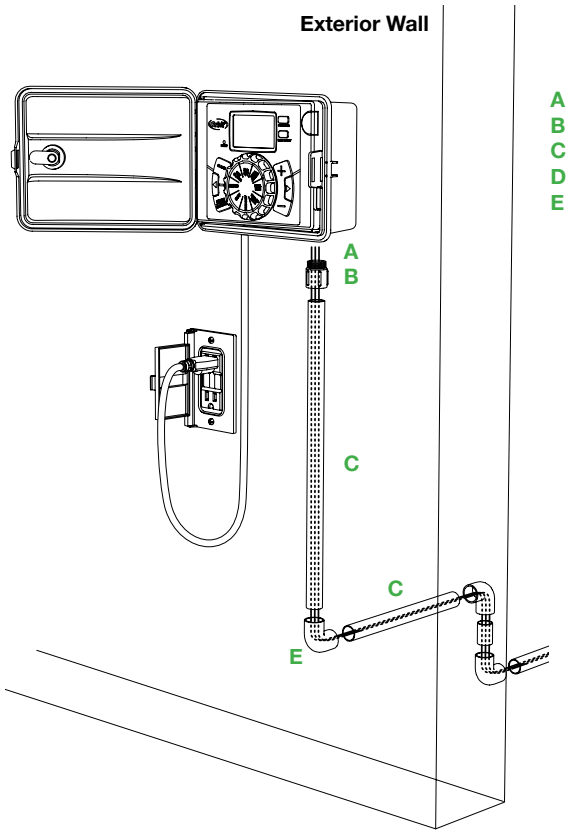




12. INSTALL THE TIMER

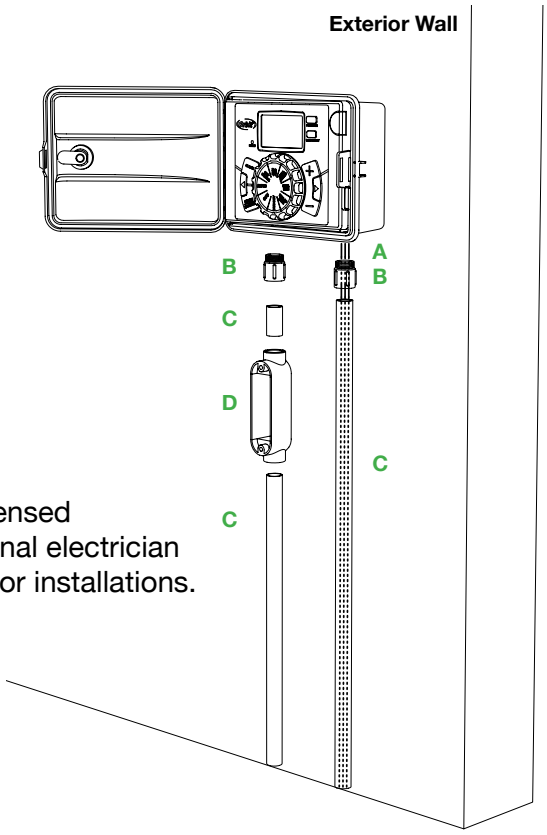
The timer provided can be mounted indoor or outdoor. For indoor installation refer to the diagram below and the next page. For outdoor installation use a licensed professional electrician.

INDOOR INSTALLATION



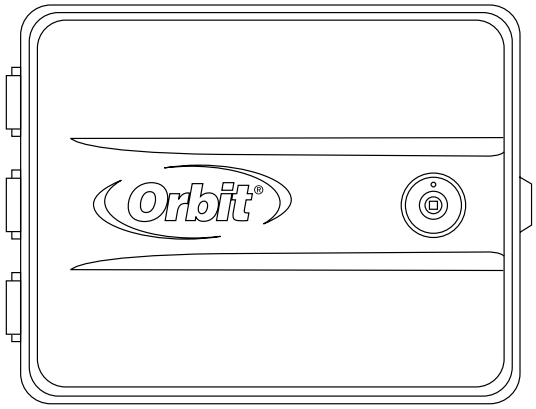
- **A** Sprinkler Wire
- **B** 1/2" Conduit Nipple
- **C** Conduit
- **D** Junction Box
- **E** Elbow

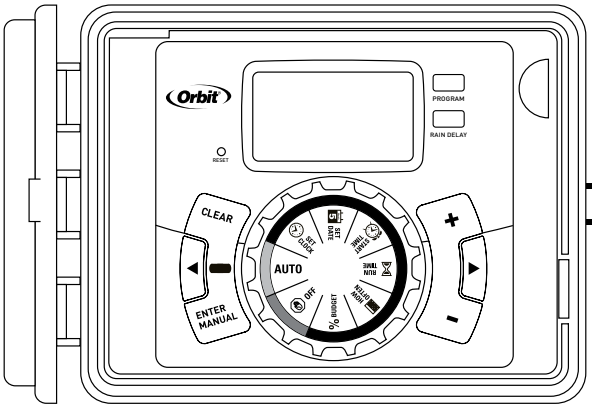
OUTDOOR INSTALLATION



⚠ Use a licensed professional electrician for outdoor installations.

12. INSTALL THE TIMER (CONT'D)





Use the mounting template (included) to mark the mounting screw location on the wall. See Figure 1

Install a No. 8 screw (included) into wall in the upper template location. Leave the screw head protruding 1/8" (3mm) from wall. Use expanding anchors (included) in plaster or masonry, if necessary, for a secure hold.

Slip the timer over protruding screw (using keyhole slot in back of timer). See Figure 2

Drive a No. 8 screw through one of the two pre-formed holes located in lower back cabinet to secure timer to the wall. See Figure 2

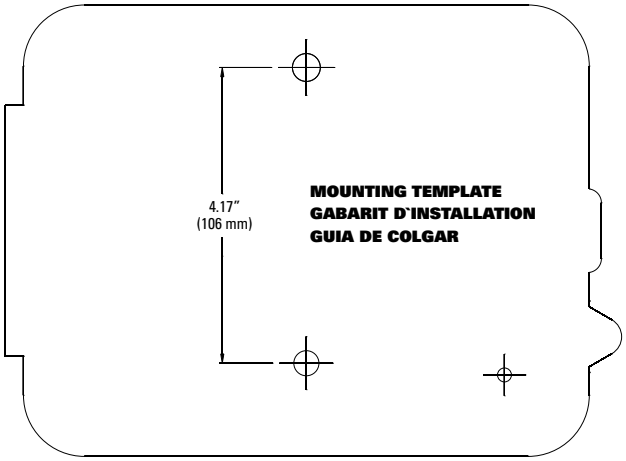


Figure 1: Use Mounting Template (included)

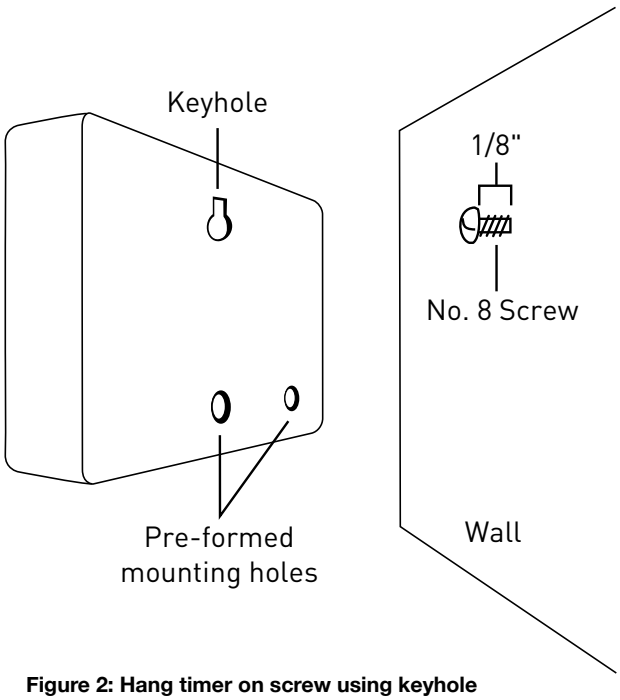


Figure 2: Hang timer on screw using keyhole

13. INSTALL SPRINKLER WIRES

Run the wire from the timer to each manifold using the existing trenches. Use the **WIRING MAP** and the diagrams below as a guide. The wire provided is rated for direct burial but you may chose to run the wire inside a conduit to prevent future damage to the wire.

1. Lay sprinkler wire as deep as possible in trenches from the timer to each manifold
2. At the manifold remove 4" to 5" of the outer insulation and about 1" of insulation from each individual wire (Figure 1)
3. Use a wire nut to connect one wire from each valve and the white wire from the sprinkler wire (Figure 2)
4. Use a wire nut to connect the remaining wire on the first valve to one of the colored wires from the sprinkler wire. Repeat this step until all valves in the manifold are connected (Figure 3)
5. Insert each wire nut into the corresponding cavity inside the “Easy Wire” organizer, slide the mounting bracket onto the organizer and attach to the manifold (Figure 4)

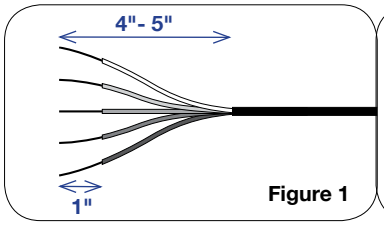


Figure 1

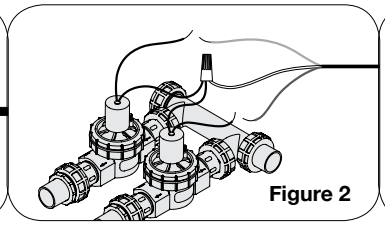


Figure 2

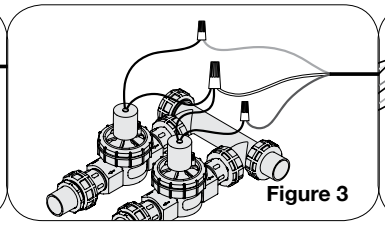


Figure 3

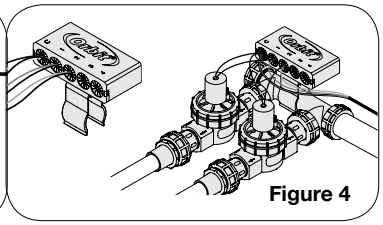
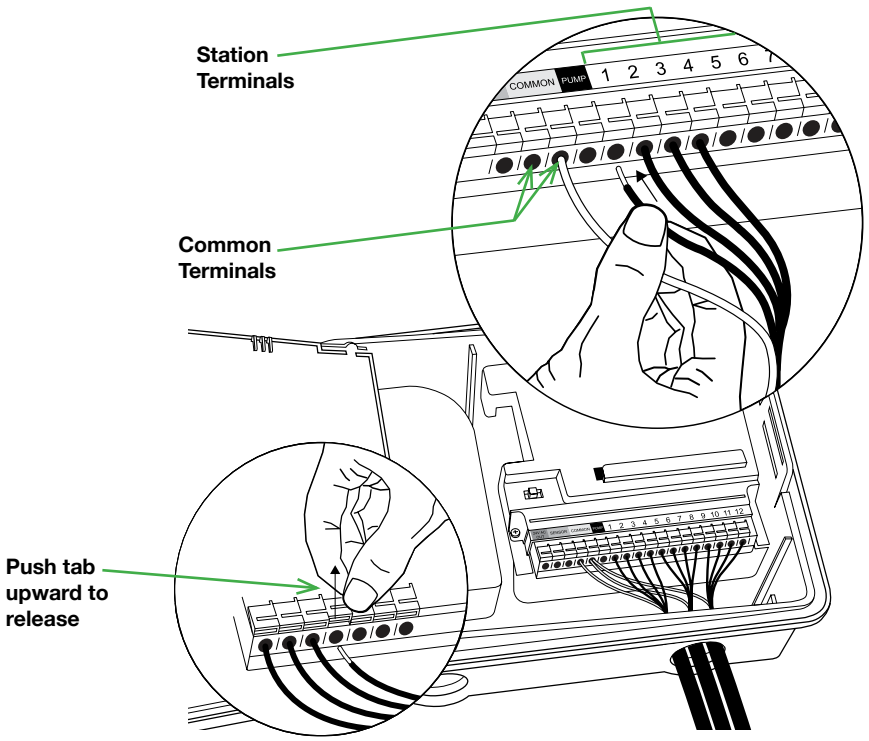
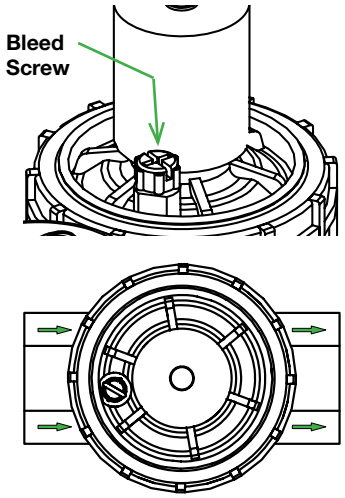


Figure 4

6. At the timer remove 4" to 5" of the outer insulation and about 1" of insulation from each individual wire (Figure 1)
7. Connect the wires from the valves to the timer by inserting the white wire(s) into the common terminal and each one of the colored wires into one of the station terminals labeled 1, 2, 3, etc.
8. To release a wire from a terminal push the tab upward then gently pull the wire out.



14. TURN THE WATER SOURCE ON



Make sure the bleed screw on all the valves is in the closed position (turn clockwise to close). Slowly turn the mainline water source on. Make sure all shut-off points prior to the valves are in the on position.

⚠ Some of the valves may come on briefly. If they do not shut off in a few seconds check that the bleed screw is turned clockwise until it stops. If the valve remains open shut off the water source and check that the valves are installed correctly. Check to make sure the arrows on the valves point in the direction of flow.

15. CHECK POLY MAINLINE AND MANIFOLDS FOR LEAKS

Once the valves have pressure behind them and they are all off check the manifold connections and the Poly pipe for leaks.

16. TEST EACH ZONE

Using the timer manually test each sprinkler zone. Check the valves, pipes, and fittings for leaks. This is also the step in which you flush any debris (i.e. dirt and rocks) out of the system. Make sure each head location is flowing freely.

17. INSTALL HEADS AND NOZZLES AND ADJUST PATTERNS

Install the heads, fittings and nozzles one zone at a time using the **Irrigation Depot.ca Plan** and the following assembly pages as a guide. Match the nozzles called out on the maps to the nozzle tables on the following page. Make preliminary adjustments to the nozzles then turn on that sprinkler zone manually to check for leaks around the heads and to make additional adjustments to the nozzle spray patterns.

Match the nozzle called out on the Irrigation Depot Plan to the corresponding head nozzle chart.

A 4" Spray Head
B 3/4" Gear Drive Head (Voyager II)
C 1/2" Gear Drive Head (Saturn III)
D 1/2" Nipple
E 1/2" x 3/4" Nipple
F 3/4" Blu-Lock x 1/2" FPT Elbow

⚠ Do not overtighten.

A19

Nozzle

4', 6', 8', 10', 12', 15' Adjustable
EST 5' x 15'
SST 5' x 30'
CST 5' x 30'

A20

Nozzle

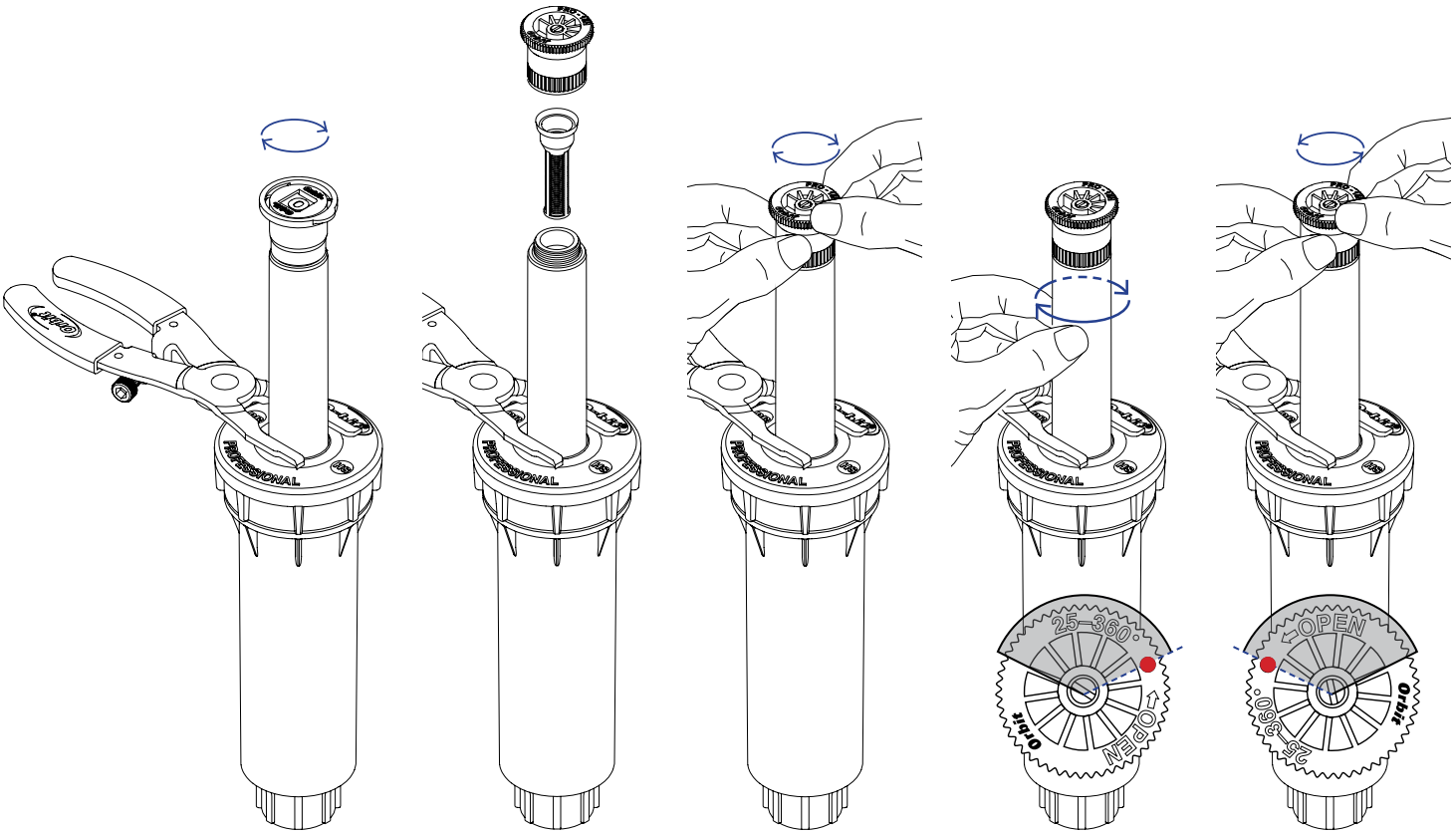
V1.0	1.0 GPM
V2.0	2.0 GPM
V3.0	3.0 GPM
V4.0	4.0 GPM

A21

Nozzle

RED	0.75 GPM
BLUE	1.50 GPM
GREEN	3.00 GPM

A19 PATTERN ADJUSTMENT INSTRUCTIONS



1. Lift stem up using the pull tab. Hold stem in place using pop-up tool. Rotate flush cap counter-clockwise to remove.

2. Insert grey nozzle filter into stem and install the correct nozzle turning it clockwise.

3. Hold the base of the nozzle with your left hand. With right hand gently turn nozzle top clockwise until it stops.

4. Rotate the ratcheting stem until the round dot (highlighted here in red) is lined up with the right edge of the desired spray pattern.

5. Hold the nozzle as shown in step 3 and gently turn the top counter-clockwise until the round dot lines up with the left edge of the desired spray pattern.

A20 AND A21 PATTERN ADJUSTMENT INSTRUCTIONS

Set the Pattern Before Installation: **Adjustment Video**

Gear drive sprinkler can be set to rotate between 40° and 360° (preset at 180°)

Turn the top of the head all the way to the left until it stops and then all the way to the right. This is the starting point for the rotation (Figure 1). Insert the plastic end of the key into the pattern adjustment hole (Figure 2). Turn clockwise to increase rotation; counterclockwise to decrease rotation. Each full turn increases/decreases rotation by 90˚ (Figure 3).

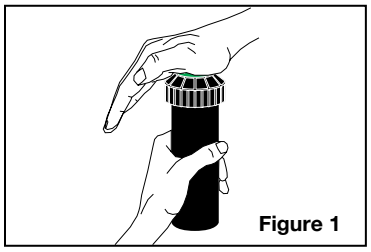


Figure 1

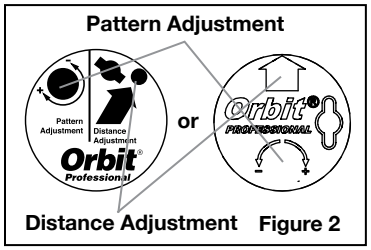


Figure 2

Remove and Replace the Nozzle:

1. To access the nozzle, remove stem from canister by unscrewing the cap and lifting the stem assembly out of the canister.

2. Rest bottom of stem assembly on a hard surface or against your hand and press firmly down on the cap to compress the spring. Note: The spring inside the canister is very strong.

3. Firmly grip the sprinkler stem.

4. Insert the hex (metal) end of the key into the distance adjustment slot (Figure 2).

5. Turn the screw counterclockwise until it is just clear of the nozzle.

Caution: DO NOT turn the adjustment screw too far in either direction—screw may come free of threads.

6. The nozzle can then be removed by prying outward under the nozzle.

7. Insert the correct replacement nozzle (see tables 1 and 2) and align vertically, then turn the screw back into place.

8. Replace stem assembly into canister and screw cap on tightly.

9. Adjust distance if necessary (see Set the Spray Distance).

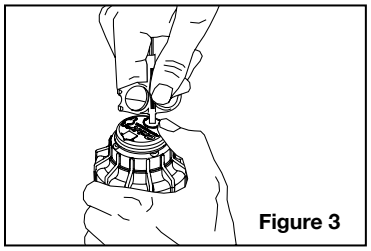


Figure 3

Table 1.
GDV NOZZLE
IDENTIFICATION TABLE

Pattern	Nozzle
Quarter	1.0
Half	2.0
Three-quarter	3.0
Full	4.0

Table 2.
GDS NOZZLE
IDENTIFICATION TABLE

Pattern	Nozzle
Quarter	0.5
Half	1.0
Three-quarter	1.5
Full	2.0

Set the Spray Distance After Installation:

Set the spray distance with water on under system's normal operating pressure.

Insert the hex (metal) end of the key into the distance adjustment slot (Figure 2). Turn clockwise to decrease distance; counterclockwise to increase distance.

Caution: DO NOT turn the adjustment screw too far in either direction—screw may come free of threads.

18. INSTALL VALVE BOXES AND BACKFILL TRENCHES

Once you have verified there are no leaks install all the valve boxes for the system and backfill the trenches.

⚠ When backfilling trenches make an effort to ensure there are no large rocks resting on or against the pipes and fittings. As your soil settles with time large rocks can cause premature failure.

⚠ Be careful not to cut or damage the sprinkler wires when backfilling. It is very difficult to find and repair bad wiring after the system is buried.

19. FINE TUNE NOZZLES AND PATTERNS

After filling in the trenches, manually turn on each sprinkler zone one at a time and fine tune the nozzle spray patterns. Refer to the nozzle adjustment pages as needed.

20. SET THE TIMER

Using the instructions booklet included with the timer set the desired program.

APPENDIX

WORKING WITH POLY PIPE

Orbit Sprinkler System Designer specifies Poly Pipe for all mainline pipe and connections after the source connection up to and including the valve manifolds (the valves control water flowing to the individual areas or "zones" in your yard).

Poly pipe has many good qualities. It is inexpensive, relatively easy to work with, and has a very long useful life. We recommend Poly pipe for the constant-pressure mainline part of your system (the part going from your water source to your sprinkler valves). However, we recommend our environmentally friendly Blu-Lock for all lateral sprinkler lines (the pipes coming out of your valves that go to your sprinklers). In a typical system lateral lines are over 80% of the total pipe used, so your system will be very "green".

⚠ **Use poly insert fittings and double clamps for each connection on the mainline.**

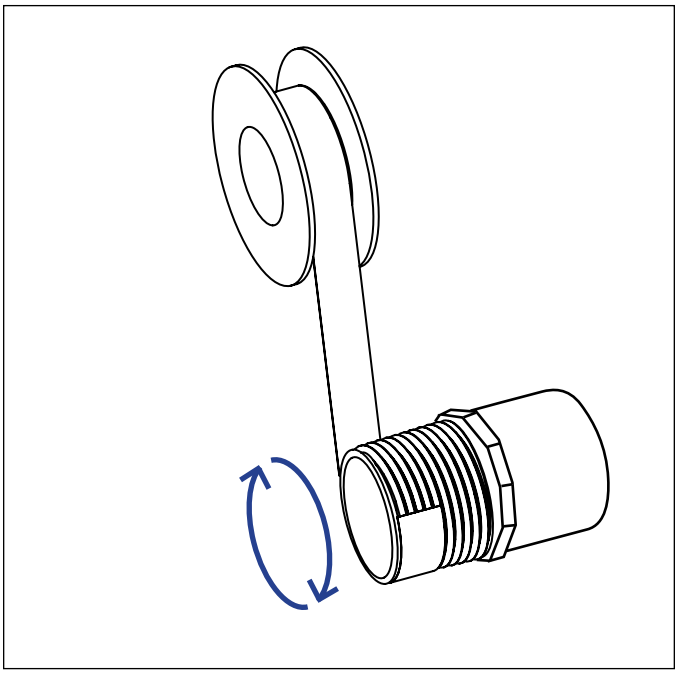
APPENDIX

JOINING PVC THREADED FITTINGS

Tools and Materials Required: Fittings, pipe tape, channel locks

The most common way to join PVC threaded fittings is with PTFE or “Teflon” tape. You should never use oil-based pipe dope (typically comes in a tube) to join sprinkler fittings. Some sprinkler fittings are made of a material called ABS and oil-based pipe dope causes an adverse chemical reaction with it, leading to premature failure of the fitting or part. PTFE tape is a clean and simple way to join pipe:

Step 1. Hold the tape correctly. Always hold the tape so that the tape ribbon is going away from you and under the roll. This is not intuitive your first time, but with a little practice you will find that it makes a lot of sense.



Step 2. Wrap. Place the front piece of the tape ribbon on the second thread from the end of the fitting or pipe and hold it with your finger. Wrap the tape away from you and down and around the pipe at least two times and then start the third wrap with a 50% overlap of the previous wrap and so on until you reach the end of the threads furthest from the end of the pipe.

Step 3. Insert taped fitting into female connection and tighten until hand tight. Do not overtighten as this may damage the fitting.

Step 4. Always pressure-test all fittings prior to use. A small leak will not seal itself and over time can cause water damage.

Note: The 1/2" and 3/4" Blu-Lock fittings that connect to the sprinkler heads do not require PTFE tape. NEVER use oil-based pipe dope on Blu-Lock fittings.

APPENDIX

WORKING WITH Blu-Lock® BY HYDRO-RAIN

Tools and Materials Required: Fittings, pipe tape, channel locks

Blu-Lock is the fastest way to install an automatic sprinkler system and it offers several other distinct advantages over insert fittings. While Poly pipe, fittings and joints are well-suited to the constant-pressure environment of the mainline - which is typically about 10-20% of the total pipe in your system - Blu-Lock is ideally suited for all sprinkler zone pipes (those going out from the valve manifold) because it is fast to install, flexible, has a very long useful life, is clean to produce, and is recyclable.

JOINING BLU-LOCK PIPE AND FITTINGS

Blu-Lock pipe and fittings are designed to be used exclusively together. NEVER use another manufacturer's pipe with Blu-Lock fittings. To install Blu-Lock, follow these simple steps:

Step 1: Uncoil pipe and lay flat prior to installation to reduce pipe recoil.

Step 2: Mark pipe 1" (25mm) from end.

Step 3: Push pipe into fitting until mark on pipe is even with end of fitting.

The steps for joining Blu-Lock threaded fittings are the same as for PVC, as described above.

Please note the following warning which applies to all Blu-Lock fittings and pipe:

WARNING: For non-constant pressure valve-out cold water outdoor direct burial irrigation connections only. Blu-Lock fittings contain sharp, stainless steel retainer ring. Do not insert fingers into fittings. Keep fittings and bags away from children. Do not use pipe dope. Do not kink pipe. If pipe kinks, discard kinked section.

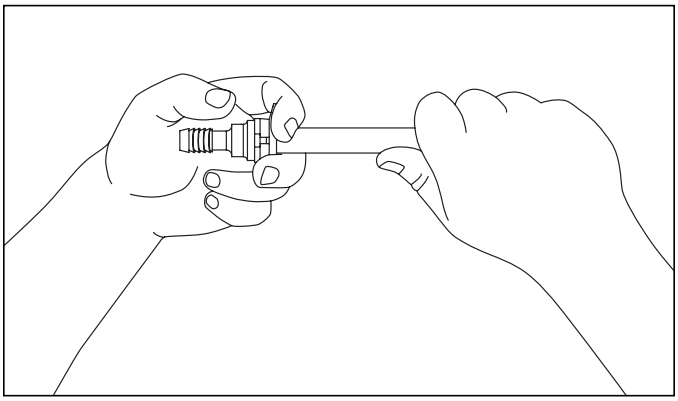
REMOVING BLU-LOCK PIPE FITTINGS

Most 1/2" Blu-Lock fittings are designed with a release ring that allows the fitting to be reused. This is another advantage that Blu-Lock has over PVC. In order to release the fitting, follow these steps:

Step 1. Hold the pipe firmly in one hand and place the fore- and index fingers of your other hand over the black release ring.

Step 2. Pull the release ring and pipe firmly away from each other while rotating the pipe in a clockwise direction until the fitting separates from the pipe.

Step 3. Cut off scored end of the pipe prior to reusing (you will see teeth marks on the pipe from the fitting and these will prevent proper reseal).



APPENDIX

JOINING 3/4" AND 1" BLU-LOCK PIPE AND FITTINGS TO POLY PIPE

3/4" and 1" Blu-Lock pipe have the same internal dimensions (ID) as 3/4" and 1" poly pipe. However, you should never use Blu-Lock fittings with another manufacturers poly pipe. In the event that your store does not carry 3/4" or 1" Blu-Lock Pipe, you may use standard poly insert barbs and clamps, which are available at your local store, to join 3/4" and 1" Blu-Lock Pipe to poly pipe. To add additional poly pipe to Blu-Lock:

Step 1: Use poly insert fitting and correct number of clamps for each connection.

Step 2: Firmly insert barbed end of poly insert barb into Blu-Lock pipe until fully seated.

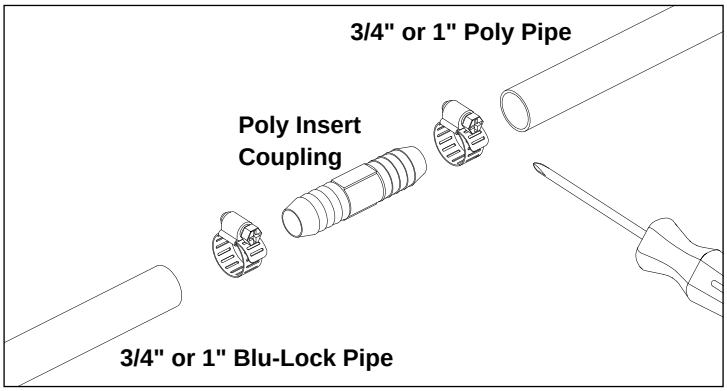
Step 3: Slip pipe clamp over joint and tighten firmly.

Step 4: Slip remaining clamps on fitting barbed ends.

Step 5: Firmly insert barbed end of poly insert barb into additional poly pipe until fully seated.

Step 6: Slip pipe clamp over joint and tighten firmly.

Step 7: Repeat steps 5 and 6 as many times as needed to add desired additional poly pipe.



Orbit® Sprinkler System Designer™

MAPS AND PARTS LIST

see www.irrigationdepot.ca