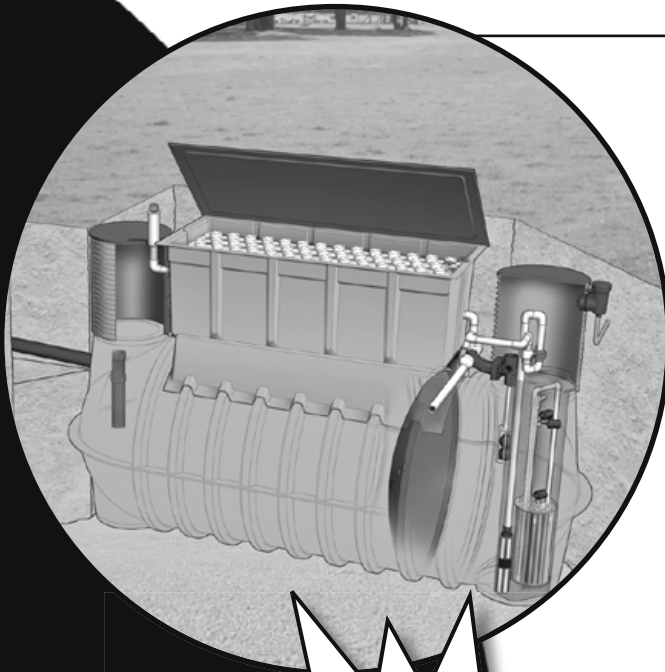


# Installation Manual

**AdvanTex® AX20  
Treatment Systems**

***Residential Applications***



***An illustrated guide to installing an  
Orenco AdvanTex® AX20 Treatment  
System in a residential application.***

**Installation  
DVD Available!  
Call Your  
Dealer.**



**Orenco Systems®**  
Incorporated

*Changing the Way the  
World Does Wastewater®*

**800-348-9843  
541-459-4449  
[www.orenco.com](http://www.orenco.com)  
[www.vericomm.net](http://www.vericomm.net)**

# Installation Manual: *Residential AdvanTex® AX20 Systems*

**Before You Begin** ..... **Page 1**

**Overview** ..... **Page 2**

## **Installation Steps**

Step 1: Review or Sketch Site Plans	Page 3
Step 2: Excavate and Set Tank	Page 4
Step 3: Install Risers and Water Test Tank	Page 6
Step 4: Excavate and Set AdvanTex Pod	Page 8
Step 5: Install Filtrate Return and Discharge Lines	Page 10
Step 6: Install Recirculating Splitter Valve	Page 11
Step 7: Install Biotube® Pump Package	Page 13
Step 8: Connect Transport Line to Pod	Page 15
Step 9: Install Passive Air Vent	Page 16
Step 10: Install Control Panel	Page 16
Step 11: VeriComm® Control Panel Functional Test	Page 17
Step 12: System Functional Test	Page 20
Step 13: Backfill Installation	Page 21

## **Appendixes**

Appendix 1: AX20 Timer Settings Worksheet	Page 22
Appendix 2: Installing Grommets	Page 23
Appendix 3: RSV and Float Level Diagram	Page 24
Appendix 4: PBAX Pump Basin Installation	Page 26

*Products described in this manual are covered by one or more of the following U.S. Patent numbers: 6,540,920; 6,372,137; 5,980,748; 5,531,894; 5,480,561; 5,360,556; 5,492,635; 4,439,323. Products are also covered by foreign patents, and additional patents are pending.*

## ***Before You Begin***

As the installer of an onsite wastewater treatment system, you play a crucial role. Dealers, regulators, homeowners, manufacturers, neighbors, service providers ... we all rely on your expertise and good work. At Orenco, we've worked hard to make your installation as easy and "hassle-free" as possible.

We're very proud of this wastewater treatment system. Like all our products, the AdvanTex® AX20 Treatment System has gone through extensive research, development, and field-testing. Then each component is built to written specifications and subjected to quality review before shipping. In addition, our AX20N models meet the requirements of NSF-ANSI

Standard 40 for Class I Systems. If this system or any of its components possesses flaws that would inhibit its proper functioning, please contact your authorized AdvanTex Dealer. The Dealer can also provide repair and replacement instructions and replacement components. If there is no authorized AdvanTex Dealer in your area, call Orenco Systems, Inc. at 800-348-9843 or 541-459-4449.

This manual covers installation of all residential models of our AdvanTex AX20 Treatment Systems, including Mode 1 and Mode 3 configurations. If you're unsure which mode you are installing, check the design drawing. It's important that you read through this entire manual before doing anything. And make sure you have the correct equipment, materials, tools, and training to perform this installation.

Additionally, each Orenco control panel comes with panel-specific information and instructions on wiring, timer settings, and operating instructions. Please read all other documents included with the control panel, as well.

Also, be sure to get a copy of our AX20 Install Video from your AdvanTex Dealer. Watching the video will help you understand the installation process. However, please note that the manual contains more detail and is updated more often than the video, and *you must perform the installation according to the current manual to keep the warranty in force.*

Once you become familiar with the installation process, you should be able to install an AdvanTex AX20 Treatment System in half a day, not counting the time to install the tank and dispersal system.

## **Important Notes**

- *All tanks used with AdvanTex Treatment Systems must be prequalified. Call your local Dealer for specifics.*
- *The backwash discharge from a salt-type water softener MUST NOT be plumbed into an AdvanTex Treatment System, or the system's warranty will be void. Contact your AdvanTex Dealer if you have any questions about household plumbing arrangements that may interfere with the functioning of the system.*
- *All pipe diameters given are U.S. nominal IPS pipe sizes. If you are using metric pipe, you may need adapters to connect to the U.S. fittings supplied.*
- *If you are not a trained AdvanTex Installer, contact your local Dealer or Orenco for training before installing this system.*



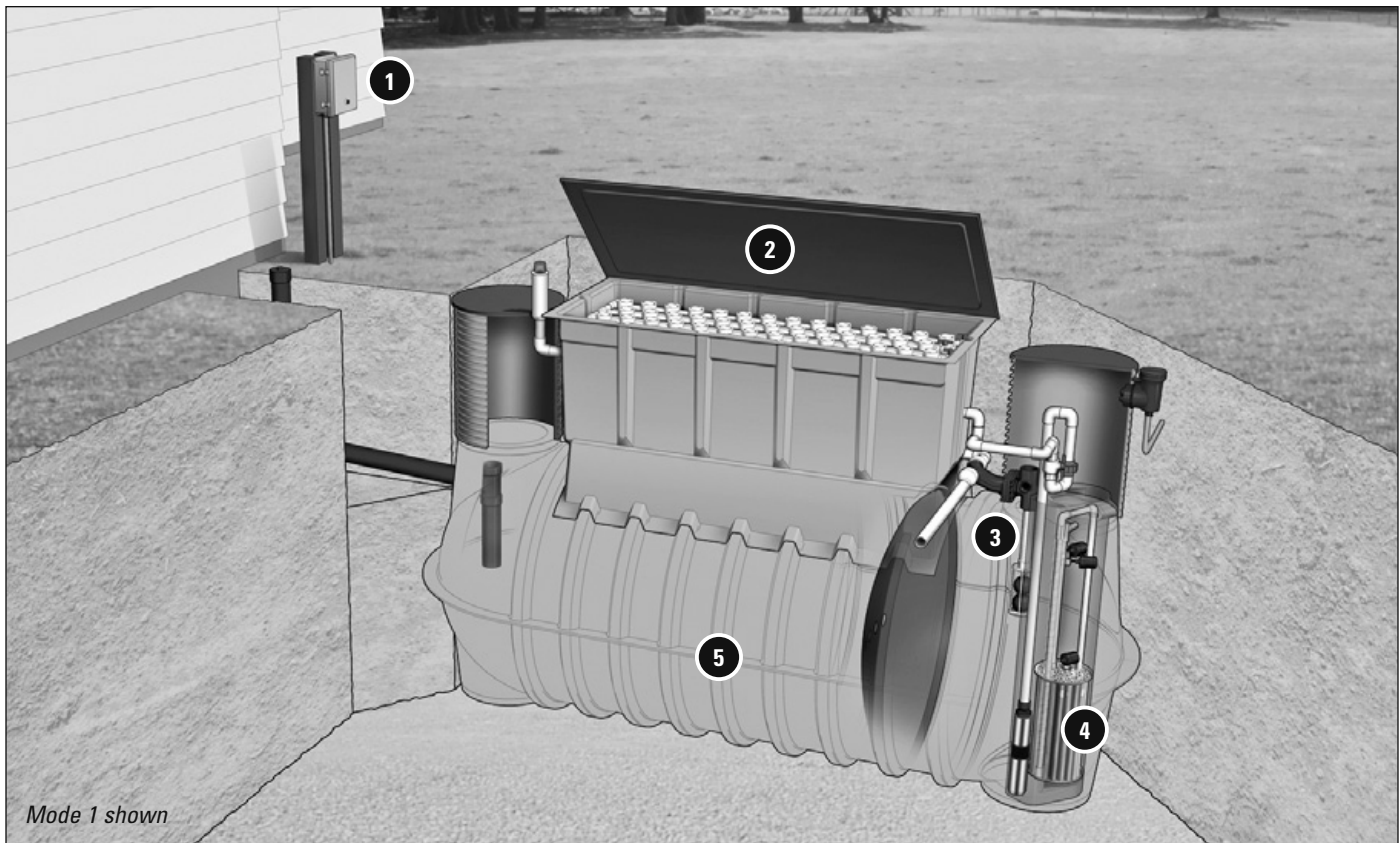
*Property owners, neighbors, regulators, Dealers, manufacturers, and service providers all depend on your careful installation.*

## 2 Installation Manual: *Residential AdvanTex® AX20 Systems*

### Overview

The AdvanTex AX20 Treatment System has five main functional units:

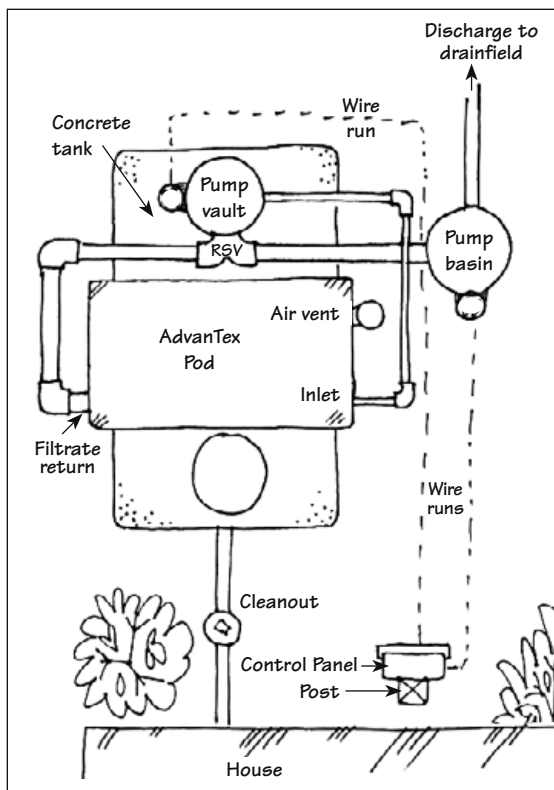
1. Control Panel
2. AdvanTex Filter Pod
3. Recirculating Splitter Valve
4. Biotube® Pumping Package
5. Processing Tank



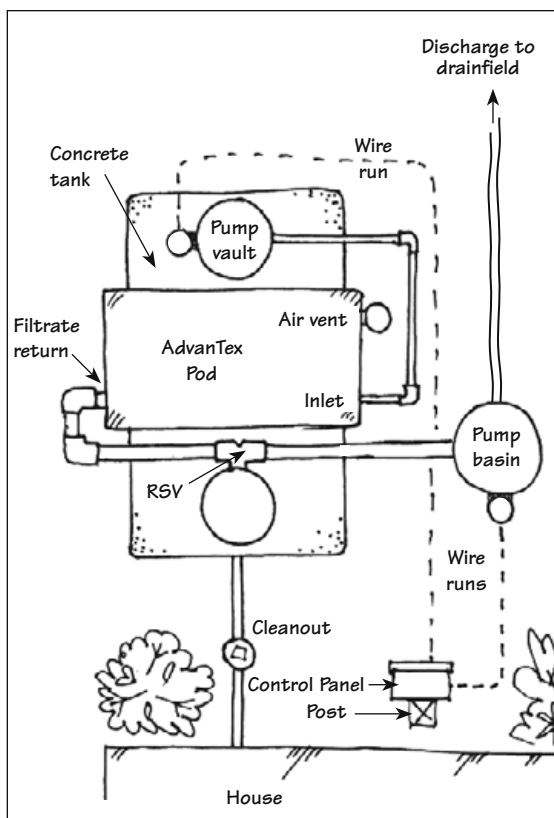
Raw sewage enters the two-compartment processing tank through its inlet tee. In the first compartment, the raw sewage separates into three distinct zones: a scum layer, a sludge layer, and a clear layer. Holes in the tank's baffle wall allow effluent from the clear layer to flow into the second compartment of the tank. The Biotube pump package in the second compartment pumps filtered effluent to a distribution manifold in the AdvanTex pod. Effluent percolates down through the textile media and is collected in the bottom of the filter basin. The treated effluent flows out of the filter pod through a 2-in. diameter pipe that returns the treated effluent to the recirculating splitter valve (RSV). The RSV automatically splits the return flow between the processing tank and the final discharge. The RSV also controls the liquid level within the processing tank. During extended periods of no flow, 100% of the treated effluent is returned to the processing tank.

The operation of the pump in the second compartment is controlled by a programmable timer in the control panel, which allows the pump to dose the filter for short periods (usually a half-minute or less), typically 72 times a day. This frequent "microdosing," which optimizes the treatment process, occurs 24 hours a day, to maintain the proper biological environment.





Sample sketch of a Mode 1 configuration system layout



Sample sketch of a Mode 3 configuration system layout

## Step 1: Review or Sketch Site Plans

Before starting the installation, familiarize yourself with the site plans and specifics of your installation. For multipod residential systems, contact your local Dealer for special instructions on layout, installation, and equipment. If you are installing the AdvanTex pod more than 20 feet (6 meters) away from the tank, contact your Dealer or Orenco for assistance.

### 1a) Detailed Site Plans Provided:

If you are installing the AdvanTex AX20 System according to a set of detailed plans, we recommend that you make sure that the plans you have accurately reflect conditions at the site. If there are differences between the physical site and the plans, we recommend you contact the Designer before scheduling the installation.

### 1b) No Site Plans Provided:

If you are installing the AdvanTex System without detailed site plans, or with plans of limited detail, the Orenco *AdvanTex Treatment Systems Design/Engineering Package for Residential Applications* can help you design your system layout successfully. For a copy, contact your local Dealer or Orenco.

- Determine and sketch the exact positions of the tank and AdvanTex pod on the site. If a pump basin is required, sketch the location of the pump basin. (See Appendix 4, "PBAX Pump Basin Installation.") Account for current and likely future landscape features in your sketch.
- Be sure to position the tank and pod to allow for a minimum  $\frac{1}{4}$  inch per foot slope (20 mm per meter, or a 2% slope) in the line from the filtrate return at the bottom of the pod to the inlet of the RSV. (See Appendix 3, "RSV and Float Level Diagram.")
- Determine and sketch the positions and lengths of your pipe runs and connections in as much detail as possible. During the installation, write down measurements to critical buried elements.
- Sketch the placement of the control panel. (See Panel Installation, EIN-CP-GEN-1, for installation recommendations.)

The AdvanTex pod can be placed in several different positions in relation to the tank. Before determining which position is best, look to see how the filtrate return line needs to be run. Notice that the outlet for the filtrate return line and the inlet for the transport pipe are typically installed on opposite sides of the pod.

## Step 2: Excavate and Set Tank

This section covers excavating the hole for the tank and setting the tank. For information on excavating the hole for the AdvanTex pod, see Step 4. For information on excavating the hole for the discharge pump basin, see Appendix 4, “PBAX Pump Basin Installation.”

Consider the necessary elevations and grade requirements for the tank and AdvanTex pod before excavating the hole for the tank.

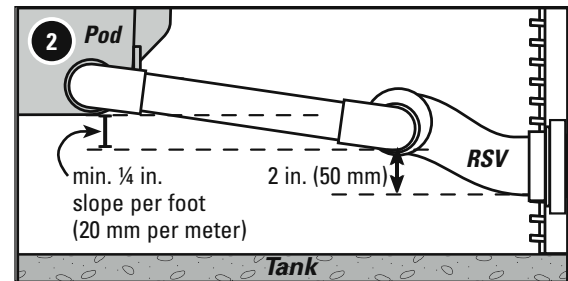
The tank must be set deep enough below the pod to allow for a minimum  $\frac{1}{4}$  inch per foot slope (20 mm per meter, or a 2% slope) from the outlet of the filter to the inlet of the RSV on the riser. (Using an Orenco tank saddle on a concrete tank or on an Orenco fiberglass tank will create the correct slope.) Also, keep in mind that the top of the AdvanTex pod needs to sit  $1\frac{1}{2}$  inches (40 mm) above final grade.

If a concrete tank is used or if an Orenco fiberglass tank without a tank saddle is used, you need to calculate how high to elevate the pod above the tank. Variables include:

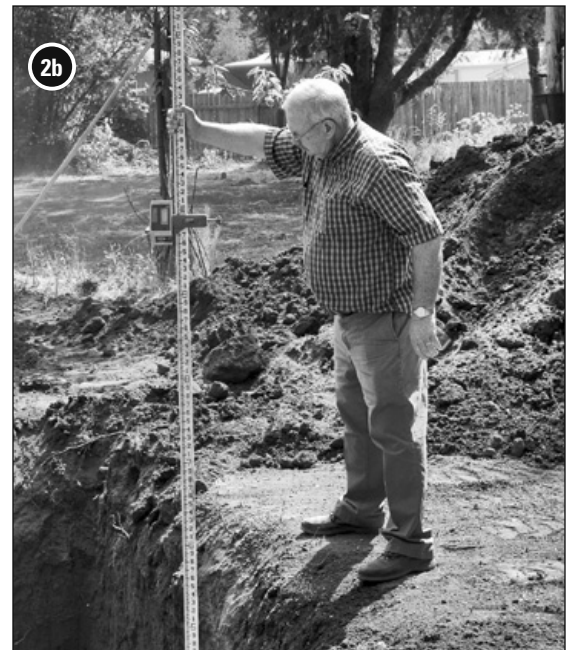
- Length of the filtrate return line
- Type of tank being used
- Style of the tank adapter being used
- Elevation of the RSV3Q penetration in the riser
- Final grade of the site

**Step 2a:** Outline an excavation area (with chalk, paint, string, etc.) for the tank. If you plan to place your discharge basin in the tank excavation, refer to Appendix 4, “PBAX Pump Basin Installation.”

**Step 2b:** Excavate the hole for the tank following the tank manufacturer’s recommendations. Remember that you need the correct depth for a consistent  $\frac{1}{4}$  inch per foot slope (20 mm per meter, or a 2% slope) from the filtrate return to the RSV.



Calculate the height of the pod above the tank based on the designed length of your filtrate return line and the installed height of your RSV above the tank.





**Step 2c:** Make sure the bottom of the excavation is free of debris, especially rocks and other sharp objects. If the bottom of the excavation is uneven or rocky, lay a 4-in. (100 mm) bed of sand or pea gravel and compact the material to create an even, smooth surface.

**Step 2d:** Set the tank following the manufacturer's instructions. Follow the tank manufacturer's guidelines for watertight testing, antiflotation measures, and backfilling to the level of the top of the tank. Do not backfill past the top of the tank at this time.

**NOTE:** An AdvanTex pod can be attached to an Orenco FRP tank using an Orenco Fiberglass Tank Saddle. Consult the *Fiberglass Tank Saddle Installation Instructions (NIN-SAD-1)* or *Two Piece Fiberglass Tank Saddle Instructions (NIN-SAD-2)*, available from the Document Library at [www.orencosystems.com](http://www.orencosystems.com). Some Dealers supply the AdvanTex pod already attached and plumbed (Fully Assembled Package - FAP) so that the tank and the AdvanTex pod can be installed as a unit, as shown in the photos at left. This simplifies installation and saves time.



Place tank on a 4-in. bed of compacted pea gravel in uneven or rocky excavations.

## Step 3: Install Risers and Water Test Tank

**NOTE:** An External Splice Box (if one is used) and a bracket for the Recirculating Splitter Valve (RSV) may come pre-installed on the risers. If not, refer to External Splice Box Installation Instructions (EIN-SB-SBEX-1), and install the external splice box on the riser before the riser is mounted. If you need to install an RSV bracket, refer to RSV3Q Installation Instructions, (NIN-RSV-3), and install the bracket before the riser is mounted. If an Internal Splice Box is supplied instead, follow the instructions in Step 7c to install it after the riser is in place.

**Step 3a:** Refer to the Riser Sizing Chart at right to ensure you are installing correctly sized risers for your application. Place the risers with their grommeted holes in the directions shown on your engineering plans. The riser that will have the RSV installed in it (inlet riser for Mode 3; outlet riser for Mode 1) must be installed so that the RSV inlet piping is oriented to accept the filtrate return line. For any risers that will have electrical conduits running to them, try to orient electrical grommeted holes to minimize the number of bends. (National Electrical Code limits the sum of all bends in a run to 360 degrees.)

**Step 3b:** Wipe the areas to be bonded with a clean rag to ensure a clean, dry bonding surface.

**Step 3c:** To bond the riser to the riser tank adapter, you can use either ADH100 or methacrylate adhesive alone. However, because ADH100 does not provide a structural joint for approximately 24 hours, you may want to use both adhesives. If so, apply methacrylate adhesive to the outside surface of the riser tank adapter for a quick (usually an hour or less) structural joint.

**Step 3d:** When applying adhesive to the riser with the RSV, apply an additional bead below the RSV bracket before placing the riser on the manway, because once the riser is in position, it is hard to reach under the RSV bracket with an adhesive gun.



External splice box



RSV bracket



Internal splice box

### Riser Sizing and Tank Opening Chart

	Mode 1	Mode 3
Inlet riser	24 in. (610 mm)	24 in. (610 mm)
Inlet tank opening	19 in. (483 mm)	19 in. (483 mm)
Outlet riser	30 in. (762 mm)*	24 in. (610 mm)
Outlet tank opening	23 in. (584 mm)	19 in. (483 mm)

\* Using an External Splice Box and an "earless" PVU (NB option) allows use of a 24-in. outlet riser.



Methacrylate adhesive



Apply bead of adhesive under RSV bracket

\* Orenco FRP tanks do not require an adapter. Risers are bonded directly to the tank.





**Step 3e:** Carefully slide the riser onto the adapter. Correctly orient the riser before the adhesive starts to set.

**Step 3f:** Apply a bead of adhesive to the inside of the adapter and riser joint; then use a putty knife or similar tool to form a continuous fillet between the tank adapter and the inside of the riser.

**Step 3g:** After the adhesives have hardened, fill the tank with clean water to a level 2 inches (51 mm) above the adhesive joint in the riser, to test the watertightness of the tank and the riser joint. Do not allow the water level to rise more than 3 inches (76 mm) into the riser because structural damage to the tank may occur. The inlet pipe into the tank needs to be turned up or plugged to allow the tank to be filled.

**CAUTION:** Check the tank manufacturer's guidelines before water testing the tank. Some tank manufacturers require a partial or complete backfill before a tank is water tested.

**Step 3h:** When the tank proves watertight, drain the excess water to about 1 inch (25 mm) above the RSV cage.

## Step 4: Excavate and Set AdvanTex Pod

Before installing the AdvanTex pod, consider the depth of the tank and the height of the RSV penetration in the tank riser.

Remember that the pod must be elevated high enough above the tank to allow for a minimum  $\frac{1}{4}$  inch per foot slope (20 mm per meter, or a 2% slope) on the filtrate return line, which runs from the outlet of the filter to the inlet of the RSV.

The top of the pod should also end up approximately  $1\frac{1}{2}$  inches (40 mm) above finished grade, to allow for settlement and drainage. Take into account any planned landscaping that might affect the finished grade of the system.

### With a Concrete Tank:

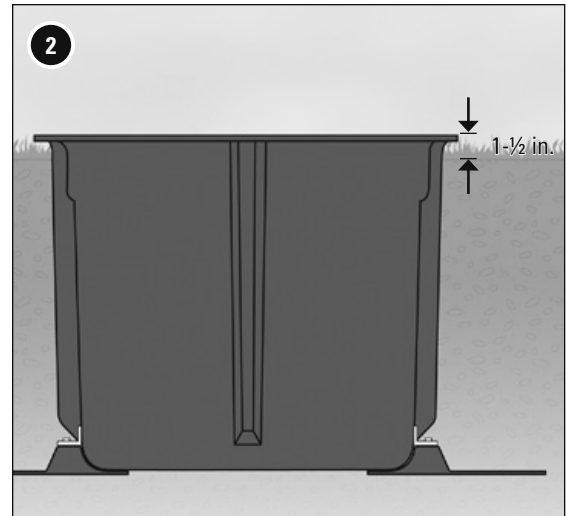
**Step 4a:** If you are installing the pod directly on top of the tank, follow the tank manufacturer's guidelines for backfilling the tank and place a layer of compacted crushed rock, soil, or sand between the top of the tank and the bottom of the pod in order to get the required slope on the filtrate return line.

**Step 4b:** If the pod is not being installed on top of the tank, mark and excavate a hole for the pod. This hole has to be at least 5 ft  $\times$  9½ ft (1500 mm  $\times$  2900 mm) to accommodate the anti-flotation flanges. For multipod systems, make sure you allow at least 44 inches (1120 mm) between each pod.

**Step 4c:** Set the pod in place. An AX20 weighs about 350 lb (160 kg) dry. You can lift and set the pod into place by slinging two wide truck straps under the entire unit and lifting it with an excavator, or you can move and set it manually.

**IMPORTANT:** To avoid damage to the pod, make sure the lid is closed and secured with the lid bolts before hoisting the pod with straps. DO NOT hoist the pod with straps once the antiflotation flanges are attached! Lower the pod into the hole onto 2  $\times$  4s or similar supports, bolt on the flanges, then remove the 2  $\times$  4s.

**Step 4d:** AdvanTex pods come standard with a set of antiflotation flanges. The flanges help prevent the pod from floating out of the ground under saturated soil conditions. (See Step 13, "Backfill the Installation.") The flanges come with predrilled anti-flotation attaching brackets and stainless steel bolts for attaching the flanges to the pod. With the flanges in position under the pod, mark and drill  $\frac{1}{16}$ -in. (7-mm) diameter holes in the flanges to line up with the predrilled holes in the tabs. Use the  $\frac{1}{4}$  - 20  $\times$  1.25 bolts and nuts provided to attach the flanges to the brackets.



The AdvanTex pod's lid should be  $1\frac{1}{2}$  inches (38 mm) above finished grade.



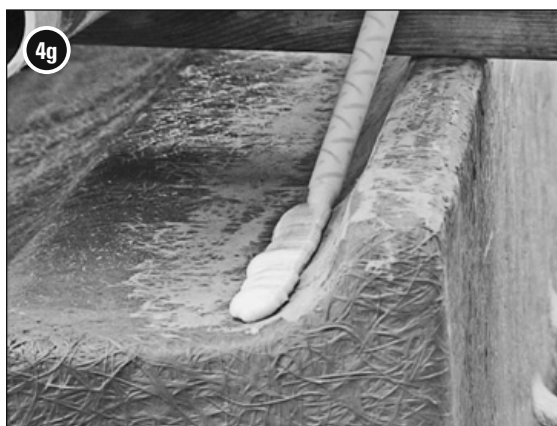


## With the Orenco Fiberglass Tank and Tank Saddle:

See step 5c through 5f for information on dry fitting and installing plumbing before continuing.

If you're using the Orenco Fiberglass Tank and Tank Saddle, the saddle should be attached to the tank already. If you need to attach the saddle to the tank, refer to *Tank Saddle Installation Instructions* (NIN-SAD-1). \* You will not need ant flotation flanges for the pod.

**Step 4e:** Using a backhoe, lower the pod onto 2 × 4s or sections of pipe and remove the lifting straps.



Step 4f: Sand the bottom edges of the pod that will rest on the pre-sanded areas of the saddle, and wipe them with acetone to prepare them for gluing.

Step 4g: Apply a bead of methacrylate adhesive to the sanded area of the saddle where the pod will rest, moving the pod on its supports as necessary.

Step 4h: Remove the supports one by one and lower the pod onto the saddle, making sure that the pod is completely seated in the saddle.

**IMPORTANT:** Attaching the pod to the tank with the saddle adds the pod's buoyancy to the tank's, which in noncohesive soils (see Step 13, "Backfill Installation") makes it necessary to pour a concrete ant flotation collar around the midseam of the tank. Consult a local soils engineer if you are unsure whether a concrete collar is needed. Instructions for pouring the collar are in the Fiberglass Tank Installation Instructions (NIN-TNK-1).\*

\* These documents are included with the components to which they refer. You can also download them from the online Document Library at [www.orenco.com](http://www.orenco.com).

## Step 5: Install Filtrate Return and Discharge Lines

**NOTE:** All ABS components supplied by Orenco are colored black for easy identification. DO NOT use primer on ABS parts.

### If Using a Concrete Tank:

**Step 5a:** Dry fit all of the plumbing between the filtrate return on the pod and the split-flow tee using nominal 2-in. PVC pipe and fittings as necessary. We recommend using two 45° or 90° elbows to create the necessary minimum 2% slope (or minimum 1½-in. [38-mm] drop) between the pod outlet and the split flow tee on the RSV. Mark the alignment of the fittings with a waterproof marker.

Step 5b: Glue the pipe and fittings together with ABS/PVC transition cement (IPS Weld-On® 794 or equivalent), starting at the split-flow tee, using the marks to align the parts.

### If Using an Orenco Fiberglass Tank and Tank Saddle:

**Step 5c:** Set the pod onto the saddle without adhesive and dry-fit the plumbing. Mark the alignment of the fittings with a waterproof marker.

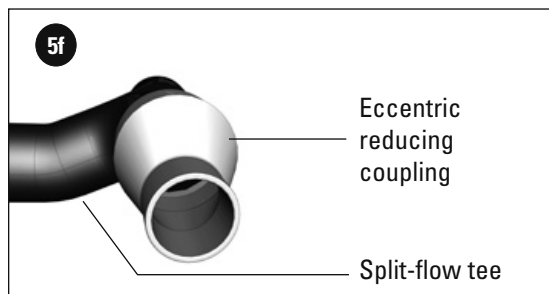
Step 5d: Follow the steps for installing the pod on the saddle as described in Steps 4e to 4h.

Step 5e: While the adhesive is wet, glue the fittings together with ABS/PVC transition cement (IPS Weld-On® 794 or equivalent), starting at the split-flow tee, using the marks to align the parts. As the last step, apply cement to the outlet of the pod and the pipe elbow, slide the pod back toward the RSV on the wet adhesive, and connect the fittings.

### For All Installations:

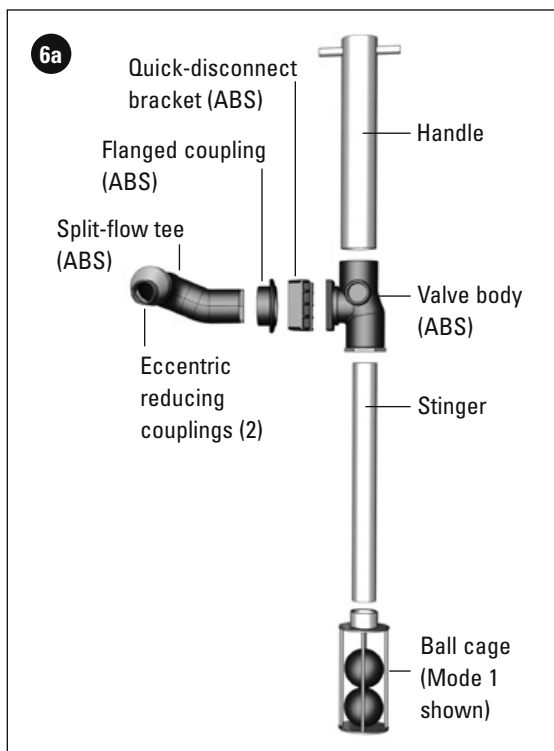
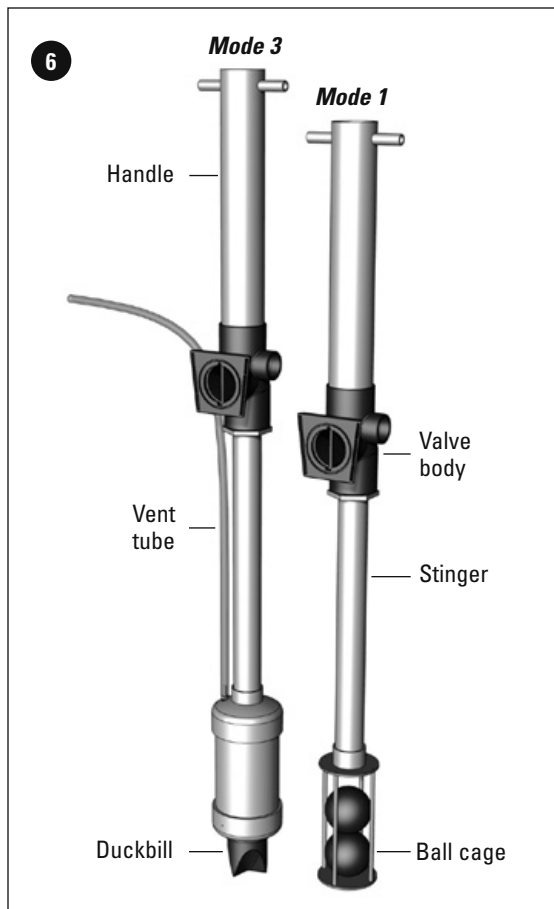
**Step 5f:** Connect the 2-in. discharge line from the split-flow tee to the pump basin or to the dispersal area, maintaining a minimum ¼ inch per foot slope (20 mm per meter, or a 2% slope). Be careful not to create low spots where liquid can pond.

On the split flow tee, orient the eccentric reducing couplings so the small end is at the lowest point possible, as shown in the illustration to the right. Refer to Appendix 4 in this document for more information about installing the pump basin.



Orient the eccentric reducing coupling





## Step 6: Install Recirculating Splitter Valve

The Recirculating Splitter Valve (RSV) controls the recirculation of effluent returning from the AdvanTex filter pod. Floating balls in the valve rise and fall with the level of liquid in the tank. If the level is high, the valve directs effluent to the dispersal system. If the level is low, effluent returns to the tank for further treatment.

For systems operating in **Mode 1**, the recirculating splitter valve (RSV) is installed in the riser over the tank's second compartment (or in the inlet riser of the second tank in a two-tank installation). Whenever possible, the RSV should be installed between the baffle wall and the pump system to ensure mixing of the return effluent.

For systems operating in **Mode 3**, the RSV (duckbill model) is installed in the tank's inlet riser. The RSV must be installed so as not to interfere with the inlet tee.

**Step 6a:** Verify that you have all the pieces of the RSV: the handle pipe, body, quick-disconnect bracket, flanged coupling and eccentric reducing couplings, split-flow tee, stinger pipe, and RSV cage. The body and cage will be different depending on whether you are installing the Mode 1 or Mode 3 model.

**IMPORTANT:** The RSV bracket should have been installed before the riser was installed. If it hasn't been installed, install it now, following the instructions supplied with it (NIN-RSV-3)\*.

**Step 6b:** The RSV comes with an 18-in. (457-mm) long stinger pipe. Determine the correct stinger length for your installation and shorten or lengthen the pipe if needed. If the low liquid level is not specified for the particular installation, refer to Appendix 3 of this manual for typical RSV and float settings. (The normal low liquid level — the level at which 100% of the filtrate returns to the tank — determines the stinger length.)

For almost all applications, the stinger will be shorter than 24 in. (610 mm), and the low liquid level will be approximately 6 inches (152 mm) below the top of the RSV cage. For stingers longer than 36 inches (914 mm), Mode 1 RSVs require a different top plate for the ball cage and Mode 3 RSVs require a different seating grommet for the ball cage. Contact your Dealer or Orenco for more information.

**IMPORTANT:** Correct stinger length is critical to the proper operation of the system!

\* This document is included with the component. You can also download it from the online Document Library at [www.orenco.com](http://www.orenco.com).

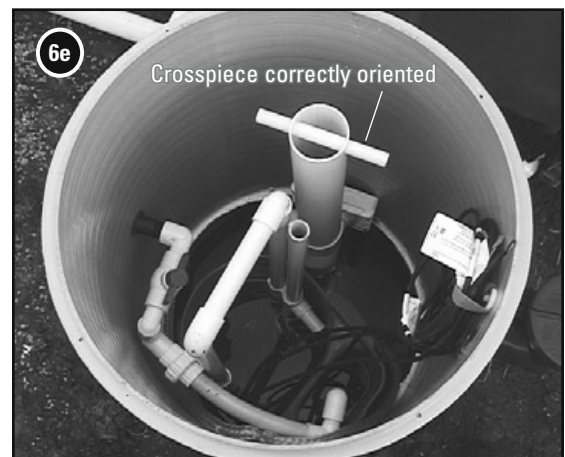
**Step 6c:** After you've cut the stinger pipe to the correct length, attach it to both the RSV cage and the RSV body using PVC cement.

**IMPORTANT:** Some RSV3Q parts are ABS and others are PVC. All ABS components are colored black for easy identification. Use all-purpose ABS/PVC transition cement (such as IPS Weld-On® 794) to join them. Do not use primer on ABS parts.

**Step 6d:** Mode 3 installations require the duckbill model RSV, which has a flexible PVC tube that vents the RSV cage to atmosphere. Push the flexible PVC tube onto the insert fitting on the cage. Thread the other end of the tube through the tube holder at the top of the RSV body. Leave about 6 inches (152 mm) of tube extending through the tube holder. Any excess can be cut off.

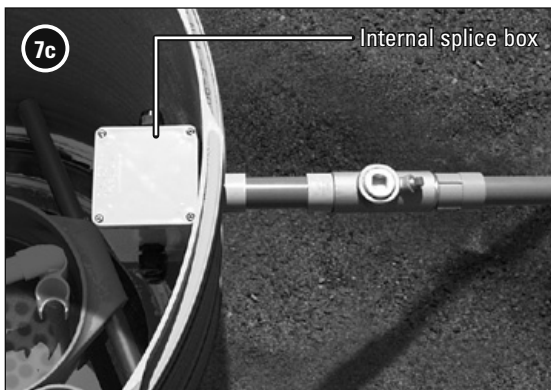
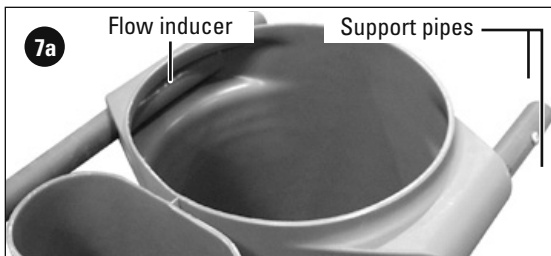
**Step 6e:** If your riser is less than 30 inches (762 mm) high, shorten the handle as needed by cutting out the excess. Then glue it into the top of the RSV body with ABS/PVC transition cement, such as IPS Weld-On 794. Orient the handle crosspiece so that it will be close to the side of the riser instead of sticking out into the middle.

**Step 6f:** Push the RSV body down into its bracket until the valve body is flush or almost flush with the bracket. Use your weight to push it down, and then wiggle it till you're sure it's snug.



Completed installation shown.





## Step 7: Install Biotube® Pump Package

The Biotube pump vault holds the Biotube effluent filter and a high-head pump. Your vault may have support pipes to allow it to hang from the rim of the tank at the bottom of the riser, or it may be an “earless” vault designed to rest on the bottom of the tank.

**Step 7a:** If your vault includes support pipes, detach them from the packaging material, and remove one of the two screws from each pipe. Slide the support pipes through the holes in the support brackets at the top of the vault. Reinstall the screws.

**Step 7b:** Gently lower the vault into position in the access riser. If there are support pipes, they should rest on top of the tank, and if the vault is earless, it should rest on the tank bottom.

**Step 7c:** A splice box houses the connections for the pump and float switches. Either an internal splice box or an external splice box can be used.

If an external splice box is being used, it should be installed before the riser is installed. If not, refer to *External Splice Box Installation Instructions* (EIN-SB-SBEX-1), and install the external splice box.

If an internal splice box is being used, install it now. To install an internal splice box into an access riser, lubricate both the outside of the conduit coupling and the grommet with pipe lubricant or an equivalent product and slide the coupling through the grommet until the box is snug against the riser wall. Use a conduit seal to ensure condensation does not affect the system.

\* This document is included with the component. You can also download it from the online Document Library at [www.orenco.com](http://www.orenco.com).



**Step 7d:** Screw the discharge assembly into the pump. Carefully lower the pump and discharge assembly into the flow inducer of the Biotube pump vault.

**IMPORTANT:** To avoid damage to the pump and pump electrical cord, **DO NOT** use the cord to lower the pump!

**Step 7e:** Using pipe lubricant or an equivalent product, lubricate the access riser grommet and the gray nipple on the discharge assembly. Push the nipple through the grommet and orient the discharge assembly to make component removal for maintenance easy.

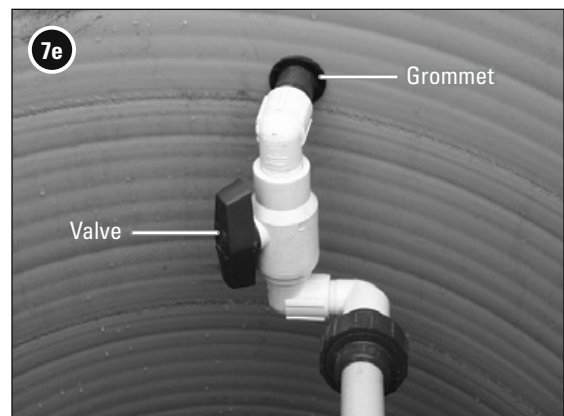
**Step 7f:** Although float switches are set at the factory for the appropriate depths, compare the float settings with the project plans and specifications to make sure the settings are correct. If you need to adjust a setting, refer to Appendix 3 at the end of this document for typical RSV and float settings for residential systems.

**Step 7g:** Insert the float switch assembly into the float bracket on the Biotube filter handle. Make sure you can detach it without removing the Biotube cartridge or pump vault.

**Step 7h:** If you have an “earless” vault with a lifting rope, coil the rope neatly and secure it to the splice box along with the float cords so that it does not fall into the vault or interfere with the floats.

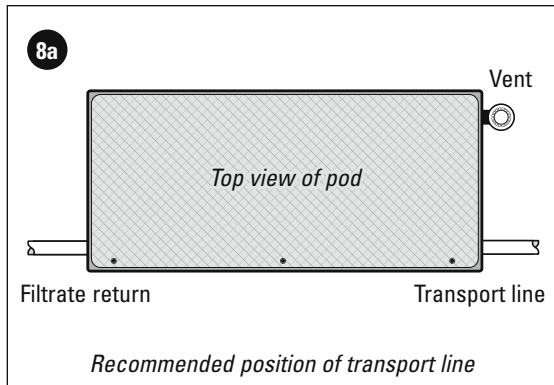
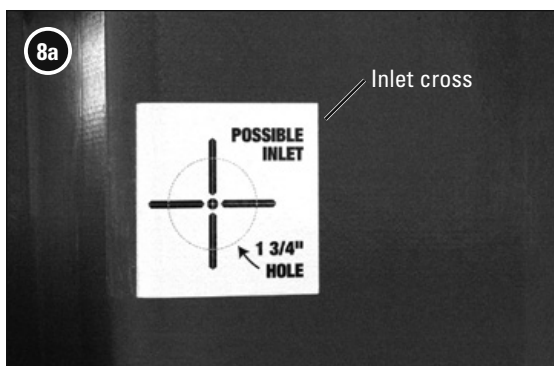
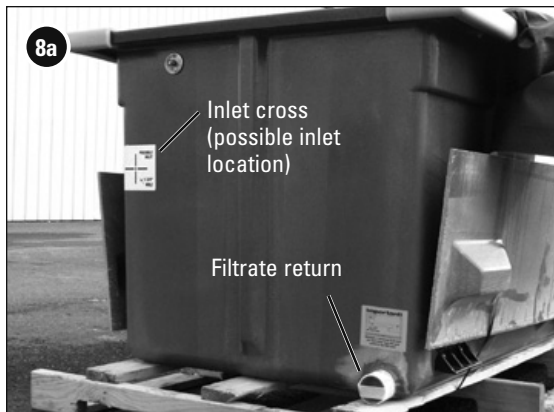
**Step 7i:** Make sure that the components are arranged in the riser so that you can pull out the Biotube filter cartridge and the float stem without having to disconnect anything. Extending the Biotube cartridge’s handles with 1-in. pipe and extending the float stem in the same way will make maintenance easier.

**NOTE:** Refer to ProSTEP Effluent Pump Packages Installation Guide (NIM-EPS-1) for more detailed pump package installation instructions.\*



\* This document is included with the component. You can also download it from the online Document Library at [www.orenco.com](http://www.orenco.com).





## **Step 8: Connect Transport Line to Pod**

The transport line conveys effluent from the discharge assembly to the pod. The transport line can be connected to either end of the AdvanTex pod. We recommend installing it in the end opposite the filtrate return — on the same side as the passive air vent — to facilitate cleaning.

**Step 8a:** Determine which possible inlet location you are installing the transport line into, and cut a 1¾-in. (44.5 mm) hole in the pod where it is marked with a cross. (If you are using piping other than U.S. nominal 1-in., measure your grommet and cut the hole to fit.) Remove any burrs and install the 1¼-in. grommet, sealing it in place with ADH100 adhesive.

**Step 8b:** From the inside of the pod, insert the lower manifold elbow through the grommeted hole, and connect the 1-in. transport line from the discharge assembly to this elbow. In cold weather installations, slope the line so that it drains back to the tank after every cycle. We recommend installing a coupling on the transport line outside the pod next to the grommet to prevent the line from being pushed into the pod during installation or maintenance.

**Step 8c:** Temporarily disassemble the manifold union so that, when the pump first comes on during start-up, any debris in the transport piping will not be pumped into the manifold (which could then require orifice cleaning).

## Step 9: Install Passive Air Vent

**Step 9a:** Using 2-in. PVC pipe, plumb the passive air vent to the 2-in. fitting that protrudes through the filter wall. Be sure the vent line is sloped to drain towards the pod, to prevent accumulation of water in the vent line. And remember that the top of the vent must be at least 3 inches (76 mm) above grade.

**Step 9b:** We recommend installing the air vent near a wall or in a similar location where it is less likely to be damaged by a lawn mower or accidental kicking, etc. You can easily hide the air vent behind shrubbery or other landscaping and paint it if another color is desired.

**IMPORTANT:** In all cases, the line between the air vent and the pod must be sloped back  $\frac{1}{4}$  inch per foot (20 mm per meter) toward the pod. To prevent accumulation of water, do not allow any “bellies” or low points in the vent piping. Keep the 2-in. vent piping less than 20 ft (6 m) in total length.

## Step 10: Install Control Panel

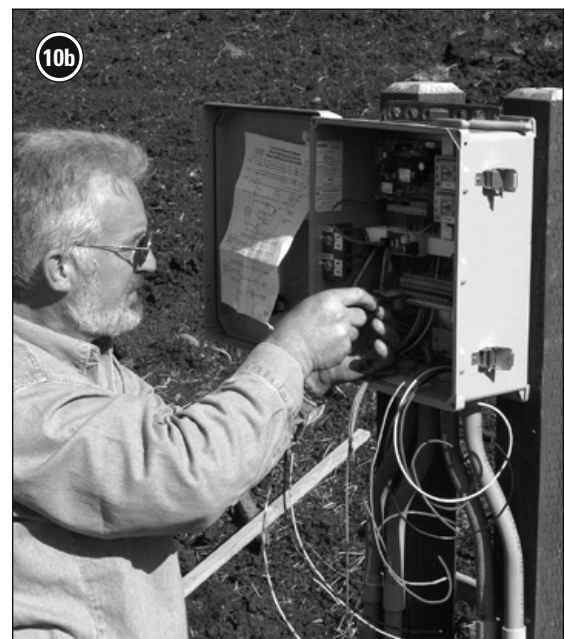
For complete control panel installation instructions, see the installation manual for the electrical control panel that comes with your system. These instructions ship with the control panel and hang from a clip on the inside of the panel door.\*

**Step 10a:** Make sure the instructions and the items supplied conform to state and local regulations.

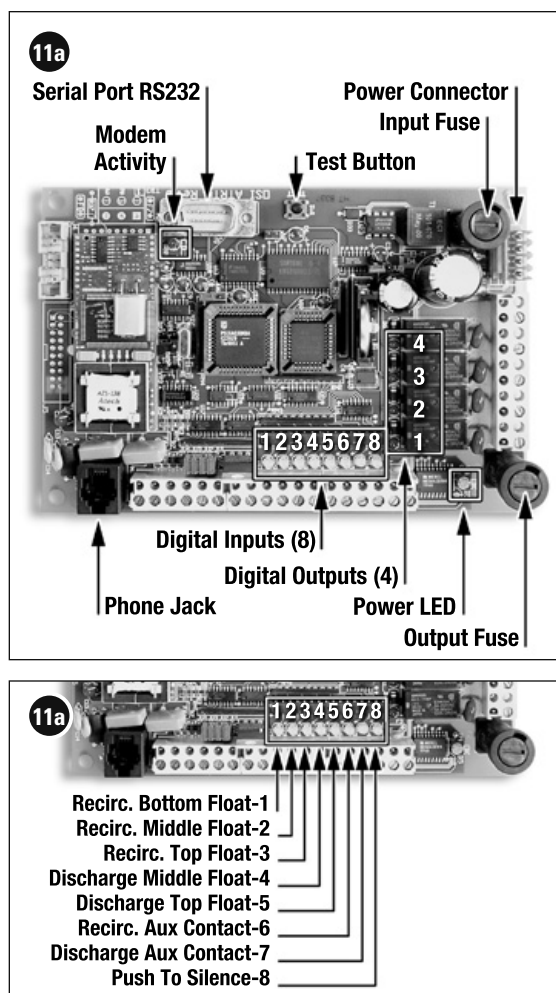
**Step 10b:** A qualified and licensed electrician should install and service the panel and ancillary wiring in compliance with the National Electrical Code, as well as state and local codes. (Wiring diagrams can be found in the installation manual\* that comes with the panel.) Wiring will include the following items:

- a) Incoming power to the panel. One or more circuits may be required, depending upon the number of pumps and local electrical codes.
- b) Incoming phone line to the panel (for VeriComm).
- c) Wiring from the control panel to the pump and floats.
- d) Wiring to a discharge pump and floats (if applicable).

**NOTE:** We do not recommend installing a control panel against the wall of a bedroom, living room, or other living space because it makes a periodic thump during operation. If it must be placed near the house, mount it on 4 × 4 (100 × 100 mm) pressure-treated post(s) next to the wall.



\* If the instructions are missing or have been removed from the door pouch inside the control panel, call Orenco for a replacement or download a copy of the instructions from our online Document Library at [www.orenco.com](http://www.orenco.com).



## Step 11: VeriComm® Control Panel Functional Test

VeriComm® (VCOM) telemetry-enabled control panels are the standard panels used with AdvanTex Treatment Systems (although MVP control panels are available in some markets).

With a VeriComm telemetry-enabled control panel, fault conditions are automatically reported to the VeriComm Monitoring System, making the wastewater system virtually invisible to homeowners. If fault conditions are not responded to, then local alarms may be activated, as a back-up.

**NOTE:** Each Orenco control panel comes with panel-specific information and instructions on wiring, timer settings, and operating instructions. For more detailed procedures specific to each panel model, refer to the documentation that comes with the panel.\*

Follow the procedures in this step to verify proper installation of the VeriComm panel.

**Step 11a:** Familiarize yourself with the components of the telemetry control board.

Step 11b: Make sure the panel has been completely and correctly installed, and verify that the circuit breakers are in the “On” position. Also check the controller status. The “Power LED” located on the control board will be:

- *Blinking, which indicates the controller is operating normally, or*
- *Off (when power is applied), which indicates a possible problem with*
  - ~ the input fuse on the PC board;
  - ~ the main fuse located inside the panel;
  - ~ the controls circuit breaker located inside the panel; or
  - ~ the incoming line voltage.

**Step 11c:** To enable Test Mode, hold the “Push-To-Silence” button on the front of the panel until the audible alarm sounds (approximately 15 seconds).

- *The appropriate digital input should be illuminated when the button is held in.*
- *When the audible alarm sounds to indicate that the panel is in Test Mode, release the button.*

While in Test Mode, the panel will operate as described below:

- *The call-in function is disabled;*
- *Local audible and visual alarms are activated as alarm conditions occur;*
- *System Data Logs are suspended; and*
- *Timer cycles are shortened.*

\* If the instructions are missing or have been removed from the door pouch inside the control panel, call Orenco for a replacement or download a copy of the instructions from our online Document Library at [www.orenco.com](http://www.orenco.com).



**Step 11d:** Familiarize yourself with the floats on the system.

Step 11e: Verify that the pump is submerged in water before continuing. If the bottom float drops, the alarm should sound. Press down the spring-loaded “MAN/AUTO” switch located inside the panel. The pump should immediately activate. For verification, the appropriate digital input should illuminate, indicating that the auxiliary contact is on.

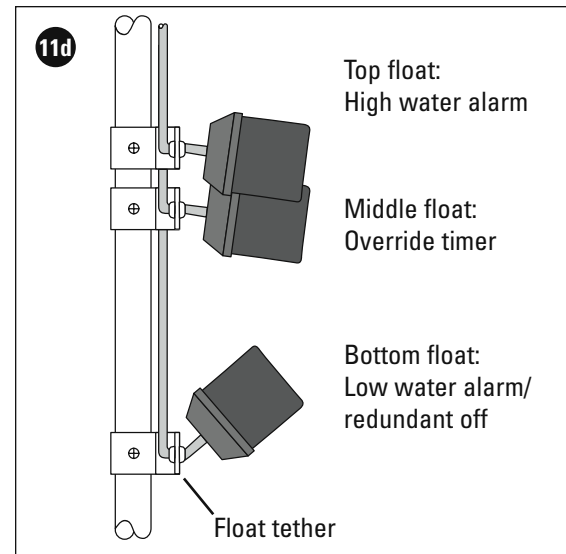
Measure the voltage and amperage of the pump.

a) Measure the voltage at the pump terminals in the panel. Measuring the voltage with the pump off will confirm that the correct voltage is connected. Then activate the pump by flipping the MAN/AUTO switch to MAN, or using a PDA or laptop with the Bluetooth Device, and measure the voltage while the pump is running. The maximum recommended voltage drop is 3%. A low voltage condition may indicate that the site wiring is improperly sized.

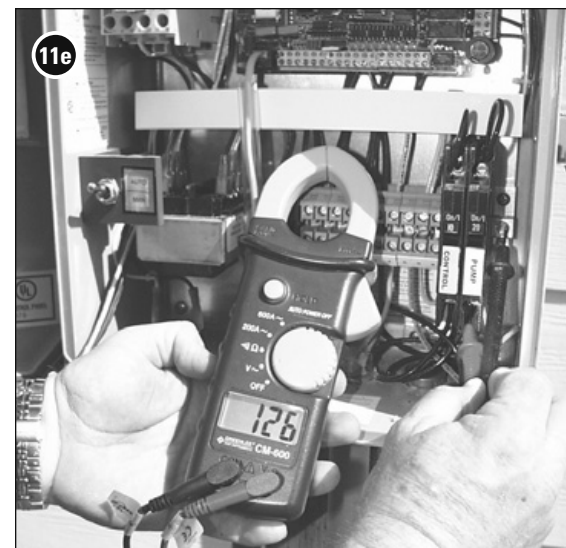
b) Using a loop ammeter, place the ammeter clamp around the loop of wire located above the pump circuit breaker and read the amperage while the pump is running and connected to the discharge assembly with the valves at the end of the laterals closed. The amperage should be within the specifications of the pump.

**Step 11f:** Refer to the control panel documentation to test the floats that activate/deactivate the pump. To perform the float test, make sure there is enough liquid in the tank. If there isn't enough liquid in the tank, turn the pump circuit breaker off.

**NOTE:** If phone service to the panel is active, complete step 11g. If not, proceed to step 11h. However, phone service should be activated before system start-up.



VeriComm® Recirculating Float Assembly shown



Measure voltage



Measure amperage

\* If the instructions are missing or have been removed from the door pouch inside the control panel, call Orenco for a replacement or download a copy of the instructions from our online Document Library at [www.orenco.com](http://www.orenco.com).



**Step 11g:** Press and release the “Push-To-Silence” button 15 times within a one-minute period. This instructs the panel to call the VeriComm Monitoring System.

- *A red LED (“Modem Activity” component) should illuminate, indicating that the controller has established communication with the host. (This may take a few minutes.)*
- *Once the communication session has ended, the modem will automatically disconnect.*
- *If the LED does not illuminate within the specified time, verify that the phone line has a dial tone. This can be done by hooking up a phone to the line that is going into the panel.*

**Step 11h:** The panel will automatically disable Test Mode and return to normal operation after 30 minutes. To disable Test Mode manually, hold the “Push-To-Silence” button on the front of the panel until the audible alarm sounds (approximately 15 seconds). The appropriate digital input should be illuminated when the “Push-To-Silence” button is held in. When the audible alarm sounds to indicate that the panel is no longer in Test Mode, release the button.

## Step 12: System Functional Test

Once power is connected to the control panel, follow these steps to prepare systems equipped with VCOM control panels for operation. For information on functional testing of systems equipped with an MVP control panel, contact your Dealer or Orenco.

**Step 12a:** For Mode 1B and 3B installations, fill the pump basin with water to a level just below the lowest float.

**Step 12b:** Verify both manual and automatic operation of the recirculation pump. Before running the pump, ensure that the tank's water level is at least 4 inches (102 mm) above the bottom float, but below the top float. *Be sure that you have temporarily disconnected the manifold union.* Hold the toggle switch in the control panel on "Manual" to test manual operation of the pump and clear any debris in the transport piping.

**Step 12c:** Reconnect and hand-tighten the manifold union. Verify that all the lateral ball valves are open, and run the pump in the "Manual" position for 5 or 10 seconds to flush any construction debris out of the manifold piping. Completely close all lateral valves after flushing is complete. With the pump still running manually, remove several orifice shields and measure the squirt height with a tape measure. The squirt height should measure approximately 3-5 ft (0.9-1.5 m). Windy conditions will cause the squirt heights to measure less.

**NOTE:** *If the desired squirt height is not achieved or the system does not pressurize, check for debris, breaks, or closed valves. Also verify that the pump is receiving sufficient power. If the system still does not pressurize correctly, contact your Dealer or Orenco for technical assistance.*

**Step 12d:** For more accurate residual head measurements, attach a piece of clear PVC to the end of the lateral. Record the residual head measurement at start-up and before and after servicing.

**Step 12e:** Return the MAN/AUTO switch to "Automatic." To facilitate quick testing of the automatic operation, put the panel into Test Mode.



**IMPORTANT:** *Before using a generator to operate a pump, contact Orenco or your Dealer to make sure it can supply sufficient starting amperage.*

**Step 12f:** Make sure the tank is filled with clean water up to a level about 1 inch (25 mm) above the RSV cage. At this point the water level should be well above the bottom float. In the control panel, turn on the pump by holding the toggle switch in the “Manual” position. As water begins running through the system, ensure proper drainage through the filtrate return line and RSV. All or some of the return filtrate flowing to the RSV should be exiting the system through the final discharge line. Check that no water is leaking at any of the plumbing joints.



## **Step 13: Backfill Installation**

**IMPORTANT:** When backfilling, be careful not to alter the slope of pipes. Brace the pipes or place the pipes on a compacted bed and carefully fill around them.

**NOTE:** Before backfilling, make sure all pod and riser lids are bolted down.

**Step 13a:** Backfill the tank excavation if you haven't done that yet. Follow the tank manufacturer's guidelines for backfilling up to the height of the tank.

**Step 13b:** Backfill the discharge basin, if you haven't done that yet. For installations in areas with high water tables or with non-cohesive soils, follow guidelines in Appendix 4.

**Step 13c:** Backfill and compact around the AdvanTex pod in maximum 12-in. (305-mm) lifts. Native material is acceptable if there are no large or sharp rocks that may damage the filter walls. If native material is not usable, backfill with sand or pea gravel.

For installations in non-cohesive soils\* with high seasonal water tables, use 1/4" crushed rock as the backfill material.

**Step 13d:** Slope the ground away from the pod to prevent surface water from ponding on or around the pod.

**Step 13e:** Make sure all lids are secured before leaving.

**IMPORTANT:** After backfilling, call the system's Service Provider to arrange for the official System Start-up.

\* As described in OSHA Standards (29 CFR, Part 1926, Subpart P, Appendix A), noncohesive soils or granular soils include gravel, sand, or silt with little or no clay content. Granular soil cannot be molded when moist and crumbles easily when dry. Cohesive soils include clayey silt, sandy clay, silty clay, clay, and organic clay. Cohesive soil does not crumble, can be excavated with vertical sideslopes, is hard to break up when dry, and when moist, can be rolled into threads without crumbling. For example, if at least a 2-in. (51-mm) length of 1/8-in. (3-mm) thread can be held on one end without tearing, the soil is cohesive.

The following chart shows recommended timer settings for a new system.

RESIDENTS	TIME ON (SEC)	TIME OFF (MIN)	NOTES
2	0.2 min (12 sec)	19.8	<ul style="list-style-type: none"> <li>Assumes water usage of 50 gal. (190 L) per person per day and a return recirculation ratio of 3 : 1 (Filter recirculation ratio of 4 : 1).</li> <li>Override OFF cycle time is set at one-half of the OFF cycle time.</li> <li>Override ON cycle time is set the same as the ON cycle time.</li> </ul>
3 or 4	0.3 min (20 sec)	19.7	
5	0.4 min (24 sec)	19.6	
6	0.5 min (30 sec)	19.5	

As you gain experience with a system, you may conclude that you need to make adjustments, sometimes significant ones. This worksheet is intended to help you determine appropriate start-up timer settings (Pump ON, Pump OFF) for a single-pod AX20 system. Typical values and ranges are provided for each parameter. If you have any questions or if your values fall outside the desired ranges on this worksheet, contact your Dealer.

PARAMETER	TYPICAL VALUES	NOTES
Number of people	3	Range of 2 to 8 people.
Water usage per person	50 gpd (190 L/d)	Typical daily average is 50 gal. (190 L) per person.
$Q_i$ Actual daily flow (total)	150 gpd (570 L/d)	(Number of people) $\times$ (water usage per person).
$R_b$ Return recirculation ratio	3 : 1	You can adjust this ratio (return flow to forward flow) up or down depending on system performance. (Range of 2 to 6.)
$R_f$ Filter recirculation ratio	4 : 1	
Total daily flow to AX20	600 gpd (2280 L/d)	(Actual daily flow) $\times$ (return recirculation ratio + 1). Must be $\leq$ 3000 gpd (11,370 L/d). Actual flow should not exceed 500 gpd (1895 L/d). (500 gpd $\times$ 6:1 $R_b$ = 3000 gpd)
$Q_d$ Actual pump dose rate	33.3 gpm (126 L/min)	Determine this value by field-testing or by using Orenco's <i>PumpSelect™</i> . Start at the low end.
$T_d$ Pump ON cycle time (dose)	0.25 min	Select a value between 0.17 minutes (10 seconds) and 0.75 minutes (45 seconds).
$T_r$ Pump OFF cycle time (rest)	19.75 min	See Pump OFF equation below.

## PUMP OFF EQUATION

## EXAMPLE

Plugging in the above values and rounding, we get the following:

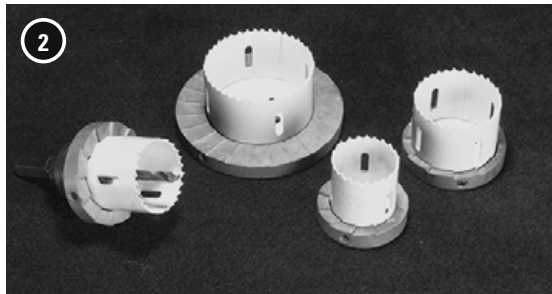
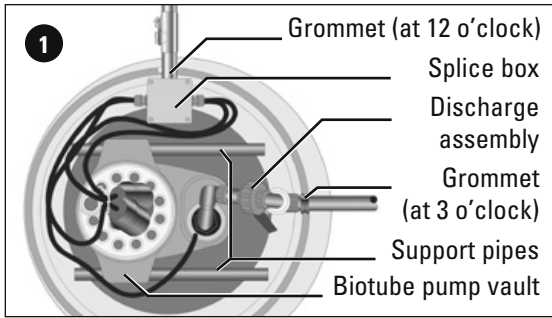
$$T_r = \left[ \frac{1440 \cdot T_d \cdot Q_d}{(R_b + 1) \cdot Q_i} \right] - T_d \quad T_r = \left[ \frac{1440 \cdot 0.25 \cdot 33.3}{(3 + 1) \cdot 150} \right] - 0.25 = 19.74 \approx 19.75$$

After you determine your Pump ON and Pump OFF times, double check to make sure your start-up settings fall within the cycle time (CT) range, below. If they don't, make adjustments per the "Note."

ADDITIONAL PARAMETERS	TYPICAL VALUES	NOTES
CT Cycle time	20 min	Low flow applications may result in cycle times of an hour or more, which can cause the media to dry out or odors to develop in the recirc tank. If CT is much more than 30 minutes, consult your Dealer or Orenco for suggested adjustments.
Pump cycles per day	72 cycles	1440 min/day $\div$ (OFF cycle time + ON cycle time). Must not exceed the pump's maximum rated cycles per day of 300 cycles per day.
Gallons per cycle	8.3 gal. (31 L)	With 68 orifices and using the $T_d$ range recommended above, you will maintain the recommended 0.08 to 0.25 gal. (0.45 to 0.95 L) per orifice per dose.



# Appendix 2: Installing Grommets



Orenco offers hole saws with pocket cutters in several sizes that make cutting grommet holes simple and easy. These RKHS hole saws cut away the ribs as the hole is cut, eliminating the need to notch and break the riser ribs with an angle grinder and chisel\*.

- RKHS100 for 1-in. grommets
- RKHS125 for 1¼-in. grommets
- RKHS150 for 1½-in. grommets
- RKHS200 for 2-in. grommets

**Step 1:** To install grommets in the field, first mark the riser for location of the grommets. (For Perma-Loc risers, you should try to avoid cutting through the pipe seam — the extra thick rib — unless it is unavoidable.)

**Step 2:** Using the correctly-sized RKHS hole saw and a drill of at least 18 volts, cut the hole and grind the ribs down until you have a flat, smooth surface for installing your grommet. Do not grind too deeply into the riser — about 1/16 inch is sufficient.

**Step 3:** Use a wire brush to clean up the cut, then a deburring tool or knife to deburr the edges of the opening, being careful not to enlarge the opening.

## Grommet Hole Saw Sizing Chart

Grommet Size (in.)	Hole Size (in.)
½	1
¾	1¼
1	1⅞
1¼	1¾
1½	2⅞
2	2¾
3	3⅞
4	5

### NOTE:

Grommet size = nominal (IPS) pipe size. For more information about grommet dimensions and actual pipe O.D., see Orenco's Grommet Submittal (NSU-RLA-PG-1), available from the Document Library at [www.orenco.com](http://www.orenco.com).

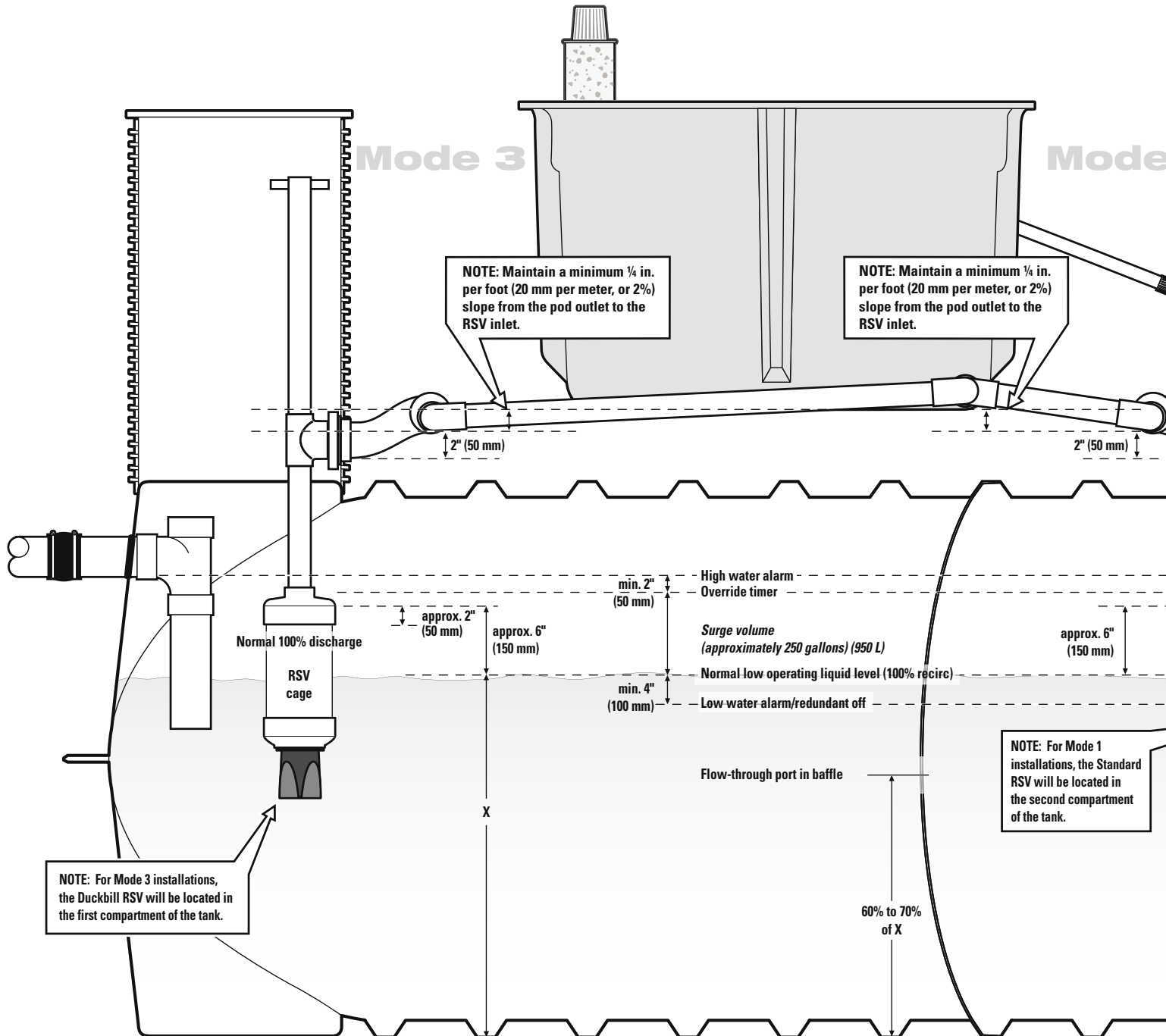
**Step 4:** Install the grommet in the riser. Apply a bead of ADH100 adhesive to the groove of the grommet prior to insertion into the riser hole. This will make the grommet more secure and will overcome any imperfections in the drilled hole.

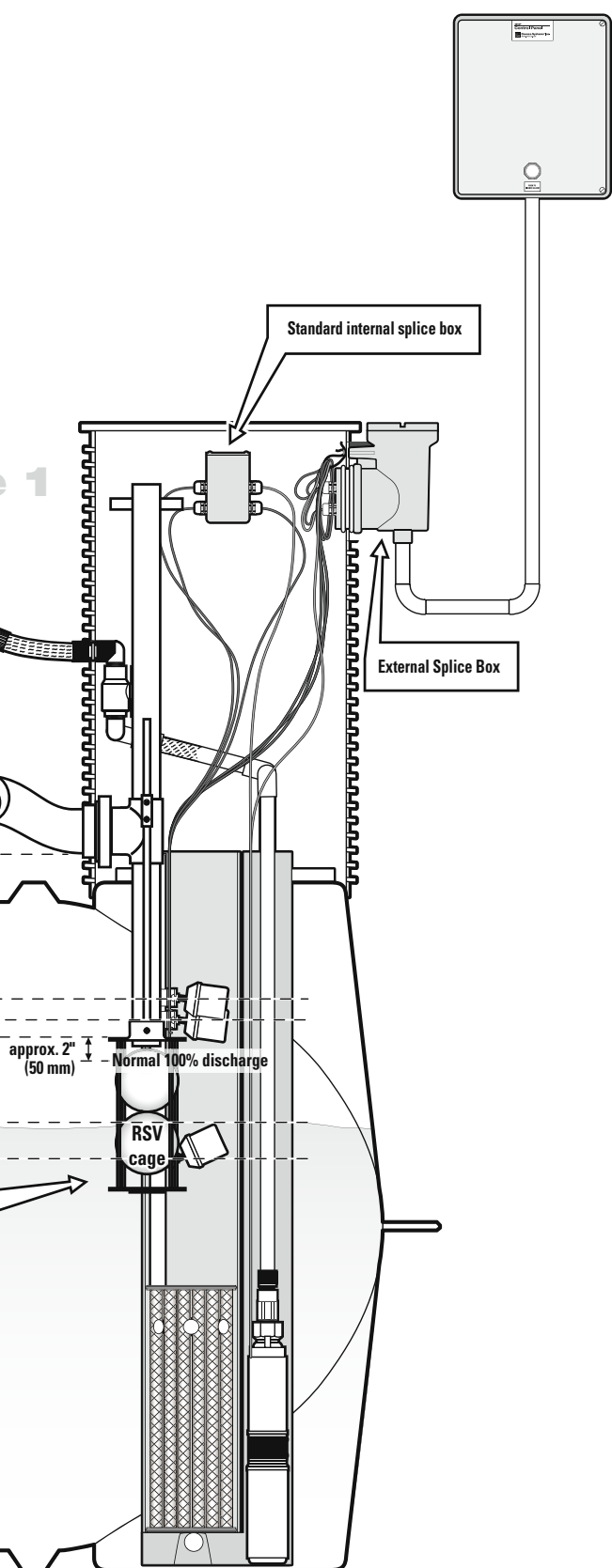
\* If you don't have an Orenco RKHS hole saw and you have to use an angle grinder and chisel to break the riser ribs, refer to Grommet Installation Instructions (NIN-RLA-G-1). This document is included with the riser. You can also download it from the Document Library at [www.orenco.com](http://www.orenco.com)

## Appendix 3: RSV and Float Level Diagram

This diagram shows RSV and float levels for a system that uses a VeriComm Control Panel. With an MVP Control Panel, a two-float configuration is used (the high water and override floats are combined), and therefore this top combination float may be located 1-2 inches (25-51 mm) below the invert of the inlet.

**This diagram shows both a Mode 1 and a Mode 3 setup.** For Mode 1 setups, the recirculating splitter valve (RSV) is installed in the second compartment, with the Biotube pump vault. For Mode 3 setups, the RSV is installed in the first compartment, under the inlet riser.





### Determine the RSV Level

For stinger pipe lengths up to 24 inches (610 mm) long, the “normal low operating liquid level” will be approximately 5-6 in. (127-152 mm) below the top of the RSV cage. (The normal low operating liquid level is the level at which 100% of the filtrate returns to the tank.) For most residential applications, the recommended surge volume — the volume between the low liquid level and the high water alarm float — is approximately 250 gal. (948 L). For Mode 3 installations, the duckbill model RSV, which has a flexible PVC tube that vents the RSV cage to atmosphere, is required.

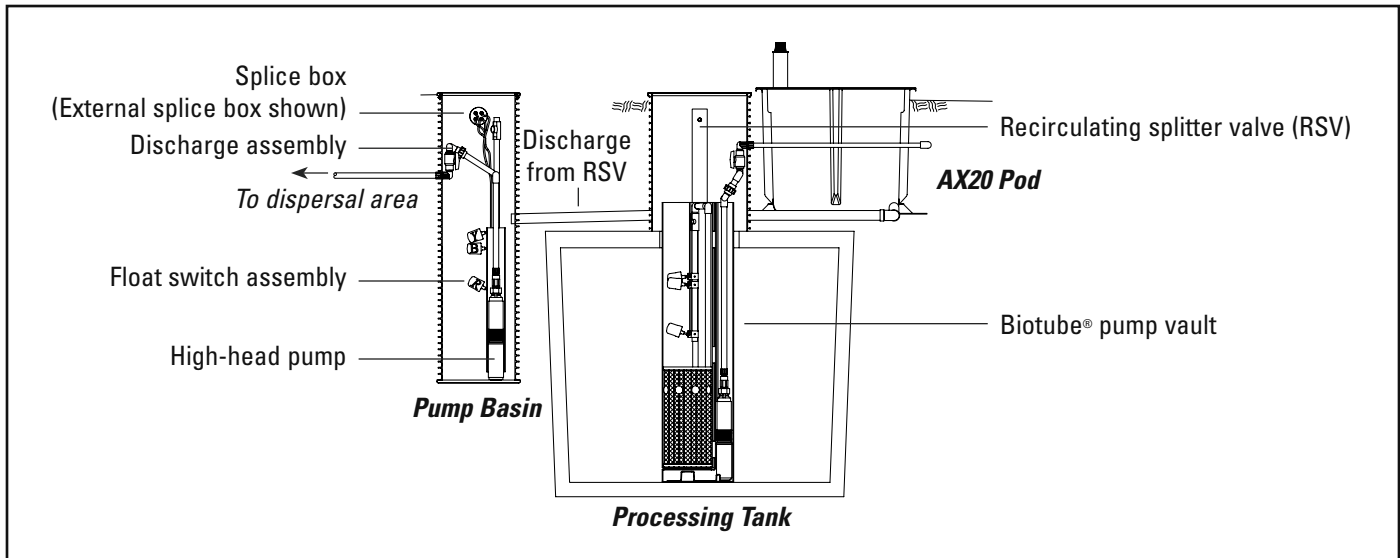
### Determine the Float Levels

Be sure to check the plans for any site-specific or tank-specific float settings. The top float is normally set equal with the tank’s invert of inlet. The bottom float should be approximately 4 inches below the normal low operating level.

**NOTE:** Before leaving the site, verify that the “low water alarm/redundant off” float is positioned at least 10 inches (254 mm) below the top of the RSV cage.

In AdvanTex® Treatment Systems, the Recirculating Splitter Valve (RSV) discharges treated effluent via gravity. If the dispersal area requires the use of a pump, the RSV discharges to a PBAX Pump Basin. From there, a high-head pump delivers it in doses to the drainfield.

Typically, the PBAX consists of a 24-in. (600-mm) pump basin equipped with a high-head pump, a float switch assembly, a splice box, a discharge assembly, and a lid.



## Step 1: Plan the Installation

The PBAX Pump Basin is typically installed near the AdvanTex system. For ease of installation, the excavation for the pump basin can be connected to the excavation for the tank as shown in the illustration, so that the bottom of the pump basin's hole is accessible.

**NOTE:** If groundwater will rise above the bottom of the pump basin at any time, you will need to set the pump basin in a concrete collar to counteract its buoyancy. The collar should extend at least 6 inches (150 mm) around the basin, and be at least 6 inches (150 mm) deep.

## Step 2: Install the Splice Box (if necessary)

The Dealer typically installs the External Splice Box before delivering the riser. If it is not installed, or if an internal splice box is used, install it now following the directions supplied with the splice box.



External splice box



Internal splice box





### Step 3: Set the Pump Basin in the Hole

**Step 3a:** Dig the hole for the pump basin 4 inches (100 mm) deeper than the height of the basin, and place a 4-in. (100-mm) bed of compacted gravel in the bottom of the hole.

**Step 3b:** Place the pump basin in the hole and level the pump basin. If the same excavation is being used for the pump basin as the riser, make sure the top of the pump basin matches the level of all of the other riser lids. If the pump basin is in a separate excavation, set and level the pump basin appropriate for the final grade.

**Step 3c:** Orient the grommet holes on the pump basin so as to minimize the number of bends in the electrical conduit between the control panel and the splice box. Partially backfill the hole to support the basin while you're working on it.

**Step 3d:** If you are going to set the pump basin in a concrete collar, set the basin on its gravel bed, mix a three-bag batch of concrete, and pour it around the bottom of the basin. The concrete should extend 6 inches (150 mm) on all sides of the basin to a depth of at least 6 inches. (150 mm).



### Step 4: Install the Filtrate Line

**Step 4a:** To mark the position of the inlet hole on the pump basin, extend a piece of pipe or a straightedge from the outlet of the RSV to the pump basin so that it slopes at least  $\frac{1}{4}$  inch per foot (20 mm per meter, or a 2% slope). Mark the center of the inlet hole on the pump basin, and install a 2-in. (50 mm) grommet. Apply a bead of ADH 100 adhesive to the 2-in. (50 mm) grommet and install it in the hole. Lubricate the inside of the grommet with pipe lube.

**Step 4b:** Push the end of the 2-in. (50-mm) filtrate line through its grommet. It must extend far enough into the pump basin to allow attachment of an elbow, but not so far that it interferes with other components. Glue a downward-facing elbow to the end of the filtrate line inside the pump basin. Glue the other end of the line into the discharge coupling of the RSV tee.

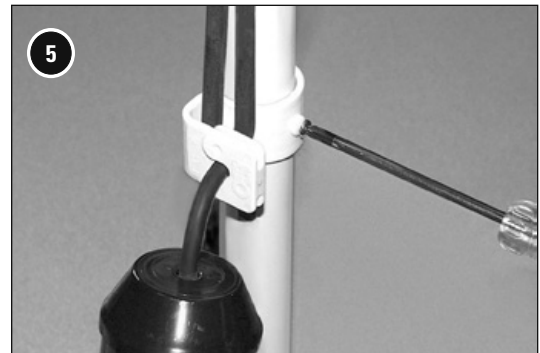
**Step 4c:** Drill the appropriately sized hole for the line going to the dispersal area, and install a grommet.

### Step 5: Set the Floats and Install the Float Assembly

Step 5a: To adjust the height of the float switches, loosen the screw on the float collar and slide the collar along the float tree. Do not try to change the tether length.

Step 5b: Set the high level float even with the invert of the inlet pipe. Set the “Pump On” float 2 inches (50 mm) below that. Set the “Pump Off” float at a level that will produce the desired dose volume for the drainfield. A 24-in. (600-mm) pump basin holds 1.88 gallons per inch of height (2.8 liters per centimeter). Make sure that the “Pump Off” float is not below the pump’s minimum liquid level. Make sure that the floats do not interfere with other components in the basin.

Step 5c: Install the float assembly in the bracket inside the basin. Wrap the cords neatly and secure them to the splice box using the hook-and-loop strip provided.



### Step 6: Install the Pump and Discharge Assembly

Step 6a: Assemble the pump and discharge assembly using Teflon paste or tape. Lower the pump into the flow inducer at the bottom of the basin. Insert the nipple of the discharge assembly through the grommeted hole for the line to the dispersal field.

**NOTE:** Instructions for installing conduit and wiring in the External Splice Box can be found in the External Splice Box Installation Instructions (EIN-SBEX-1)\* supplied with the splice box.

**Step 6b:** Lay the pipe for the line to the dispersal area in the trench and connect it to the discharge nipple using external flex hose. Do not bend the flex hose more than fifteen degrees. If local regulations require it, install toning wire on this pipe before backfilling.

Step 6c: Make sure the pump basin’s lid is securely screwed on before you leave the site.



\* These documents are included with the component. You can also download them from the online Document Library at [www.orenco.com](http://www.orenco.com).

---

**Notes**

---

## *Residential Applications*



**Oreco Systems®**  
Incorporated

*Changing the Way the  
World Does Wastewater®*

**800-348-9843  
541-459-4449  
[www.oreco.com](http://www.oreco.com)  
[www.vericomm.net](http://www.vericomm.net)**



AdvanTex Treatment System AXN Models meet the requirements of  
ANSI-NSF Standard 40 for Class I Systems.

**NIM-ATX-AX-1  
Rev. 3.6, © 11/10  
Oreco Systems®, Inc.**