

## Design, Installation and Maintenance Guide



### 300 Series Peat Moss Filter Septic and Pump Tanks Drip Irrigation Systems

2725 Prince Street  
Unit 100  
Fort Myers, FL 33916  
239-466-4408 Phone  
239-466-0580 Fax  
[www.eco-purewastewatersystems.com](http://www.eco-purewastewatersystems.com)

*Simply Natural,  
Naturally Simple*

January 2009  
V 1.0

# Table of Contents

1. Introduction.....	1
2. System Overview .....	2
3. System Components.....	4
4. Sphagnum Peat Moss Media.....	7
5. Scientific and Engineering Principles .....	8
6. 300 Series Peat Moss Filter Cross Section Drawing .....	11
7. 300 Series Peat Moss Filter Technical Information.....	12
8. Operating Procedures and Specifications .....	13
9. Regulatory Agency Inspection Guide.....	14
10. Module Backfill Details.....	15
11. Peat Moss Installation .....	16
12. Distribution Plate Details.....	17
13. Typical System Layouts.....	18
14. Multi-Module System Layouts .....	19
15. Surface Discharge System Layout.....	20
16. Installation Guide.....	21
17. Maintenance Guide .....	23
18. Maintenance Report.....	24
19. System Evaluation Form.....	25
20. Troubleshooting Guide .....	26
21. High Density Polyethylene Septic Tanks .....	27
i. Specifications	
ii. Installation Instructions	
iii. Warranty	
22. 500 Gallon Septic Tank Details .....	29
23. 1,050 Gallon Septic Tank Details .....	29
24. 1,250 Gallon Septic Tank Details .....	30
25. 300 Gallon Pump Tank Details.....	31
26. 300 Gallon Pump Tank Specifications .....	32
27. 600 Gallon Pump Tank Details.....	33
28. 600 Gallon Pump Tank Specifications .....	34
29. Pump Vault Details .....	35
30. Pump Vault Specifications.....	36
31. Drip Irrigation System Overview.....	37
32. Drip Irrigation System Component List .....	38
33. Drip Irrigation System Layout .....	39

## Table of Contents (cont)

34. Drip Irrigation System Components .....	40
i 300 Series Peat Moss Filter	
ii Eco-Pure Pump Vault	
iii Geoflow Wasteflow Drip Irrigation Tubing	
iv Control Panel	
v Pumps and Pump Tanks	
vi Auto Flush Drip Filter with Motorized Ball Valve	
a. VU-Flow Screen Filter Model	
b. GeoFlow BioDisc Filter	
c. Gemini Valve Electric Actuator and Stainless Steel Ball Valve	
vi. Supply Line and Manifold	
vii. Return Line and Manifold	
viii. Air Vacuum Breaker	
35. 300 Series Peat Moss Filter Warranty .....	44

### Appendix A

1. Product Sheets
  - i. 300 Series Peat Moss Filter Product Sheet
  - ii. High Density Polyethylene Septic and Pump Tank Product Sheet
  - iii. Eco-Pure Drip System Control Panel Product Sheet
  - iv. Geoflow Wasteflow Dripline Product Sheet
  - iii. Eco-Pure Drip Irrigation Auto Flush Assembly
    - a. Vu-Flow Screen Filter Product Sheet
    - b. Geoflow BioDisc Product Sheet
    - c. Gemini Valve 600 Series Actuator Product Sheet
    - d. Gemini Valve Ball Valve Product Sheet
    - e. Geoflow Air Vacuum Breaker Product Sheet

### Appendix B

1. Eco-Pure Drawings
  - i. 300 Series Peat Filter Dimensional Drawing
  - ii. 300 Series Peat Moss Filter Cross Section Drawing
  - iii. Pump Vault Dimensional Drawing
  - iv. 500 Gallon Septic Tank / 600 Gallon Pump Tank Dimensional Drawing
  - v. 1,050 Gallon Septic Tank Dimensional Drawing
  - vi. 1,250 Gallon Septic Tank Dimensional Drawing

### Appendix C

1. 300 Series Peat Moss Filter Owners Manual
2. 300 Series Peat Moss Filter Installation Guide
3. 300 Series Peat Moss Filter Maintenance Guide

# Introduction

Edward Festa, Joan Brooks, PhD and Jeffery Festa developed the Eco-Pure 300 Series Peat Filter throughout 1998. The system was designed based on the research conducted at the University of Maine during the 1980's and 1990's and especially the research conducted by Dr. Brooks.

Throughout her professional career, Dr. Brooks dedicated herself to study the use of sphagnum peat moss as a wastewater treatment media. In addition, Dr. Brooks researched the influence of fungus on the process of wastewater treatment.



In her paper Pollution Abatement with Peat Onsite Wastewater Treatment Systems, Dr. Brooks concludes:

*“On adverse sites, where the use of conventional subsurface soil adsorption systems does not provide acceptable levels of treatment, sphagnum peat moss may be used as an economical method of onsite wastewater treatment. The peat system, when properly designed and constructed, is relatively simple to install, requires minimal energy and maintenance, and provides a high quality effluent without additional disinfection”.*

The main advantages of the 300 Series Peat Moss Filter are:

- Depending on site conditions the 300 Series Peat Moss Filter can cost 30% - 40% less than other advanced secondary treatment systems.
- The system was designed to be completely passive; no electricity
- No service charges for training or use of the 300 Series Peat Moss Filter
- Ease of Installation
- Lowest Cost of Operation
- Low Cost of Maintenance
- Ease of Maintenance
- Can discharge into the following:
  - Pad / mound system
  - Gravity leach field
  - Pressure dosed leach field
  - Drip Irrigation System
  - Surface or water body (if allowed, check local regulations)
- Low profile, great for high water table; Will not float!
- The lowest operating and maintenance costs of any system available
  - No Electricity Needed for System
  - No Costly Blowers to Replace
  - No Sludge Build Up to Deal With
  - No Dosing Pumps Needed



Virgin Sphagnum Peat Moss



Easy To Set Watertight HDPE Module



Peat Moss Pillows



Leveling the Peat Moss

Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.

This document is intended to be a guide to designers, installers and owners of the 300 Series Peat Moss Filter system and should be used only to supplement your state and/or local regulations.



## System Overview

Developed by Ed Festa, the premier installation contractor on Florida’s West Coast and Dr. Joan Brooks, PhD., the nations leading authority on peat moss based wastewater treatment throughout 1998-1999, the 300 Series Peat Moss Filter was designed to provide a “user friendly that would provide outstanding wastewater treatment, low cost, and simple installation and maintenance.



The Eco-Pure System was designed for extreme site conditions and to meet the most stringent performance requirements. The Eco-Pure 300 Series Peat Moss Filter is an advanced secondary wastewater treatment system that utilizes a specially cultivated and harvested sphagnum peat moss for the treatment of septic tank effluent. Sphagnum peat moss provides an excellent environment for micro and macro organisms that provide a high level of wastewater treatment. The treatment occurs by a combination of physical, biological and chemical processes. Due to it’s unique process, The 300 Series Peat Moss Filter is patented.

The raw wastewater first enters a septic tank where pre-treatment of the wastewater occurs. Please note that a septic tank effluent filter is required for every Eco-Pure system. From the septic tank, the effluent enters the Eco-Pure 300 Series Peat Moss Filter either by gravity or through the use of pump tank containing a small incremental horsepower effluent dosing pump, typically 1/3 to 1/4 HP.

The dimensions of the high density polyethylene (HDPE) module are 7 feet wide x 10 feet long x 4 feet high. Eco-Pure, Inc. manufactures the module at it’s Fort Myers, Florida facility, using the rotational molding process. Eco-Pure uses only virgin HDPE resin for the module. This assures uniformity and structural integrity of the module. In addition, the resin contains the highest form of protection against harmful ultra-violet (UV) light.

Each module is a capable of treating peak flows of up to 600 gallons of wastewater per day from a four bed-room home up to 3,200 square feet in size. This is based on typical, residential strength wastewater. Properly installed, operated and maintained, test results have shown the effluent discharged from the 300 Series Peat Moss Filter to meet the following USEPA Advanced Secondary Wastewater Standards:

Parameter	Annual Average	Grab Sample
BOD5	= or < 10 mg/L	= or < 20 mg/L
Total Suspended Solids	= or < 10 mg/L	= or < 20 mg/L
Total Nitrogen	= or < 20 mg/L	= or < 40 mg/L
Total Phosphorus	= or < 10 mg/L	= or < 20 mg/L
Fecal Coliform Bacteria	99.99% eradication	



The wastewater enters the 300 Series Peat Moss Filter at the top of the module and is evenly distributed over the sphagnum peat moss bed through a high density polyethylene distribution plate, placed directly on top of the peat moss. The retention time of the septic tank effluent within the sphagnum peat moss is critical to the performance of the 300 Series Peat Moss Filter. This allows time for each organism within the peat moss to do it’s role in treating the septic tank effluent and allows for proper filtration of the wastewater. Depending on daily flows, detention time can range from 8 to 24 hours.



The wastewater enters the 300 Series Peat Moss Filter at the top of the module and is evenly distributed over the sphagnum peat moss bed through a high density polyethylene distribution plate, placed directly on top of the peat moss. The retention time of the septic tank effluent within the sphagnum peat moss is critical to the performance of the 300 Series Peat Moss Filter. This allows time for each organism within the peat moss to do its role in treating the septic tank effluent and allows for proper filtration of the wastewater. Depending on daily flows, detention time can range from 8 to 24 hours.



A predetermined amount of sphagnum peat moss is placed within the proprietary high-density polyethylene (HDPE) module. This amount was determined through the extensive research and development of the system and is controlled by the use of pre-packaged peat “pillows”. The pillows are mesh, polypropylene, non-degradable bags filled with sphagnum peat moss. The pillows are filled to the appropriate amount using an automated machine at the Eco-Pure facility.



Each module contains 41 pillows. Properly placed, the pillows will fit together without any void space. The pillows are placed in two rows, perpendicular to each other, one on top of the other. In order to fill in any potential voids, the placement of ten (10) loose peat moss bags is required. The peat moss pillows and bags are placed on a pallet and shrink wrapped. One module contains one pallet of peat.

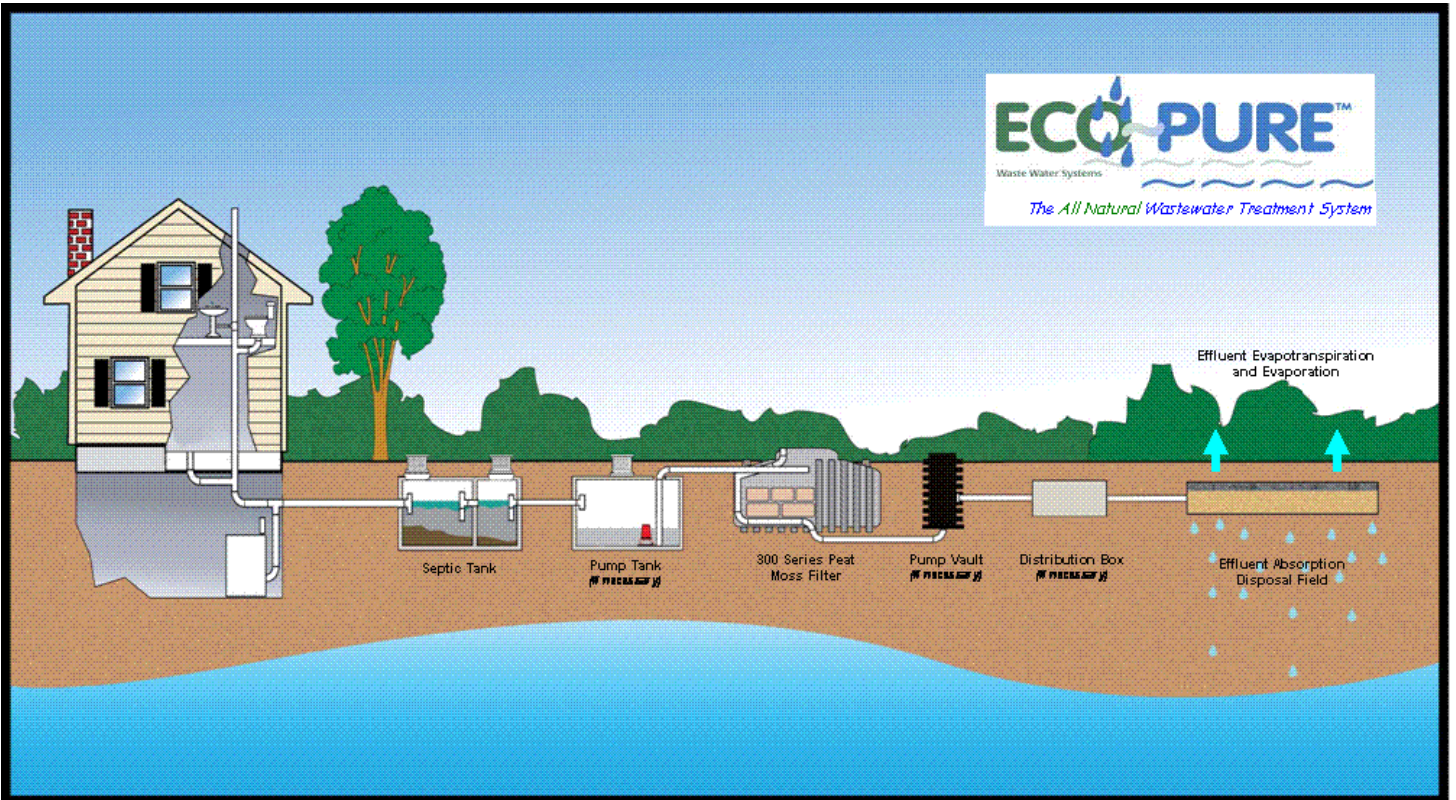
The treated effluent is collected at the bottom of the module in a 4” diameter collection pipe. This 4” pipe sits in the channels manufactured in each module. The treated effluent is discharged at the bottom of the module.

The 4” pipe also serves as a vent pipe for the 300 Series Peat Moss Filter and is critical to the performance of the system. The vent pipe runs to the top of the module and is connected to the vents located on each side of the cover. This cover cannot be buried to allow for air movement throughout the peat moss. Many of the organisms responsible for treating the wastewater cannot live in an anaerobic (without air) thus blocking the air vent is detrimental to the system.





# System Components



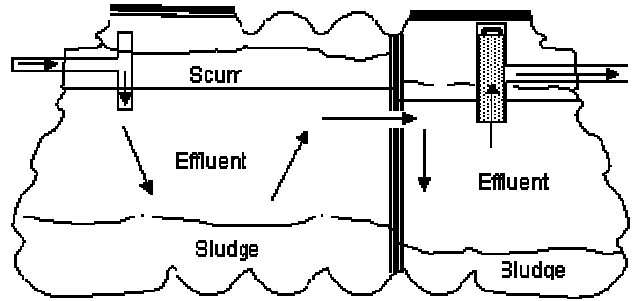
<b>System Components</b>	
Septic Tank	Must be approved by responsible regulatory agency
Septic Tank Effluent Filter	ANSI/NSF Standard 46 Certified, 6" Effluent Filter
Pump Tank To Dose Eco-Pure Peat Filter	If necessary, must be approved by responsible regulatory agency
Pump Vault or Tank To Dose Leach Field	If necessary, must be approved by responsible regulatory agency
Leach field or drip irrigation system	Must be approved by responsible regulatory agency

# System Components

## Septic Tank

The septic tank is a watertight box with an inlet and outlet pipe. Wastewater flows from the home to the septic tank through the sewer pipe.

The septic tank treats the wastewater naturally by holding it in the tank long enough for solids and liquids to separate. The wastewater forms three layers inside the tank. Solids lighter than water (such as greases and oils) float to the top forming a layer of scum. Solids heavier than water settle at the bottom of the tank forming a layer of sludge. This leaves a middle layer of partially clarified wastewater.



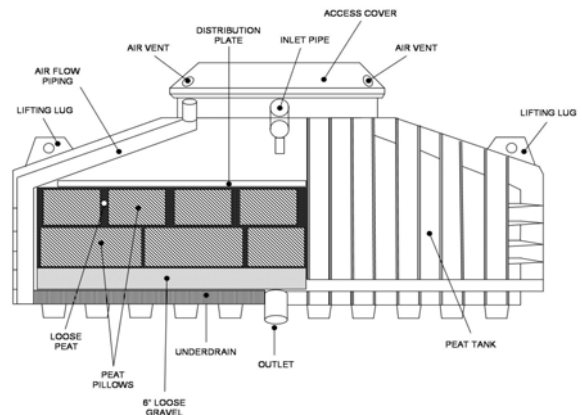
The layers of sludge and scum remain in the septic tank where bacteria found naturally in the wastewater work to break the solids down. The sludge and scum that cannot be broken down are retained in the tank until the tank is pumped. The layer of clarified liquid flows from the septic tank to the 300 Series Peat Moss Filter.

Some regions allow the installation of mid-seam pre-cast concrete septic tanks. When using such tank with an Eco-Pure system the following must be adhered to:

- Eco-Pure, Inc. requires that an extruded Butyl adhesive tape, six-inches (6") wide be placed around the exterior seam of all mid-seamed pre-cast concrete septic tanks.
- Eco-Pure, Inc. requires that a one-inch (1") diameter, all weather preformed sealant made of butyl rubber material in flexible rope form be placed in the seam of all mid-seamed pre-cast concrete septic tanks.
- No polyethylene septic tanks are to be used with the Eco-Pure System, except those manufactured by Eco-Pure, Inc.

## 300 Series Peat Moss Filter

The Eco-Pure 300 Series Peat Moss Filter is a wastewater treatment system that utilizes a specially cultivated and harvested sphagnum peat moss for the treatment of septic tank effluent. Sphagnum peat moss provides an excellent environment for micro and macro organisms that provide a high level of wastewater treatment. The treatment occurs by a combination of physical, biological and chemical processes. Due to its unique process, The 300 Series Peat Moss Filter is patented.



From the septic tank, the effluent enters the 300 Series Peat Moss Filter either by gravity or through the use of pump tank containing a small incremental horsepower effluent dosing pump.

The dimensions of the high density polyethylene (HDPE) module are 7 feet wide x 10 feet long x 4 feet high. Each module is capable of treating peak flows of up to 600 gallons of wastewater per day from a four bedroom home up to 3,200 square feet in size.

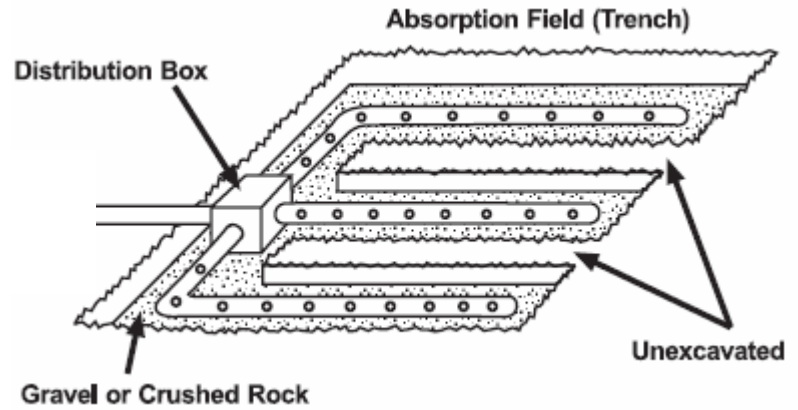
The wastewater enters the 300 Series Peat Moss Filter at the top of the module and is evenly distributed over the sphagnum peat moss bed through a high density polyethylene distribution plate, placed directly on top of the peat moss. The treated effluent is collected at the bottom of the module in a 4" diameter collection pipe. This 4" pipe sits in the channels manufactured in each module. The treated effluent is discharged at the bottom of the module to a subsurface leach field.



# System Components

## Sub-Surface Absorption Field

Subsurface leach field systems are the most commonly used systems for the treatment and dispersal of onsite wastewater. Infiltrative surfaces are located in permeable, unsaturated natural soil or imported fill material so wastewater can infiltrate and percolate through the underlying soil to the ground water. As the wastewater infiltrates and percolates through the soil, it is treated through a variety of physical, chemical, and biochemical processes and reactions.



Many different designs and configurations are used, but all incorporate soil infiltrative surfaces that are located in buried excavations. The primary infiltrative surface is the bottom of the excavation, but the sidewalls also may be used for infiltration. Perforated pipe is installed to distribute the wastewater over the infiltration surface. A porous medium, typically gravel or crushed rock, is placed in the excavation below and around the distribution piping to support the pipe and spread the localized flow from the distribution pipes across the excavation cavity. Other gravel less or “aggregate-free” system components or a drip irrigation system may be substituted.

## Pump Tanks (if necessary)

Although the 300 Series Peat Moss Filter was to allow for gravity flow due to site topography and/or design requirements, pumps may be needed to transport the septic tank effluent to the 300 Series Peat Moss Filter and from the 300 Series Peat Moss Filter to the absorption field.

A pumping system is required if a drip irrigation system is being used to dispose of the treated effluent.

Please consult with factory for details.



Eco-Pure 600 Gallon Pump Tank



Eco-Pure 300 Gallon Pump Tank

## Sphagnum Peat Moss Media

Throughout her professional career, Dr. Brooks dedicated herself to study the use of sphagnum peat moss as a wastewater treatment media. In addition, Dr. Brooks researched the influence of fungus on the process of wastewater treatment.

In her paper Pollution Abatement with Peat Onsite Wastewater Treatment Systems, Dr. Brooks concludes:

*“On adverse sites, where the use of conventional subsurface soil adsorption systems does not provide acceptable levels of treatment, sphagnum peat moss may be used as an economical method of onsite wastewater treatment. The peat system, when properly designed and constructed, is relatively simple to install, requires minimal energy and maintenance, and provides a high quality effluent without additional disinfection”.*

Disinfection capabilities may be the most important aspect in using sphagnum peat moss as a wastewater treatment media. Throughout her research Dr. Brooks has identified dozens of species of fungi existing in sphagnum peat moss. Most notably recurring was the recovery of the penicillium fungus. Penicillium is the pre-cursor of the penicillin anti-biotic.

Throughout her research career utilizing sphagnum peat moss as a treatment media, Dr. Brooks consistently documented BOD5 reductions of > 90%, Total Suspended Solids reductions of > 85% and Fecal Coliform reductions of > 99%.

The following research papers by Dr. Joan Brooks provide a better understanding of the disinfection properties of sphagnum peat moss:

- Pollution Abatement with Peat Onsite Wastewater Treatment Systems, Joan L. Brooks, Ph.D., Department of Civil Engineering, University of Maine
- Fungi Isolated From the Sphagnum Peat Moss Wastewater Treatment System, Joan L. Brooks, Ph.D., Department of Civil Engineering, University of Maine, Larry M. Zibilske, Department of Soil Science, University of Maine
- The Utilization of Peat in Onsite Wastewater Disposal Systems: Interim Project Report , Joan L. Brooks, Ph.D., et.al. Department of Civil Engineering, University of Maine
- An Update on the Use of Peat Filters for On-Site Wastewater Treatment, John A. McKee, M.Sc., P.Eng. and Michael Connolly, H.B.Sc.



Peat Moss Bog



Harvesting Peat Moss

# Scientific and Engineering Principles

In the abstract to her paper, Dr. Brook writes, “Treatment of the septic tank effluent (with sphagnum peat moss) is attributed to physical filtration, adsorption and microbiological activity”.

Sphagnum peat moss provides an excellent, balanced environment for organisms that provide outstanding treatment of septic tank effluent. The treated effluent from the 300 Series Peat Moss Filter is recognized as meeting the Advanced Secondary Effluent Standard. As noted above, treatment occurs by a combination of physical, biological and chemical processes.



## Filtration of Septic Tank Effluent

The physical structure of the moderately decomposed peat moss (von Post 2-4) could account for physical filtration of septic tank effluent (Brooks, 1998). This will account for the low total suspended solids (TSS) in the effluent from the 300 Series Peat Moss Filter.

## Sphagnum Peat Moss pH

The initial pH of the peat moss used in the 300 Series Peat Moss Filter can be below 4.0, which is acidic. Bacteria contained in septic tank effluent cannot exist in this acidic environment.

In the book Wastewater Engineering, Treatment and Reuse, Fourth Edition, 2003, Metcalf & Eddy, it is written, “The concentration range suitable for the existence of most biological life is quite narrow and critical (typically 6 to 9)”.

In addition, in his book, Evapotranspiration, Nutrient Uptake, Soil Infiltration of Effluent Water, 1985, Dr. Alfred Bernhart, P.E., writes, “Acidity in domestic effluent water, such as pH 6.5 (or lower) is detrimental for microbial activity”.

In a septic tank wastewater tends to be alkaline, and becomes increasingly so as the bacterial enzymes dominate amino acids forming ammonia. (Brooks, 1998)

The pH of the 300 Series Peat Moss Filter effluent ranges from 6.25 to 6.75. In the book Wastewater Engineering, Treatment and Reuse, Fourth Edition, 2003, Metcalf & Eddy, it is written, “For treated effluents discharged to the environment the allowable pH range usually varies from 6.5 to 8.5”.

## Fungi

Fungi play a crucial role in the 300 Series Peat Moss Filter. Throughout her research Dr. Brooks’ identified the penicillium as one of the most prominently occurring fungi in sphagnum peat moss. Penicillium fungi is the source for penicillin, the first antibiotic.

Discovered by Alexander Fleming a Scottish born microbiologist in 1928, the name Penicillium comes from the resemblance of the fungus to a paintbrush (penicillus is the Latin word for paintbrush). Penicillin works against bacteria, by disrupting bacterial cell wall synthesis. Penicillium fungi produce substances that are toxic to bacteria, causes them to burst (cell lysis).



Penicillium Fungi



The cool, aerobic, acidic environment of the peat system may favor the growth of fungi over that of bacteria. Dr. Brooks found the ratio of fungi to bacterial activity in sphagnum peat to be, 8 to 1 in winter months and 6 to 2.5 in summer months.

In the 1984 paper for the Journal of Environmental Health entitled, Use of Peat for On-site Wastewater Treatment: II. Field Studies, Dr. Brooks, et al. found a 99.999% reduction of indicator organisms was achieved without additional disinfection in field studies.

The fungi present in the sphagnum peat moss are ubiquitous in nature and neither their population levels nor their presence are unique to the peat wastewater treatment system (Brooks, 1988).

### **Denitrification Capabilities**

Nitrosomonas bacteria and Nitrobacter bacteria responsible for nitrification-denitrification reactions may not be present in peat environments. If they are present they may be inert.

Research shows reduction of nitrogen in peat moss due to extensive synthesis of fungal mycelia, the vegetative part (body) of the fungus (S.E. Waksman and E.R. Purvis, The Microbiological Population of Peat, Soil Science 34, no. 2 (1932).

In literature cited by Dr. Brooks, Chemical Activities of Fungi, (New York Academic Press, 1949), J.W. Foster, states that all naturally occurring forms of nitrogen can be utilized by various fungi. In addition, V.W. Cochrane, writes, Organic and inorganic forms of nitrogen were taken up rapidly during the growth phase of fungi; Physiology of Fungi, (New York John Wiley & Sons, 1958).

Dr. Brooks concludes that all fungi present in sphagnum utilize all forms of nitrogen contained in septic tank effluent: organic nitrogen, 90-95% reduction, ammonia nitrogen, 95-99% reduction, and nitrate nitrogen.

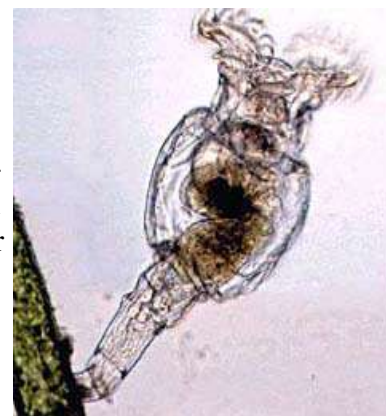
Dr. Brook's research states that Aureobasidium pullulans fungi, frequently recovered from peat bogs, can utilize both ammonium-N and nitrate-N and adapts readily to low temperatures. Botrytis can grow on a wide range of nitrogen sources and produces an antibacterial metabolite. Trichoderma polysporium, a widely distributed soil fungus, utilizes amino-N followed by ammonium, urea and nitrate. Cladosporium fungi, can utilize nitrites and nitrates as nitrogen sources and vegetative growth can occur at temperatures as low as -10o c.

### **Rotifera**

Dr. Brooks states that there are the existence of rotifera within the sphagnum peat moss treatment system.

Rotifera are the lowest forms of multi-cell animals. They range in size from 0.5 - 1 millimeter long. They attach to soil particles with their two-toed foot and catch their food by the fast sucking, rotating movements of the small hairs around their mouths.

Rotifera feed on bacteria and each can eat 5 million bacteria per day. They can survive if only a few bacteria are present, feeding on solid particles, such as fats (Bernhart, 1985).



Dr. Bernhart writes that rotifera need free dissolved oxygen, for vigorous activity 3 mg/l or more, they can sluggishly get by with 1.5 mg/l. Aerobic conditions are needed for reproduction. This aerobic environment is provided by passive air movement through the 300 Series Peat Moss Filter.

## Nematoda

Excessive growth of fungi within sphagnum peat moss is controlled by the existence of Nematoda; the most numerous multi-cellular animals on earth. Dr. Bernhart provides a detailed discussion of Nematoda in the aforementioned book.

Nematoda are small non-segmented round worms, 2-3 millimeter long and 0.1 to 0.2 millimeter in diameter. They exist only in the presence of free oxygen, high dissolved oxygen (DO) and fully aerobic conditions (D.O. > 3.0 mg/L) are needed for reproduction.



Nematoda multiply sexually, and only if they can attach themselves to some large particle, such as sand (or peat) grains. They do not reproduce if suspended in water, thus the hydraulic loading of the 300 Series Peat Moss Filter is critical for performance. Each nematode eats 15 million bacteria per day and also eats inert solid material.

## Enchytraeids, pot worms

Also existing in the sphagnum peat moss system are Enchytraeids or pot worms. Pot worms are very small, little white worms, 1/4" to 1" long.

Research conducted by soil scientists have shown pot worm densities of 250,000 individuals per square meter. The highest populations are found in acid soils, such as sphagnum peat moss.



Pot worms feed on bacteria and fungi. They eat dead organic matter and small feces. In addition, pot worms are predators of some nematodes. The population of enchytraeids helps keep the environment of the 300 Peat Moss Filter in balance. Enchytraeids do not exist in anaerobic environments.

## Oligochaetes, earth worms

During her research and often cited in the literature review of her doctoral thesis, Dr. Brooks' noted the existence of oligochaetes or earth worms within sphagnum peat moss.

Earth worms can range from a few millimeters to several feet long. There are 2,700 different kinds of earth worms in existence. They are ecologically important in their roles of turning over and aerating the soil. They break down organic matter, dead plants, feces, and decaying animals. Earth worms do not exist in anaerobic conditions.

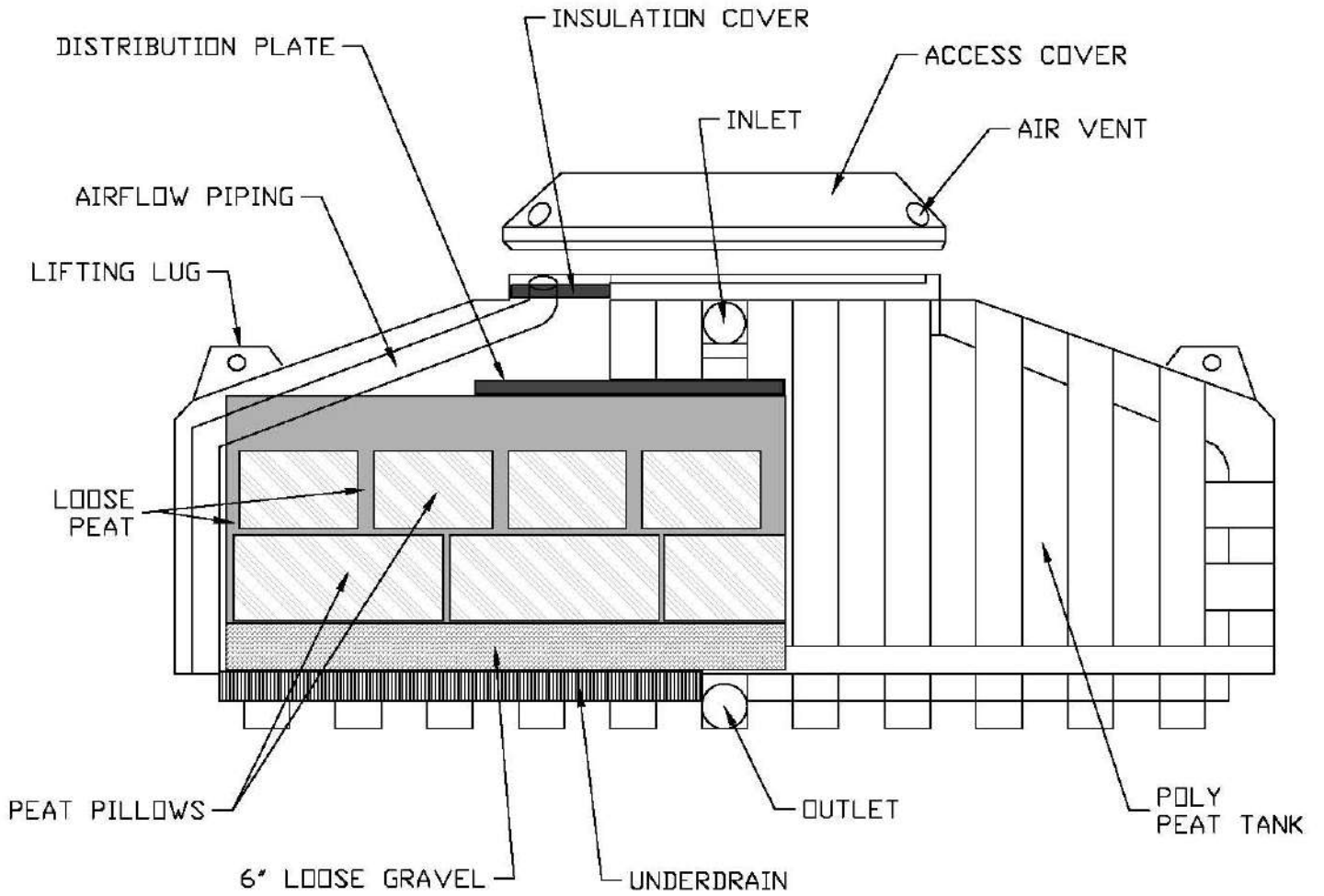


## Aerobic Environment of Sphagnum Peat Moss

As mentioned repeatedly above, organisms that live in sphagnum peat moss cannot survive in anaerobic conditions. The environment within the 300 Series Peat Moss Filter is aerobic. The effluent from a septic tank that enters the 300 Series Peat Moss Filter is anaerobic. Eco-Pure test data conducted at the Massachusetts Alternative Septic System Test Center show's the dissolved oxygen level of the septic tank effluent to have an average of .11 mg/L. Due to the aerobic condition of the 300 Series Peat Moss Filter, the effluent's average dissolved oxygen is 5.12 ml/L. This prohibits the growth of anaerobes.

Research has documented that anaerobic bacteria from septic tank effluent replace the aerobic bacteria in soil pores clogging the soil with a slime layer. This limits the soil to properly treat and absorb the septic tank effluent often resulting in surface ponding and failure.

# 300 Series Peat Moss Filter Cross Section Drawing

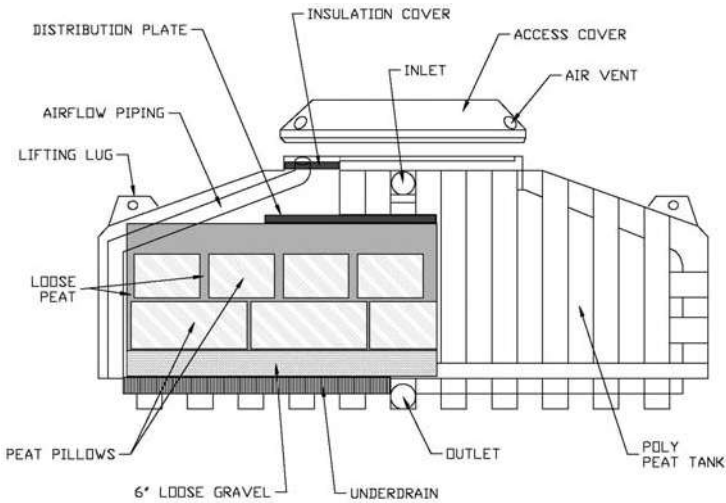




# Technical Information

## 300 Series Peat Moss Filter Component Materials

- 1 - Eco-Pure HDPE module and cover
- 1 - Insulation cover (white)
- 41 - Sphagnum peat moss pillows (polypropylene bags, orange or green)
- 10 - Loose bags of sphagnum peat moss (3.8 cubic feet bags)
- 1 - Distribution plate
- 1 - 4" x 2" Inlet pipe assembly
- 1 - 4" Black corrugated discharge pipe and air vent pipe



Dimensions		
Length	Width	Height
120"	84"	50"

Treatment Capacity	
Parameter	Capacity
GPD	600 maximum peak flow
BOD5	240 mg/L
TSS	176 mg/L

Hydraulic Loading Rates	
Gallons Per Day	GPD/ft. <sup>2</sup> /day
300	4.29
450	6.43
600	8.57

Maximum Biochemical Loading Rates (BOD5 Influent = 240 mg/L)	
Gallons Per Day	Lbs./BOD/ft. <sup>2</sup> /day
300	.008583
450	.012878
600	.017166

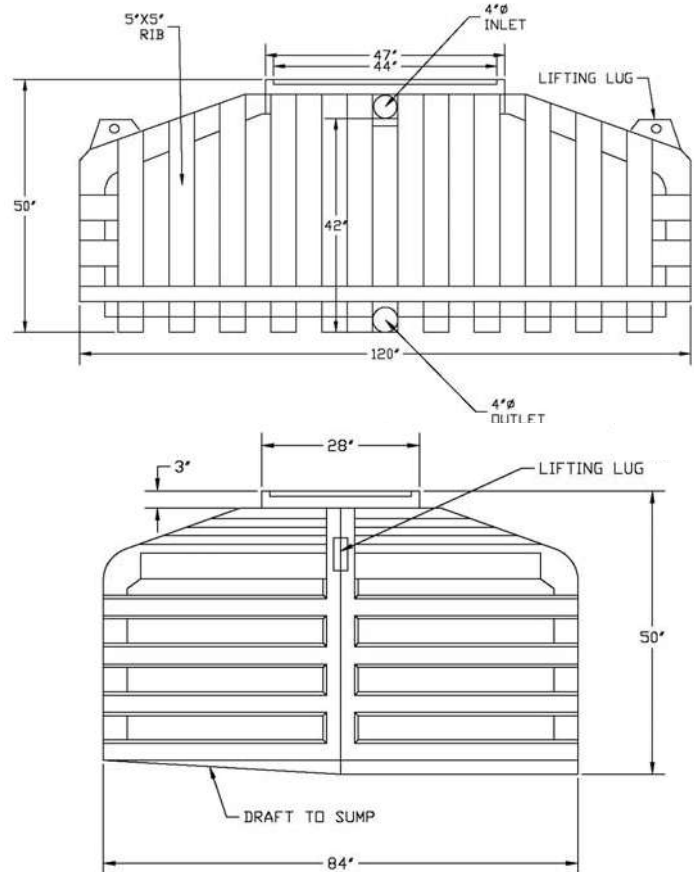
\*Up to a 4 bedroom home, 3,200 square feet or less  
 \*Wastewater characteristics described as residential strength waste

## Installation Procedures

The 300 Series Peat Moss Filter must be installed per the manufacturer's Installation Guide, February 2007. Only factory certified personnel may install the 300 Series Peat Moss Filter.

## Maintenance Procedures

Routine inspection and maintenance must take place at least once per year. Maintenance must be performed per the Eco-Pure Maintenance Manual, February 2007. Only factory certified personnel may perform maintenance.



# Operating Procedures and Specifications

## Operating Procedures

To ensure proper performance of the 300 Series Peat Moss Filter the system must be operated in accordance with the Owners Manual.

## 300 Series Peat Moss Filter Specifications

### **1. Eco-Pure Module and Cover**

Each 300 Series Peat Moss Filter module shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The module has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the module shall be blue and the empty weight is 550 lbs. The dimensions of the module shall be 120" x 84" x 50" (L x W x H). The inlet elevation is 42". The outlet is at the bottom of the module or 0". The module shall be drafted at the bottom towards the center of the module and shall contain a 4" black slotted corrugated pipe which acts as the discharge manifold and air vent. The module shall have a green HDPE cover (lid). The cover is 52" x 25" (L x W) and must be exposed for accessibility. The module must be placed on a minimum of 6" of stone.

### **2. Insulation Cover**

The insulation cover shall be a hard backed Styrofoam sheet 24" x 43" x 2" (W x L x H). The insulation cover shall rest on top of the 1-1/2" PVC support pipes in the module man-way, below the cover / lid.

### **3. Sphagnum Peat Moss**

Each 300 Series Peat Moss Filter shall have the following amount of proprietary sphagnum peat moss:

#### **a. Peat Moss Pillows**

The pillows shall be mesh, polypropylene, non-degradable bags filled with proprietary sphagnum peat moss. The pillows shall be filled to the appropriate amount at Eco-Pure's facility. Each module shall contain forty-one (41) pillows. Each pillow weighs between 35 - 40 lbs. The pillows will fit together without any void space. The pillows shall be placed in two rows, perpendicular to each other, one on top of the other.

#### **b. Peat Moss Bags**

In order to fill in any potential void spaces between the pillows, each module shall contain ten (10) loose peat moss bags. Three (3) bags shall be placed, spread and leveled over the first row of peat pillows. Seven (7) bags shall be placed, spread and leveled over the top row of peat pillows. The peat moss pillows and bags are placed on a pallet and shrink wrapped. One module contains one pallet of peat.

### **4. Inlet Pipe**

Each 300 Series Moss Filter shall contain a 4" PVC inlet pipe reduced to 2", with a 90 degree fitting. The inlet pipe shall be connected to the gravity or pressure fed sewer pipe entering the Eco-Pure module using the provided rubber coupling. The bottom of the inlet pipe shall be elevated 6" above the distribution plate.

## **5. Distribution Plate**

Each 300 Series Moss Filter shall contain a distribution plate constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The color of the distribution plate shall be white.

The dimensions of the distribution plate shall be 66-1/2" x 20-1/2" (L x W). The distribution plate rests directly on top of the leveled sphagnum peat moss.

The distribution plate shall be corrugated and shall contain thirty-nine (39), 1/2" discharge holes placed 6" apart. Thirteen (13) discharge holes are placed in each of the distribution plate's three (3) troughs.

## **6. Discharge Piping and Air Vent**

The discharge piping and air vent shall be 4" slotted pipe placed in the sump channel located in the bottom of the module. This discharge piping shall be bedded in 1" - 2" diameter non-reactive, clean river rock. The discharge piping shall run beneath the peat bed and shall be connected at the top of the module allowing for passive movement of air throughout the entire peat bed.

---

## **Regulatory Agency Inspection Guide**

All systems incorporating the 300 Series Peat Moss Filter must be designed by a state registered Professional Engineer or a state approved system designer.

### **Inspection Recommendations:**

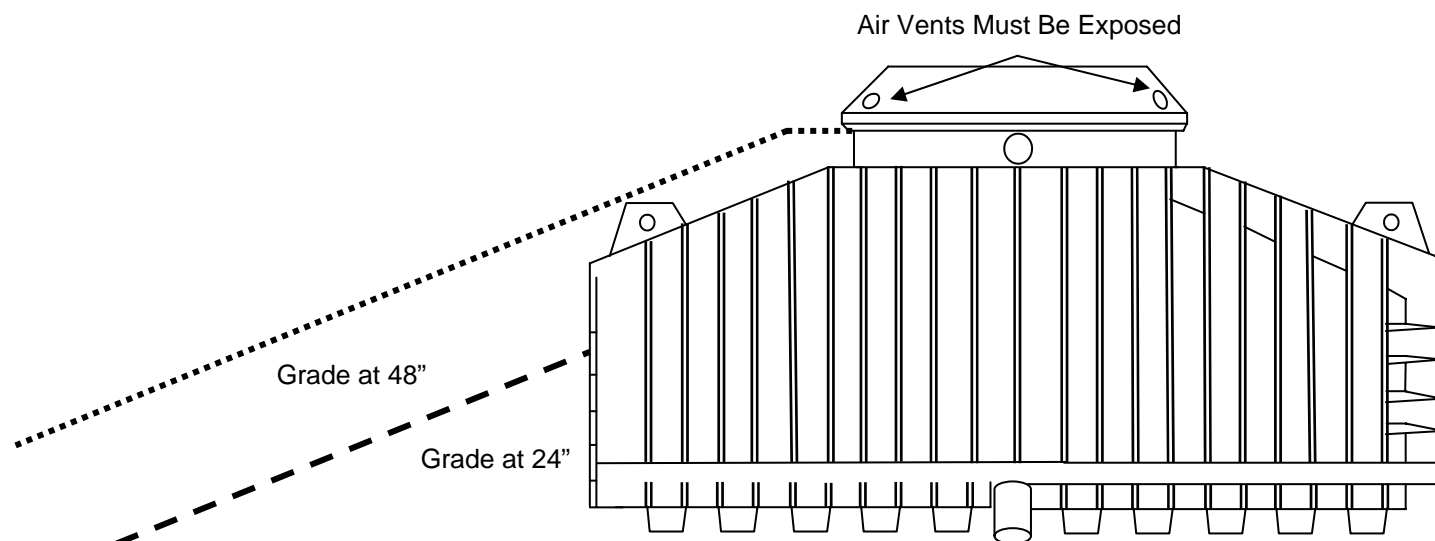
1. Assure that the proper soil conditions have been met.
2. The Eco-Pure module has been installed level and has clean material (pea gravel or sand) been used to backfill the module (s). All backfill must be free of large stones.
3. No heavy equipment should be placed upon the module (s).
4. The forty-one (41) sphagnum peat moss pillows been installed properly. The top of the loose peat moss should be approximately 12" under the inlet and must be level.
5. The distribution plate placed on top of the peat moss must be level. The septic tank effluent entering the peat module should flow (wick) over the entire area of the peat moss.
6. If a dosing pump is used, make sure the flow has been restricted by a ball valve to simulate gravity flow. Each dose should consist of no more than twenty (20) gallons. This can be done by using a Vertical Float pump switch or a time dose control panel.
7. If a pump is used to dose the peat filter, an air vent pipe from the peat module to the pump chamber or septic tank should be installed to for the venting of gases.
8. When discharging to a subsurface leach field or a mound system directly below the 300 Series Peat Moss Filter, the distribution pipe should be PVC, perforated sewer and drain pipe set on six (6) inches of stone. This distribution pipe should surround the peat module and be covered with a permeable cloth to prevent soil intrusion.
9. The insulation cover should be placed upon the PVC reinforcement pipes in the opening of the module.
10. The 4" vent pipes must be placed towards the air vents on the modules cover to allow for air circulation.
11. The green cover must not be covered and the air vents located on each side of the cover must be exposed.



## Module Backfill Details

Due to the structural integrity of the 300 Series Peat Moss Filter, the module does not need to be completely backfilled. Below are backfilling guidelines.

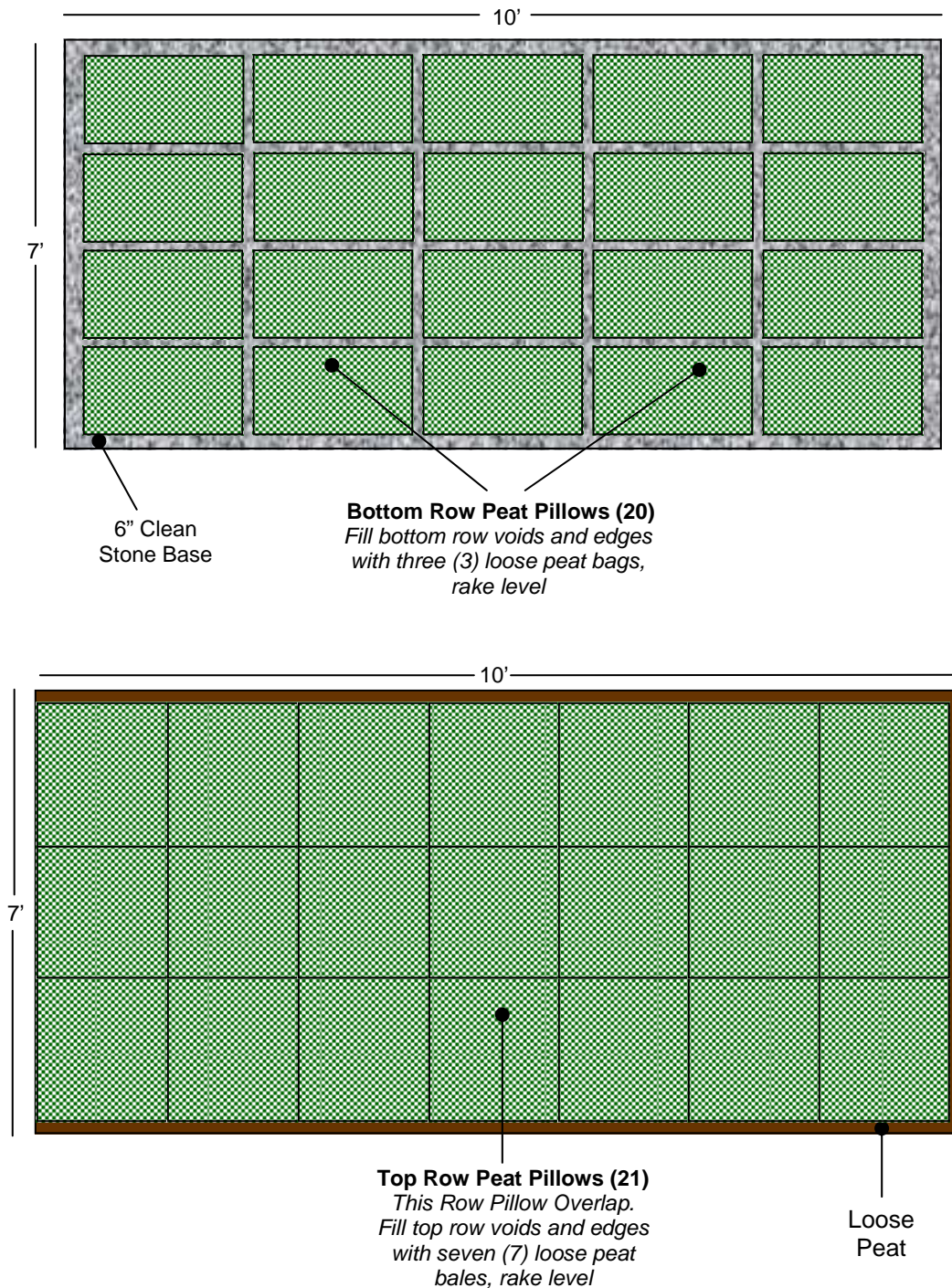
- The module may sit on native soil
  - 6" of clean sand or pea-gravel recommended for base
- The module cover (lid) must be exposed
- The module may be backfill to 24" - 48"
- Backfill grade away from module, clean backfill only, sod or seed immediately to limit erosion



# Peat Moss Installation

To control the amount of sphagnum peat moss installed in each module, Eco-Pure, Inc. utilizes pre-packaged, peat “pillows” in the 300 Series Peat Moss Filter. The pillows are mesh, polypropylene, non-degradable bags filled with sphagnum peat moss. The pillows are filled to the appropriate amount using an automated machine at the Eco-Pure facility.

Each module contains 41 pillows. Depending on the moisture content of the peat, the pillows weigh between 35 - 40 lbs. Properly placed, the pillows will fit together without any void space. The pillows are placed in two rows, perpendicular to each other, one on top of the other. In order to fill in any potential voids, the placement of ten (10) loose peat moss bales is required. The peat moss pillows and bags are placed on a pallet and shrink wrapped.



## Distribution Plate Details

The Eco-Pure 300 Series Peat Moss Filter utilizes an innovative technique of distributing the pretreated septic tank effluent throughout the sphagnum peat moss bed.

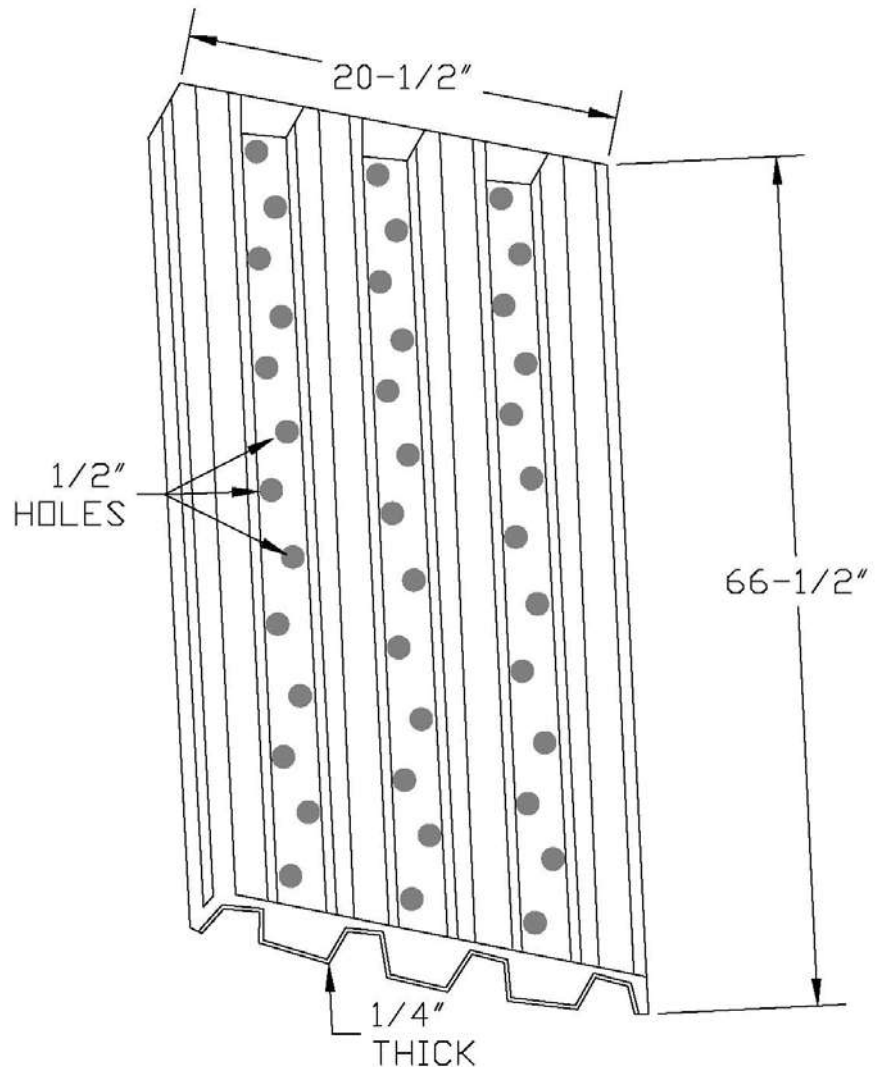
The septic tank effluent enters the top of the module via gravity or can be pumped using a small horsepower sump/effluent pump.

(Please note that special considerations are required when using a pump to dose the system. Please refer to the Installation Manual for details.)

The pretreated effluent is evenly distributed over the entire peat bed through the distribution plate. It is critical to assure equal distribution of the pretreated effluent throughout the entire peat bed. This allows for proper retention time and therefore proper wastewater treatment.

There are 39, 1/2" diameter holes located in the distribution plate located 6 inches apart. The effluent will fill the troughs equally and weep through the 1/2" holes. Also critical is the leveling of the distribution plate.

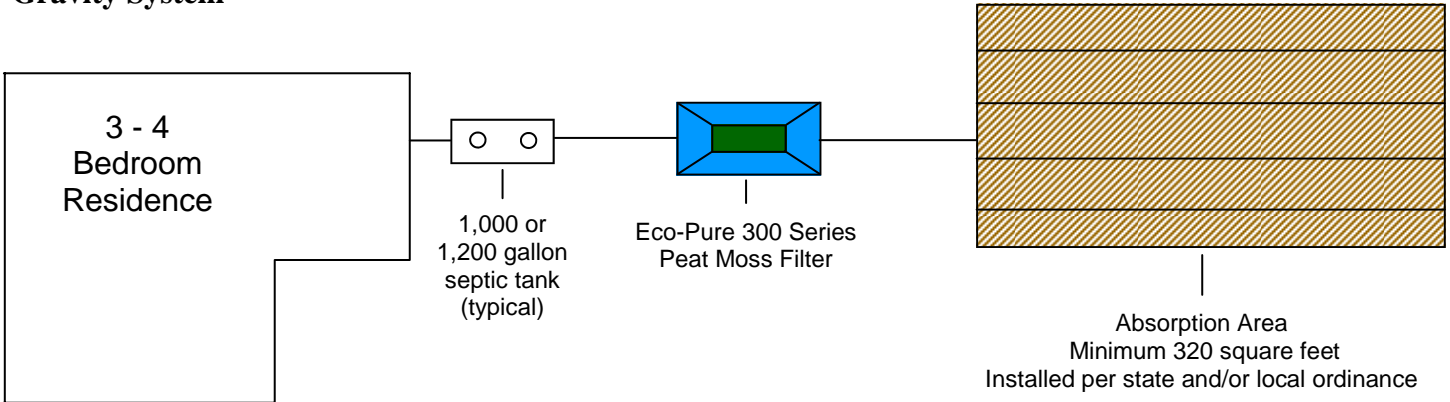
- Material - High Density Polyethylene
- Length - 66-1/2"
- Width - 20-1/2"
- 1/4" Thick
- Discharge Hole Configuration
  - 39 - 1/2" discharge holes
  - 13 per trough
  - 6" spacing



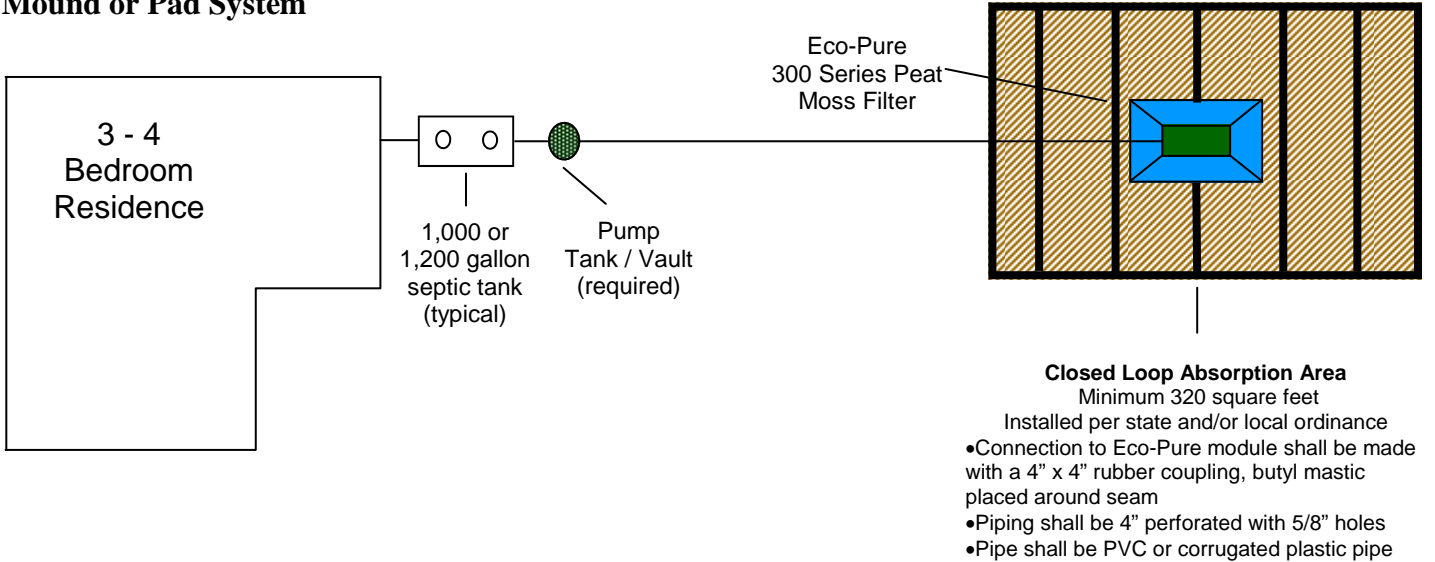


# Typical System Layouts

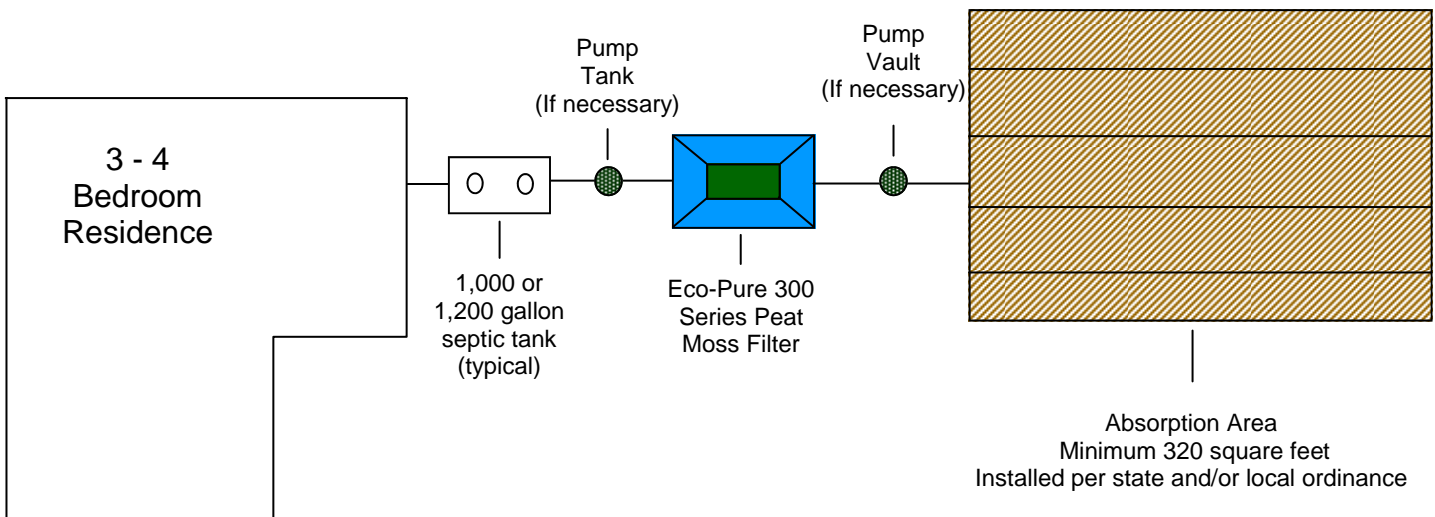
## Gravity System



## Mound or Pad System

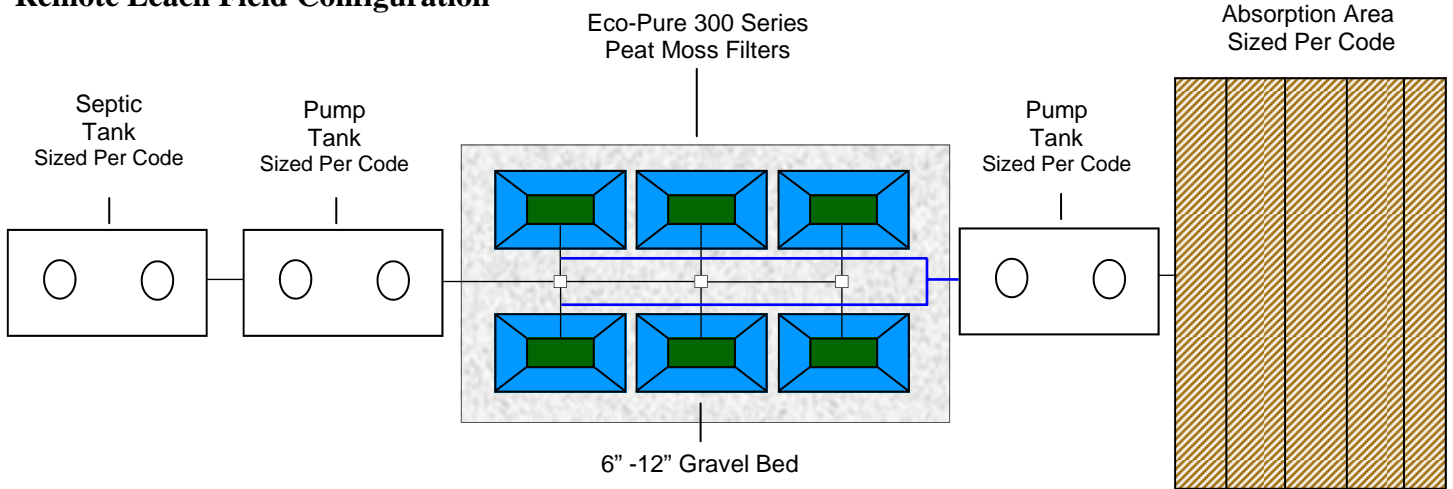


## Pump Dosed System

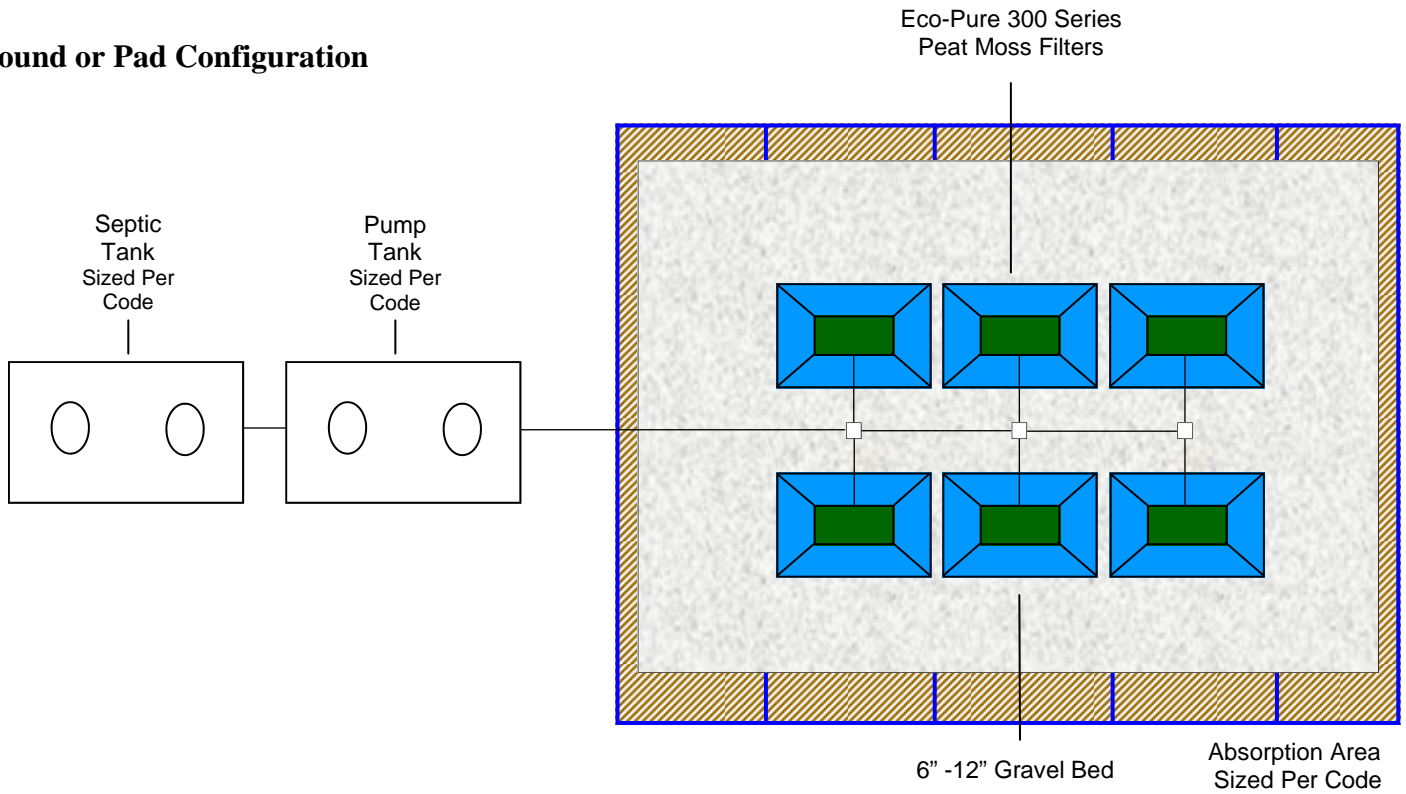


# Multi Module System Layouts

## Remote Leach Field Configuration



## Mound or Pad Configuration



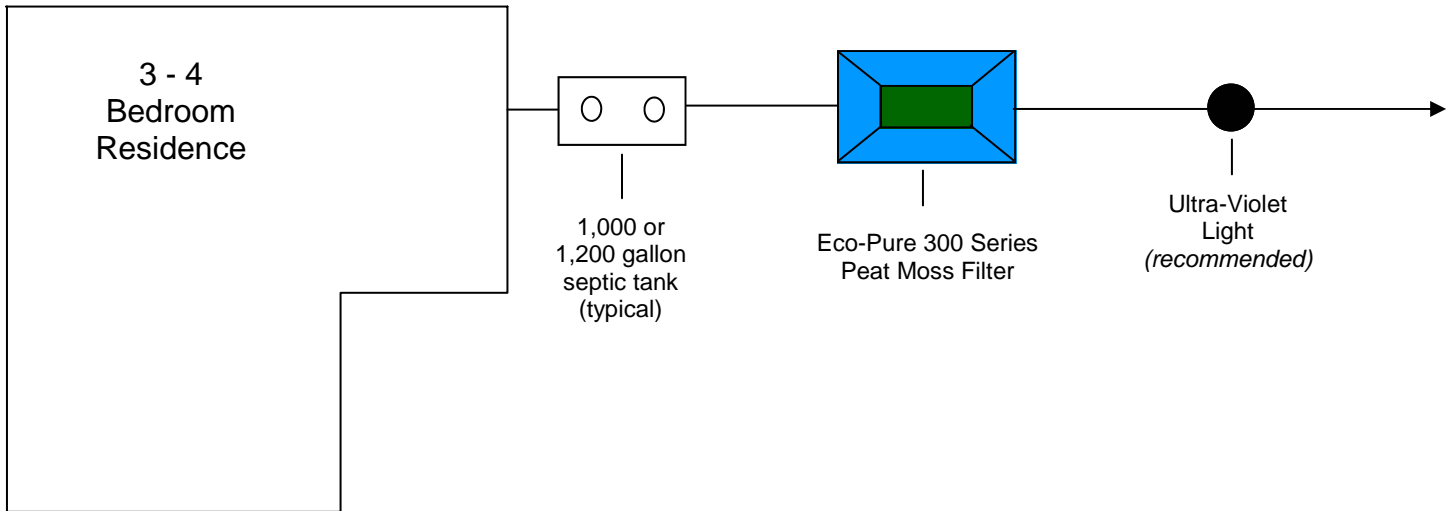
### Notes:

1. Number of Eco-Pure Peat Filters will vary depending on flow rate (gpd) and biological loading rate (BOD5, TSS, FOG, COD, etc.)
2. Customized flow divider for ease of installation
3. Time dosing of Eco-Pure Peat Filters will be required
4. Time dosing of absorption area may be required depending on code

- Black Line = 2" Pressure Line
- Blue Line = 4" Gravity Discharge Line
- Custom Made Flow Equalization Manifolds

# Surface Discharge System Layout

Some state and / or local regulatory agencies allow the 300 Series Peat Moss Filter effluent to discharge to ground surface. Although the 300 Series Peat Moss Filter has demonstrated to ability to kill > 99.962 % of fecal coliform bacteria, Eco-Pure, Inc. recommends the use of the an ultra violet light to assure public health and safety.



# Installation Guide

## 300 Series Peat Moss Filter Part List

- 1 — Eco-Pure HDPE Module
- 1 — Eco-Pure module cover (green)
- 1 — Insulation cover (white)
- 41 – Peat moss pillows (green or orange bags)
- 10 — Loose bags of peat (3.8 Cubic Foot Each)
- 1 – Distribution Plate
- 1 — 2” Distribution pipe assembly
- 2 — 4” rubber couplings
- 1 — Installation Manual
- 1 — Owners Manual
- 1 — Maintenance Agreement



## Items Needed For Installation

- 2 cubic yards of 1/2 - 1” clean river rock (placed inside of module)
- 8 cubic yards of clean sand (module backfill material)
- Backhoe for digging and backfilling
- Forks on loader or forklift to unload peat moss pallet
- Truck and trailer for transport of peat module and peat moss pallet
- Lifting straps with large hooks for placing Eco-Pure module
- Nut drivers
- PVC pipe saw
- PVC Cleaner and Cement
- Assortment of PVC fittings (1-1/2”, 2” and 4”)
- Septic Tank Filter
- Garden Hose
- If dosing unit: effluent pump, ball valve, control panel or vertical float pump switch, pump vault, 2” hole saw

## When Dosing the 300 Series Peat Moss Filter

- Simulate gravity flow by installing a ball valve
- Close ball valve approximately 3/4
- **Maximum pump volume is 20 gallons per cycle event**
- **Installation of a 2” vent is recommended from the peat module tank to the septic tank**



## 300 Series Peat Moss Filter Installation Guide

1. Install septic tank allowing enough fall to the Eco-Pure module to gravity feed. Install a septic tank filter in outlet baffle.
2. Remove the contents from the Eco-Pure module. Make sure 4" drain pipe is in drain area.
3. Push back vent pipe so the 90° fittings are between the opening of the tank and the support pipes.
4. Replace the green cover to prohibit soil intrusion into the module.
5. Excavate an area approximately 10' by 12' and approximately 42" deep for the Eco-Pure module.
6. Fill excavated area with 6" - 12" clean sand.
7. Place Eco-Pure module into the center of the excavation. Lift module by the lifting rings only. Make sure module is level.
8. Cut 1" off discharge hub. Connect the supplied rubber fitting to the Eco-Pure outlet. Connect discharge piping to rubber fitting.
9. Make sure all fittings are water-tight and bed discharge piping. Eco-Pure recommends a small amount of butyl mastic around all pipe connections.
10. Backfill the Eco-Pure module with clean sand to the lifting rings, approximately 14 cubic yards.
11. Place and level 2 cubic yards of non-reactive rock into bottom of module. **Do not use reactive stone inside of module (limestone).**
12. Wash rock so that it is free of dust and fine particles. This allows for proper drainage of the module.
13. Remove peat from shipping pallet. There will be 10 peat bags (white bags) and 41 peat pillows (green or orange sacks).
14. Fluff all peat pillows by gently rolling them on the ground before placing them into module.
15. Place 20 peat pillows on bottom of module on top of stone. Start at ends of module and work towards the center of the module.
16. Make sure peat pillows are placed against walls of module. **Do not cram pillows.**
17. Place 3 (3.8 cubic foot) bags of loose peat over entire bottom row of peat pillows. Fill in all voids between peat pillows.
18. Break up any clumps. Rake loose peat level. **Pay special attention that the voids against walls of module are filled in with loose peat.**
19. Place the remaining 21 peat pillows on top of bottom row. Place pillows in the opposite direction of bottom layer.
20. Once again, start at ends of module and work toward center.
21. Place the remaining 7 (3.8 cubic foot) bags of loose peat over entire top row of peat pillows. Fill in all voids between peat pillows. **Use all 7 bags.**
22. Break up any clumps. Rake loose peat level. **Pay special attention that the voids against walls of module are filled in with loose peat.**
23. **Completely level the peat bed.** This can be done by using a 3' x 1" x 2" wood stake or a 3' x 1/2" PVC pipe used as a screed. **This is very important!**
24. Wet the peat bed thoroughly by gently spraying it with a garden hose. This prohibits the peat from "floating" upon system start-up.
25. Gently lay the HDPE distribution plate on the peat bed. Center the inlet of the manifold with the inlet of the module.
26. Level the distribution plate. **The distribution plate must be level!**
27. Install the 4" x 2" inlet pipe to Eco-Pure Module. **Test with clean water to assure even distribution.**
28. Place the insulation cover on the support pipes.
29. Place the green cover on the module. Use the 2 stainless steel screws to fasten the cover.
30. Backfill the Eco-Pure module with clean, rock free material or clean sand. **Do not leave voids in backfill.**
31. Hand rake backfill around module only. **Do not use heavy equipment near the module.**

## 300 Series Peat Moss Filter Maintenance Guide

To assure years of trouble free operation and proper wastewater treatment, Eco-Pure requires one annual routine maintenance visit. This guide demonstrates a typical routine maintenance visit.

### Items Needed To Perform Routine Maintenance

- Screw drivers / cordless drill
- Rake
- Level
- Garden Hose
- Screed to level peat (3' x 1" x 2" wood stake)
- Rubber Gloves
- Apparatus to obtain effluent sample



### Note to Maintenance Entities

Be sure to fill out enclosed Maintenance Report and fax it to Eco-Pure Wastewater Systems, Inc. at the number below. Also be sure to enter this information into the Carmody Data Systems-Eco-Pure data system web site.

### Routine Maintenance Procedures

1. If using a dosing pump to dose the Eco-Pure Peat Filter module (s) disconnect power.
2. Remove the green cover on the module. Loosen the stainless steel screws to remove the cover. This will expose the white insulation cover.
3. The insulation cover sits upon support pipes. Remove the white insulation by carefully sliding it out of the peat module.
4. Remove the 4" x 2" PVC inlet pipe. Use screwdriver or cordless drill to loosen stainless steel snake clamp and slide off pipe.
5. Remove the distribution plate.
6. Rake peat moss bed to break up any bio-mass (if present). A child garden rake works best for this procedure.
7. Re-level the entire peat bed. Use the 3' x 1" x 2" wood stake or 3' x 1/2" PVC pipe to completely level peat bed. This step is absolutely vital.
8. Rinse the inlet pipe. Use the garden hose to rinse the 4" inlet pipe.
9. Replace the distribution plate.
10. It is strongly recommended to do a water test to verify that the distribution plate is level.
11. Run hose over plate to determine that equal distribution of the water taking place.
12. Use a level to assure that distribution plate is level.
13. Replace the 4" x 2" PVC inlet pipe. Use screwdriver or cordless drill to tighten stainless steel snake clamp and slide off pipe.
14. Obtain effluent sample from pump tank or other sampling device.
15. Inspect effluent. Effluent should be odor free.
16. It may have a tea color for the first year of service and a slight color thereafter. This is due to peat "washing" and is completely normal.
17. Routine maintenance completion.
18. Examine area for any unusual settling.
19. Make sure that all surface and runoff water is diverted away from system.
20. Cover and screw down all covers.
21. Be sure to fill out enclosed Maintenance Report.

# 300 Series Peat Moss Filter Routine Maintenance Report

Date \_\_\_\_\_ Type of Installation \_\_\_\_\_

Maintenance Company \_\_\_\_\_

Address \_\_\_\_\_  
Street Number City State Zip

Phone \_\_\_\_\_ Fax \_\_\_\_\_

## **Owner Information**

Owner \_\_\_\_\_

Address \_\_\_\_\_  
Street Number City State Zip

Phone \_\_\_\_\_

Installation Address \_\_\_\_\_

## **Installer Information**

Installer \_\_\_\_\_

Address \_\_\_\_\_  
Street Number City State Zip

Phone \_\_\_\_\_ Fax \_\_\_\_\_

## **Maintenance Information**

Model \_\_\_\_\_ Serial Number \_\_\_\_\_

Description of absorption field \_\_\_\_\_

Installation Date \_\_\_\_\_ Inspection Date \_\_\_\_\_

Contract Date \_\_\_\_\_ Expiration Date \_\_\_\_\_

Sample Needed \_\_\_\_\_ Sample Date \_\_\_\_\_

Peat Moss Condition: Good Fair Poor Biomat: Yes No

Ponding of Peat Moss: Yes No Reason for ponding \_\_\_\_\_

Clean Septic Tank Filter: Yes No Septic Tank Pumping: Yes No

Vegetation Change: Yes No System Accessible: Yes No

Signed \_\_\_\_\_

# System Evaluation Form

The form below should be used when diagnosing or troubleshooting a 300 Series Peat Moss Filter System.

Date of Evaluation:

Owner Name:

Address: City: State: Zip:

Phone:

System Designer: System Installer:

System Maintenance Provider:

Number of People in Home: Adults: Children: Male: Female:

Laundry Habits:

Loads per Day:

Loads per Week:

Consecutive Loads:

Brand of Laundry Detergent Used: Liquid or Powder

Bleach Used: Yes / No Use How Many Cups:

Garbage Disposal Used: Yes / No Times per Day: Times per Week:

Dishwasher Used: Yes / No Times per Day: Times per Week:

Water Softener Used: Yes / No Back Flushes to:

Number of Toilet Paper Rolls Used Per Week: Brand:

Any Long Term Drugs Used / Antibiotics: Yes / No

First Time Septic System User: Yes / No\_\_

Hobbies in Home (Painting/Auto Mechanic/Photography): Yes / No

Do you have a Maintenance Contract: Yes / No

Do You Have City or Well Water? Will You Provide Water Bills: Yes / No

What Types of Floor Cleaners Do You Use?

How Many Meals are Prepared at Home: Per Day: Per Week:

Do You Entertain Often: Yes / No



# Troubleshooting Guide

Problem	Possible Cause	Solution
<p><b>The 300 Series Peat Moss Filter is flooded, not performing properly, or is emitting odors</b></p>	Peat filter not installed properly	Verify that peat system was installed per the 300 Series Peat Moss Filter Installation Guide
		Verify that peat filter module and the distribution plate are level
	Hydraulic Overload from Owner	Make sure all toilet flush valves and all faucets for leaks and drips
		Water usage exceeds system design capacity
	Water Infiltration Into System	Make sure septic and pump tanks are water tight
		Make sure that all surface water runoff and downspout runoff is diverted away for system
		Make sure the peat filter cover is above grade
	Dosing Pump Failure	Make sure that the pump is working properly
		Make sure the electrical breaker for the pump is on
		Make sure pump float switch is functioning properly
		Make sure all electrical connections are correct
	Dosing volume too high	Verify that pump float switch is set at appropriate level
		Verify that ball valve is installed and properly adjusted to control dose flow rate
	Absorption Area Failing	Make sure absorption area was installed properly and is functioning
		Verify that all pipe connections are watertight
No Maintenance to System	Call for system maintenance	

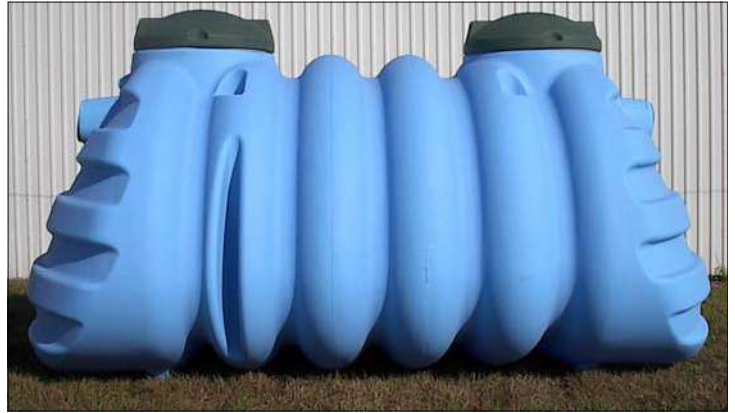
## Eco-Pure HDPE Septic and Pump Tanks

In 2004, Eco-Pure, Inc. introduced their line of high-density polyethylene septic and pump tanks. Eco-Pure realized that there was a need for a watertight, lightweight and very reliable alternative to pre-cast concrete septic tanks.

All of the Eco-Pure tanks have passed the stringent vacuum test as required by the Florida Department of Health. Please contact the factory for details.

### Specifications

Each tank shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The tank has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the tank shall be blue. The inlet elevation shall be 45". The outlet elevation will be 43". The 4" diameter inlet and outlet pipes shall be connected to the tank using watertight 4" rubber grommets as approved by the Florida Department of Health.. Tank must be backfilled with clean sand and filled with water.



### Installation Instructions

1. Excavate hole to proper dimensions (length, height, width, etc.). We recommend a 2 foot over dig on each side of the tank for easy, and satisfactory backfilling.
2. Make sure that the bottom of hole is level and free of large rocks or other objects that may puncture the tank.
3. Place 6 to 8 inches of pea gravel or clean, fine material in hole if installing the tank in heavy, clay soils.
4. Place tank in the hole.
5. Make sure tank is level using a laser or a 4 foot level.
6. Begin to fill the tank with water.
7. Begin to backfill the tank in 6 inch lifts. Make sure that the backfill material is free from any large rocks or other materials that may damage or puncture tank. **If installing in heavy or clay soils backfill with pea gravel or clean, fine material.**
8. Fill the tank with water to the outlet.
9. Complete backfill in 6 inch lifts.
10. Install inlet and outlet tee's as required by state and/or local codes.
11. Connect the inlet and outlet pipes.
12. Install the risers and lids. Secure covers using provided fasteners.

### Warranty

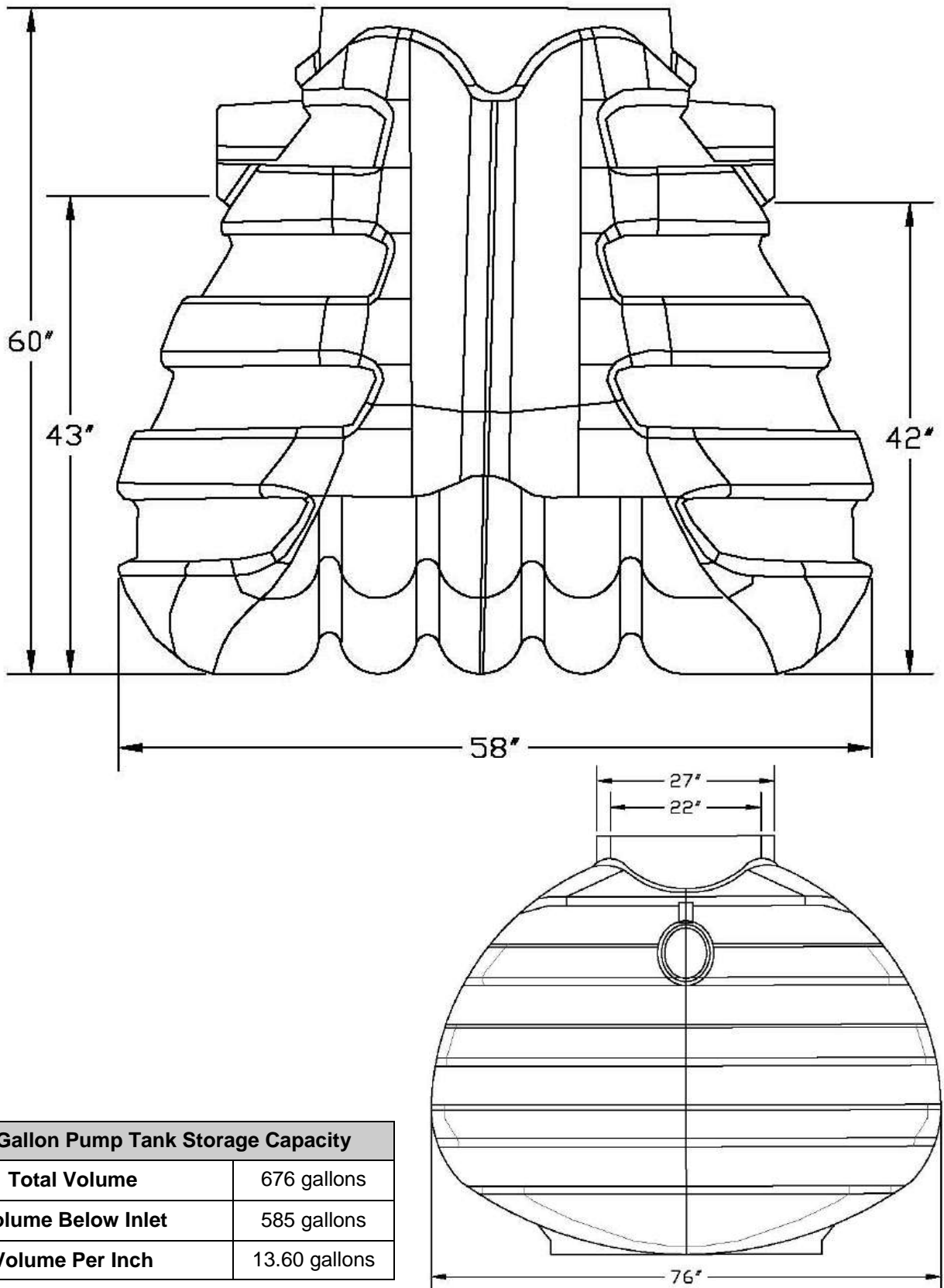
Eco-Pure, Inc. warrants the 360 Series Pump and Septic Tanks against material defects and workmanship for a period of five years from the date of installation. This warranty is only valid for the purchaser of the product.

The following will be excluded from warranty coverage: any damage caused by an Act of God such as floods, earthquakes etc., damage caused the users or third parties such as any modification or installation practice not authorized by Eco-Pure, Inc., any damage by heavy vehicles such as cars, trucks etc.

This warranty does not cover direct or indirect consequential damage due in part or in full of Eco-Pure, Inc., it's materials, or their workmanship.

## 500 Gallon Septic Tank Details

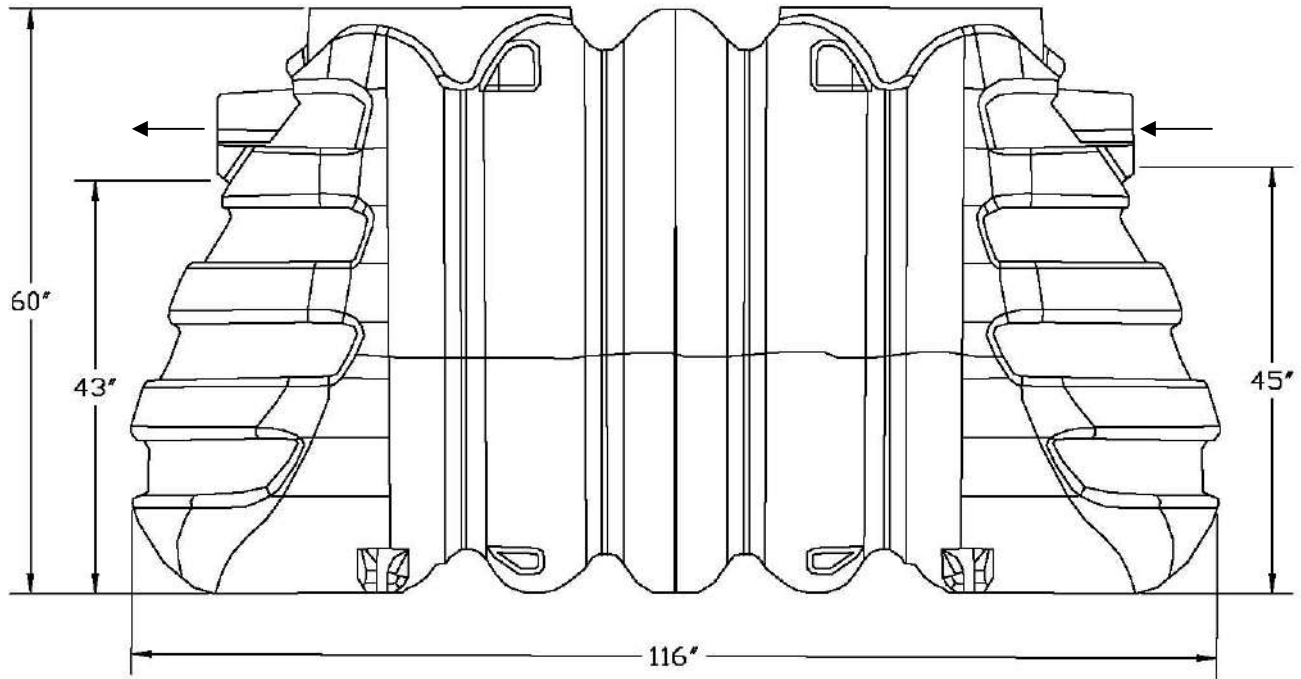
Below is the Eco-Pure HDPE 500 Gallon Septic Tank. Please refer to state and/or local codes for pump tank requirements. Consult with factory representatives for regulatory approvals.



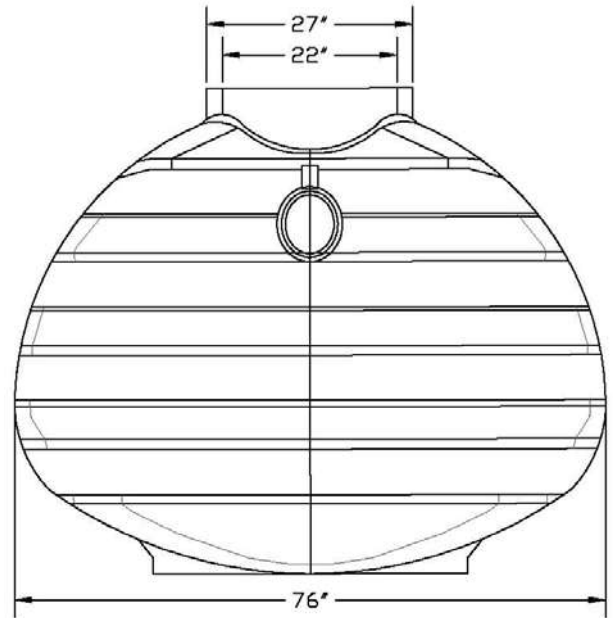
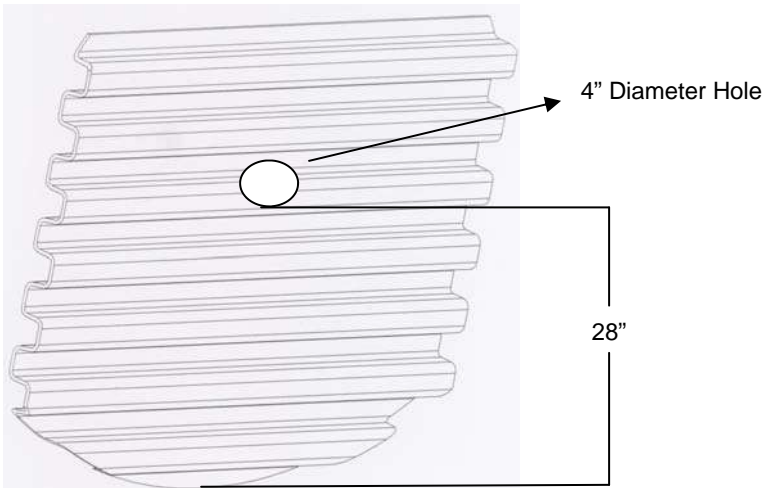
500 Gallon Pump Tank Storage Capacity	
Total Volume	676 gallons
Volume Below Inlet	585 gallons
Volume Per Inch	13.60 gallons

# 1,050 Gallon Septic Tank Details

Below is the Eco-Pure, Inc. HDPE 1,050 Gallon Septic Tank. Please refer to state and/or local codes for septic tank requirements. Consult with factory representatives for regulatory approvals.



**Baffle**

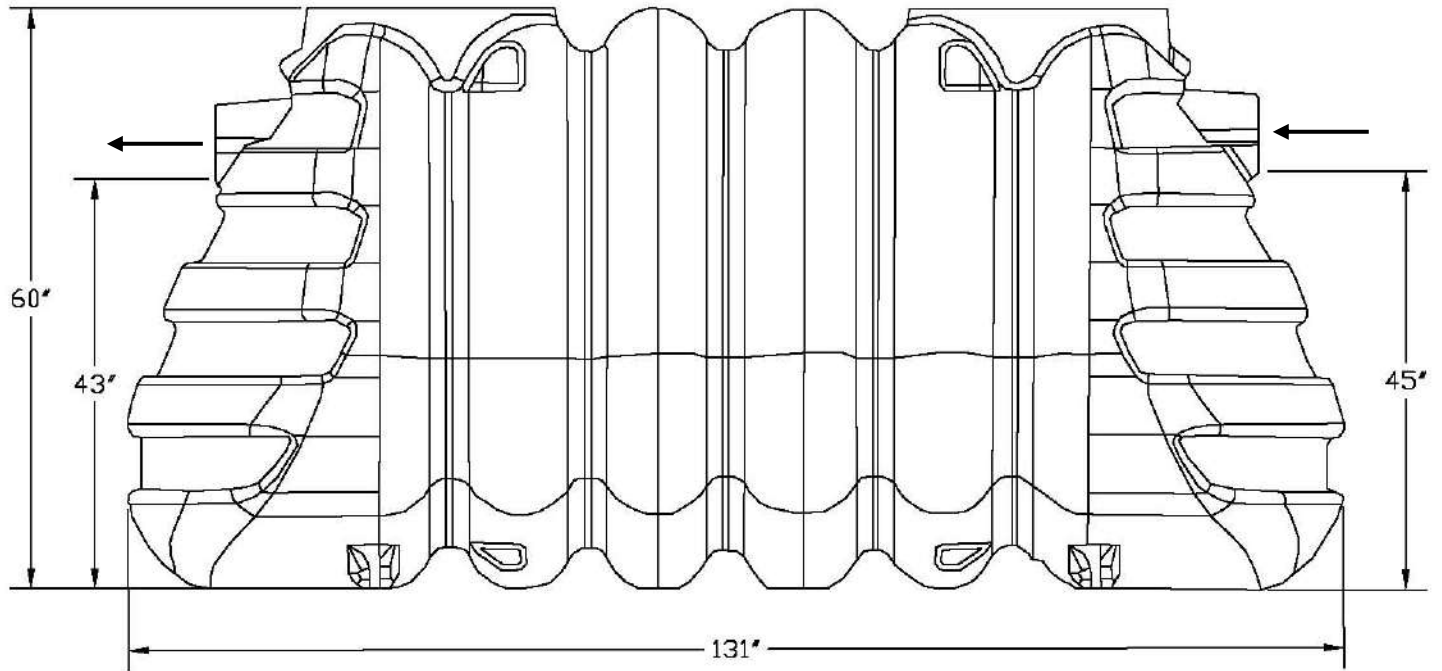


1,050 Gallon Septic Specifications	
Total Volume	1,290 gallons
Volume Below Inlet	1,110 gallons
Volume Per Inch	25.82 gallons
Air Space in Gallons / %	180 gallons / 16%
Inlet Compartment Volume	740 gallons
Outlet Compartment Volume	370 gallons

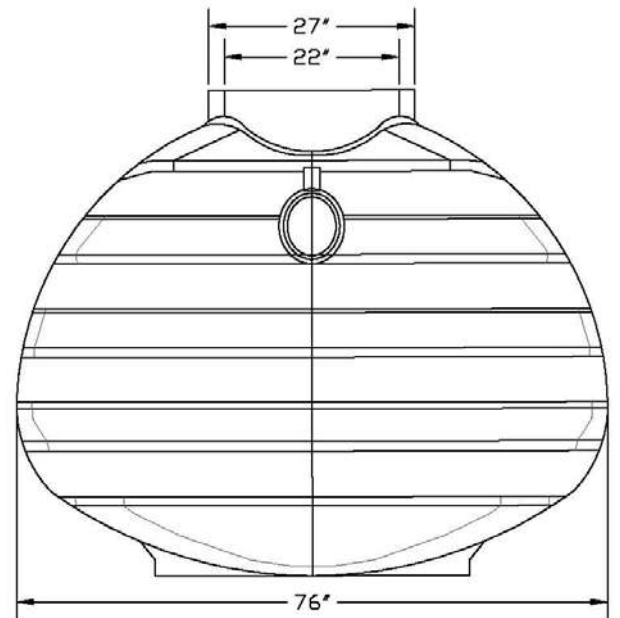
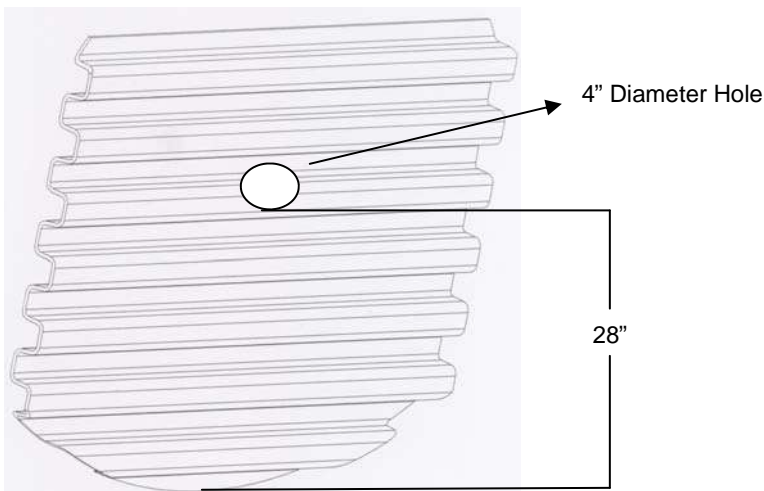


# 1,250 Gallon Septic Tank Details

Below is the Eco-Pure, Inc. HDPE 1,250 Gallon Septic Tank. Please refer to state and/or local codes for septic tank requirements. Consult with factory representatives for regulatory approvals.



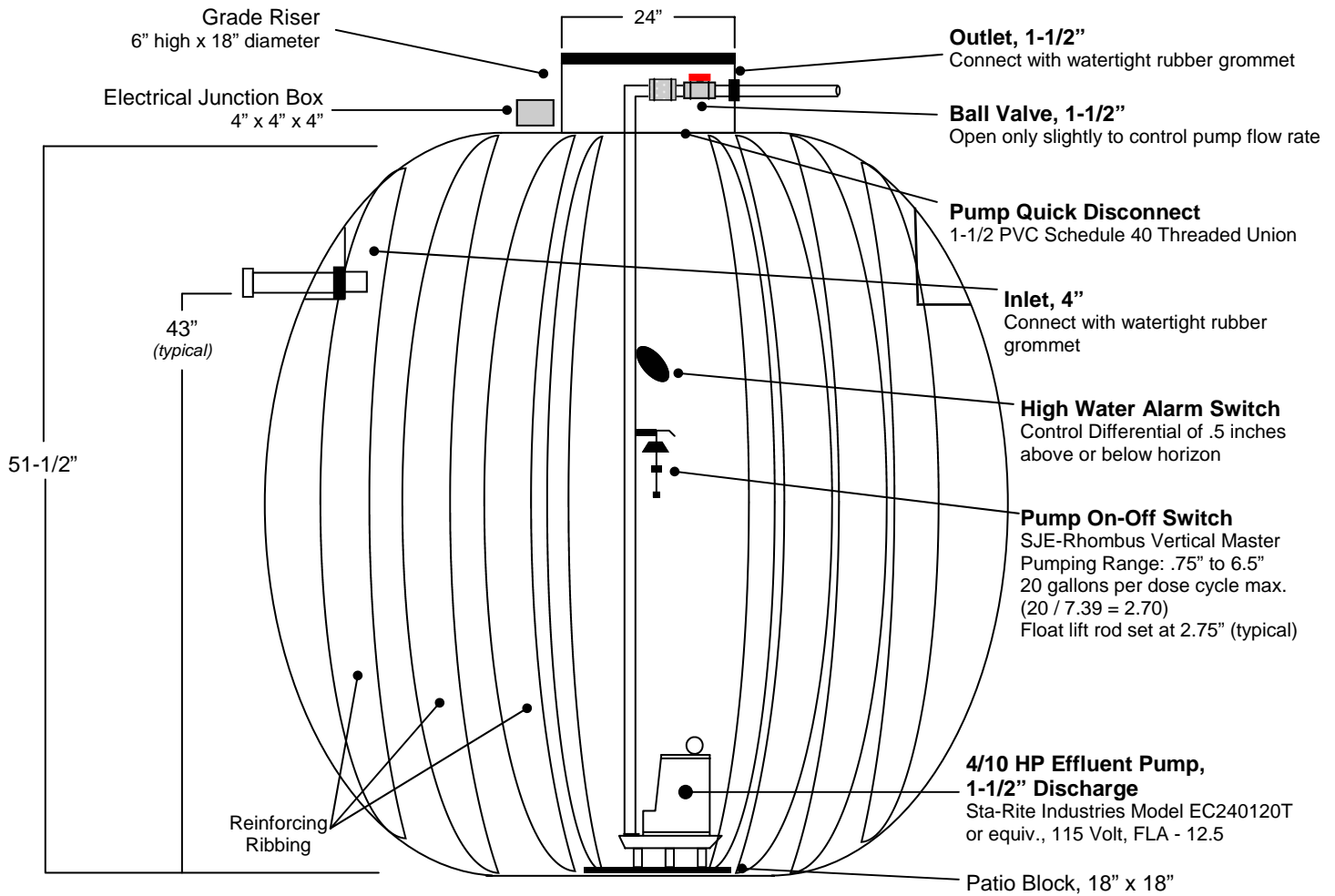
**Baffle**



1,250 Gallon Septic Specifications	
<b>Total Volume</b>	1,460 gallons
<b>Volume Below Inlet</b>	1,250 gallons
<b>Volume Per Inch</b>	29.07 gallons
<b>Air Space in Gallons / %</b>	210 gallons / 17%
<b>Inlet Compartment Volume</b>	880 gallons
<b>Outlet Compartment Volume</b>	370 gallons

# 300 Gallon Pump Tank Details

Based on site topography, a pump may be needed to transport the septic tank effluent to the 300 Series Peat Moss Filter. Below is the Eco-Pure HDPE 300 Gallon Pump Tank. Please refer to state and/or local codes for pump tank requirements. Consult with factory representatives for regulatory approvals.



Tank Dimensions						
Tank Diameter (Inches)	Tank Height (Inches)					
55.75	51.5					
Pump Tank Storage Capacity						
Total Volume Below Inlet	318 gallons					
Volume Per Inch	7.39 gallons					
Sta-Rite Industries EC240120T Performance						
Total Head in Feet	5	10	15	20	30	Shut Off
Gallon Per Minute	62	54	43	38	17	32



# 300 Gallon Pump Tank Specifications

## 1. Tank and Cover

Each tank shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The tank has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the tank shall be blue. The 6" riser will be factory installed to the tank and shall be watertight. The cover shall be black. The dimensions of the tank shall be 55.75" x 51.50 (D x H). The inlet elevation shall be 43" (typical). The 4" diameter inlet pipe shall be connected to the tank using a watertight 4" rubber grommet as approved by the Florida Department of Health. The outlet shall be through the side of the tank and shall be 2" diameter pipe connected to the tank using a rubber grommet as approved by the Florida Department of Health. Tank must be backfilled with clean sand and filled with water.

## 2. Effluent Pump

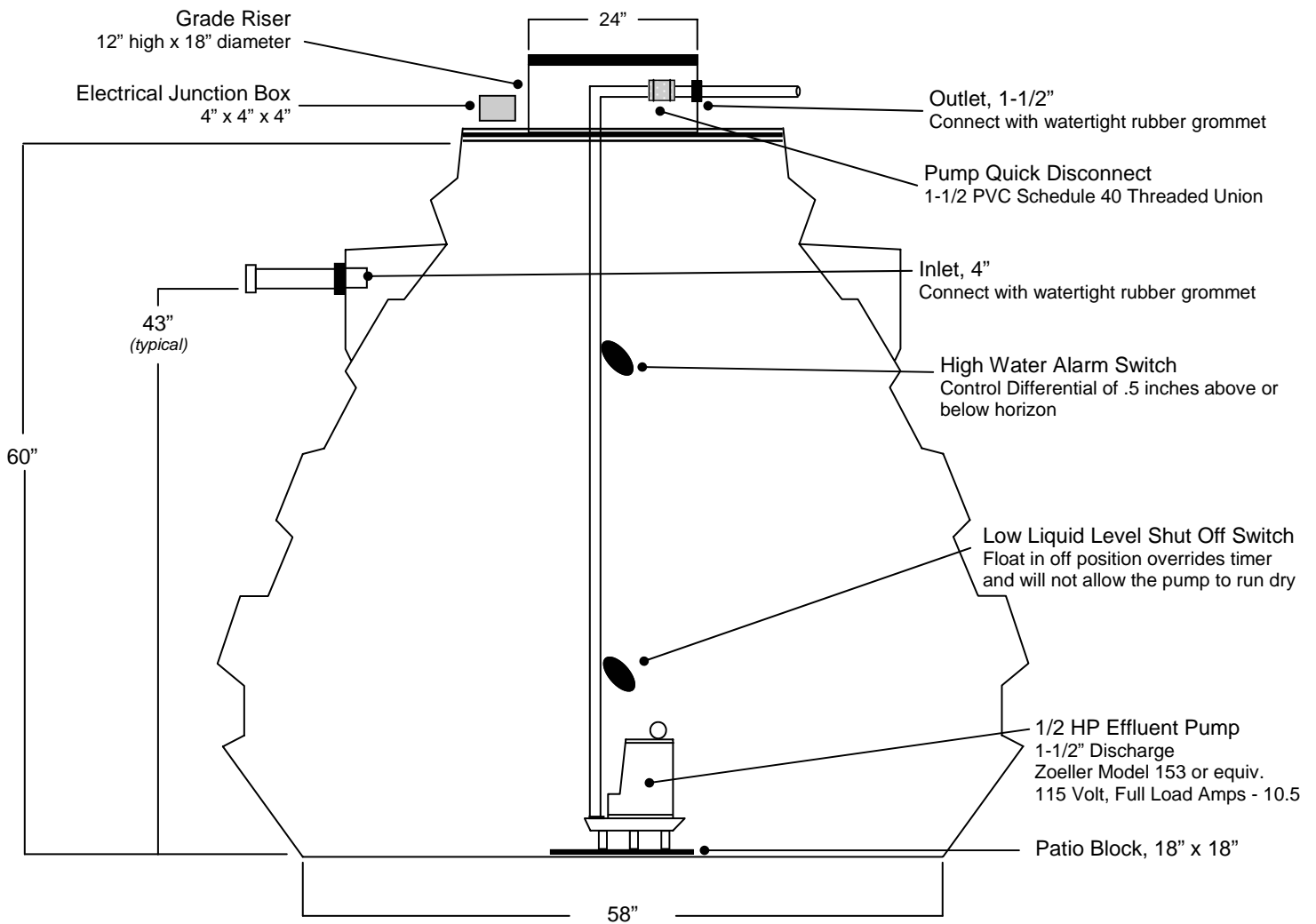
The pump shall have a cast iron motor housing and upper volute and a fiberglass reinforced polypropylene lower volute base. The impeller shall be fiberglass reinforced Noryl<sup>®</sup> with threaded insert. The shaft seal shall be carbon/ceramic and mechanical. The pump shall have upper sleeve and lower ball bearings, oil lubricated and Buna-N O-rings. All exterior shall be stainless steel. The motor shall be 4/10 HP, 1550 RPM, 115V 60 Hz. Class B insulation. Oil filled shaded pole containing built-in thermal overload protection with automatic reset. The power cord shall be 10' or 20' water resistant 16-3 gauge, type SJTW-A/SJTW with integrally grounded 3-prong plug. The maximum liquid temperature shall be 130°F (55°C). The pumps intake shall have a built-in suction screen with stainless steel suction plate. The pump shall be capable of handling a 1/2" spherical solid. The pump shall be installed with a quick disconnect threaded union. The pump will be controlled with a vertical float switch rated for effluent applications. Flow rate of the effluent pump shall be controlled by the use of a 1-1/2" ball valve, in the slightly open position.

## 3. High Water Alarm

The voltage shall be 120 VAC, 50/60 Hz, 8.5 watts maximum (alarm condition). The enclosure shall be 6.5" x 4.5" x 3.0" (H x W X D) and shall be of the indoor/outdoor type, weatherproof, meeting the Type 3R water-tight standard. The alarm horn shall be 85 decibels at 10 feet and meets the Type 3R water-tight standard as installed by factory. The alarm beacon shall be Type 3R water-tight standard as installed by factory. The test/silence switch shall be certified to IP66 and IP68 standards. The power cord shall be 6 foot cord with 120 VAC plug. The float switch shall be a Sensor Float<sup>®</sup> control switch with mounting clamp with a 15 foot cable, flexible 18 gauge, 2 conductor (UL) SJOW, water resistant (CPE). The float shall be 3.38 inch diameter x 4.55 inch long, (high impact, corrosion resistant PVC housing for use in sewage and non-potable water up to 140°F. The switch shall be hermetically sealed steel capsule features mercury-to-mercury contacts. Maximum line impedance for initiating device: 100 ohms.

# 600 Gallon Pump Tank Details

Below is the Eco-Pure HDPE 600 Gallon Pump Tank configured for a drip irrigation system. Please refer to state and/or local codes for pump tank requirements. Consult with factory representatives for regulatory approvals.



**Pump Tank Dimensions (Inches)**

Gallons	Circumference	Height	Manhole ID	Inlet
600	212"	60	22	42"

**600 Gallon Pump Tank Storage Capacity**

<b>Total Volume</b>	676 gallons
<b>Volume Below Inlet</b>	585 gallons
<b>Volume Per Inch</b>	13.60 gallons

**Zoeller Model 153 Performance**

Total Head in Feet	5	10	15	20	30	Shut Off
<b>Gallon Per Minute</b>	77	70	61	52	33	44





# **600 Gallon Pump Tank Specifications** (configured for a drip irrigation system)

## **1. Tank and Cover**

Each tank shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The tank has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the tank shall be blue. The 6" riser will be factory installed to the tank and shall be watertight. The cover shall be green. The dimensions of the tank shall be 58" x 60" x 76" (L x H x W). The inlet elevation shall be 42" (typical). The 4" diameter inlet pipe shall be connected to the tank using a watertight 4" rubber grommet as approved by the Florida Department of Health. The outlet shall be through the side of the tank and shall be 2" diameter pipe connected to the tank using a rubber grommet as approved by the Florida Department of Health. Tank must be backfilled with clean sand and filled with water.

## **2. Effluent Pump**

The pump shall be constructed of cast iron or equivalent. The impeller shall be thermoplastic with threaded insert. The shaft seal shall be carbon/ceramic and mechanical. The pump shall have upper sleeve and lower ball bearings, oil lubricated and Buna-N O-rings. All exterior shall be stainless steel. The motor shall be 1/2 HP, 3450 RPM, 115V 60 Hz. Class B insulation. Oil filled shaded pole containing built-in thermal overload protection with automatic reset. The power cord shall be 20' water resistant 16-3 gauge, type SJTW-A/SJTW with integrally grounded 3-prong plug. The maximum liquid temperature shall be 130°F (55°C). The pumps intake shall have a built-in suction screen with stainless steel suction plate. The pump shall be capable of handling a 1/2" spherical solid. The pump shall be installed with a quick disconnect threaded union. The pump will be controlled by an timed dose control panel.

## **3. Control Panel**

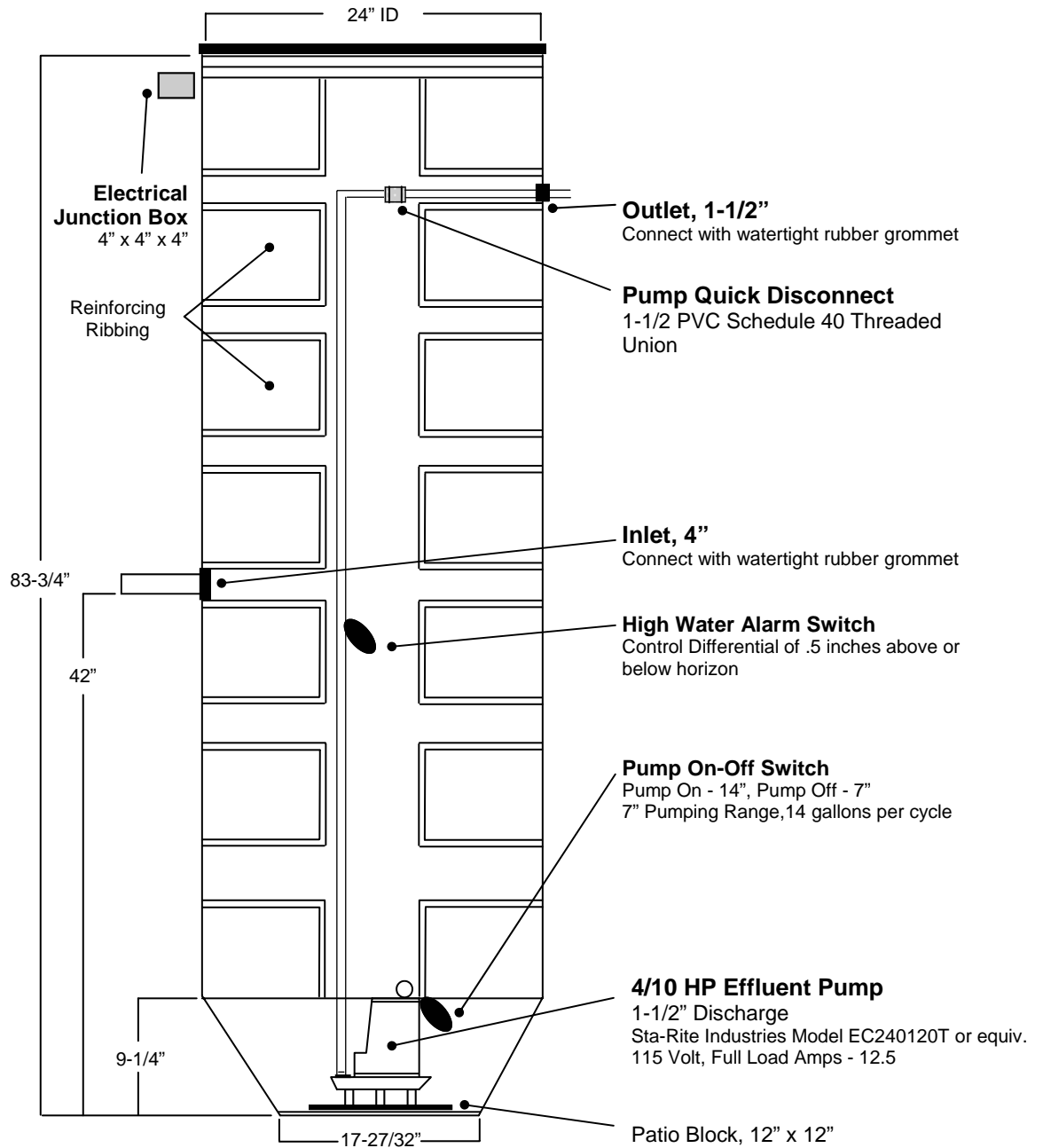
The control panel shall be a Simplex, Time Dose Pump and Ball Valve Control. It shall have single phase incoming power; 120 VAC, two wire. The panel shall have a NEMA 4X thermoplastic enclosure and shall be 12" x 10" x 6" (H x W x D). The panel shall have a red alarm beacon and an 83 - 85 db alarm horn. The panel shall have a hand-off-automatic switch (pump only) mounted on an internal bracket and an alarm test/normal-silence toggle switch mounted on the side by the alarm horn. The panel shall have a control/alarm and a ball valve fuse. The panel shall have a 25 AMP rated power relay for pump start/stop and a pump circuit breaker, one pole, 25 AMP. The pump will be controlled using a Siemens Logo Smart Relay for Programmed Timing and Control. The control panel shall be UL 508 Listed. The panel shall include two (2) 20' mechanical pipe clamp mounted, normally open control float switches.

## **4. Junction Box**

The electrical junction box and lid shall be UL Listed and CSA Certified made from high impact, corrosion resistant, weatherproof thermoplastic. The gasket shall be flexible PVC or neoprene. The screws shall be brass or stainless steel. The dimensions shall be 4" x 4" x 4".

# Pump Vault Details

Based on site topography the Eco-Pure 24 x 84 pump vault may be necessary to collect the effluent from the 300 Series Peat Moss Filter. The pump vault shown below is configured for dose-on-demand.



Pump Vault Storage Capacity	
Total Volume	168 gallons
Volume Per Inch	2 gallons
Volume Below Inlet (typical)	84 gallons

Sta-Rite Industries EC240120T Performance						
Total Head in Feet	5	10	15	20	30	Shut Off
Gallon Per Minute	62	54	43	38	17	32

# Pump Vault Specifications

## 1. Tank and Cover

Each tank shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The tank has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the tank shall be black. The cover shall be black. The dimensions of the tank shall be 83-34" x 24" (D x H). The typical inlet elevation shall be 42". The 4" diameter inlet pipe shall be connected to the tank using a watertight 4" rubber grommet as approved by the Florida Department of Health. The outlet shall be through the 6" grade riser attached to the tank and shall be 2" diameter pipe connected to the tank using a rubber grommet as approved by the Florida Department of Health. Tank must be backfilled with clean sand and filled with water.

## 2. Effluent Pump

The pump shall have a cast iron motor housing and upper volute and a fiberglass reinforced polypropylene lower volute base. The impeller shall be fiberglass reinforced Noryl<sup>®</sup> with threaded insert. The shaft seal shall be carbon/ceramic and mechanical. The pump shall have upper sleeve and lower ball bearings, oil lubricated and Buna-N O-rings. All exterior shall be stainless steel. The motor shall be 4/10 HP, 1550 RPM, 115V 60 Hz. Class B insulation. Oil filled shaded pole containing built-in thermal overload protection with automatic reset. The power cord shall be 10' or 20' water resistant 16-3 gauge, type SJTW-A/SJTW with integrally grounded 3-prong plug. The maximum liquid temperature shall be 130°F (55°C). The pumps intake shall have a built-in suction screen with stainless steel suction plate. The pump shall be capable of handling a 1/2" spherical solid. The pump shall be installed with a quick disconnect threaded union. The pump will be controlled with a vertical float switch rated for effluent applications.

## 3. High Water Alarm

The voltage shall be 120 VAC, 50/60 Hz, 8.5 watts maximum (alarm condition). The enclosure shall be 6.5" x 4.5" x 3.0" (H x W X D) and shall be of the indoor/outdoor type, weatherproof, meeting the Type 3R water-tight standard. The alarm horn shall be 85 decibels at 10 feet and meets the Type 3R water-tight standard as installed by factory. The alarm beacon shall be Type 3R water-tight standard as installed by factory. The test/silence switch shall be certified to IP66 and IP68 standards. The power cord shall be 6 foot cord with 120 VAC plug. The float switch shall be a Sensor Float<sup>®</sup> control switch with mounting clamp with a 15 foot cable, flexible 18 gauge, 2 conductor (UL) SJOW, water resistant (CPE). The float shall be 3.38 inch diameter x 4.55 inch long, (high impact, corrosion resistant PVC housing for use in sewage and non-potable water up to 140°F. The switch shall be hermetically sealed steel capsule features mercury-to-mercury contacts. Maximum line impedance for initiating device: 100 ohms

# Drip Irrigation System Overview

Geoflow is the preferred manufacturer of the drip irrigation tubing and some of the accessories used in the Eco-Pure drip irrigation system.

The descriptions pertaining to the proprietary Geoflow items are taken verbatim from the Geoflow, Inc. Sub-surface Drip Dispersal and Ruse, Design, Installation and Maintenance Guidelines, V.1, October 2008. Copies of this document can be obtained at [www.geoflow.com](http://www.geoflow.com) or by contacting Eco-Pure, Inc.

## Introduction

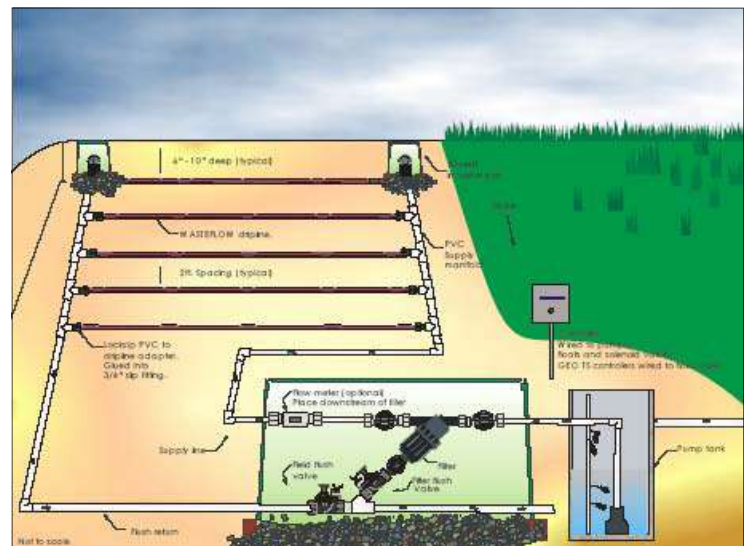
Geoflow's Wasteflow drip system disperses effluent below the ground surface through 1/2" pressurized pipes. It is designed using the grid concept with supply and flush manifolds at each end of the dripline creating a closed loop system. The grid design provides a complete subsurface wetted area.

The objective with effluent dispersal is usually to disperse the effluent using the minimum area as quickly and safely as possible at an approximately uniform rate throughout the year. If the main purpose of the Geoflow system is to irrigate, then please use the standard irrigation manual for landscape available from Geoflow, Inc. Subsurface drip is a highly efficient method to dispose of effluent. Small, precise amounts of water are uniformly applied under the soil surface from multiple points.

The main advantages of Geoflow's subsurface drip system for effluent dispersal are:

- Human and animal contact with effluent is minimized, reducing health risks.
- Correctly designed systems will not cause puddling or runoff.
- It can be used under difficult circumstances of high water tables, tight soils, rocky terrain, steep slopes, around existing buildings, trees or other vegetation, and on windy sites.
- Disposal of water is maximized by means of evapotranspiration.
- The system requires no gravel. It is easy to install directly into indigenous soils and the natural landscape can be maintained.
- Minimizes deep percolation.
- Consumption of nitrates by the plant material is increased.
- Invisible and vandal proof installations.
- Fifteen-year warranty for root intrusion, workmanship and materials. Systems are durable with a long expected life of approximately 30 years.
- Non intrusive. It allows use of the space while operating.
- Easily automated.
- Effluent can be re-used for irrigation.

Typical Dripfield Layout



## Eco-Pure Drip Irrigation System Component List

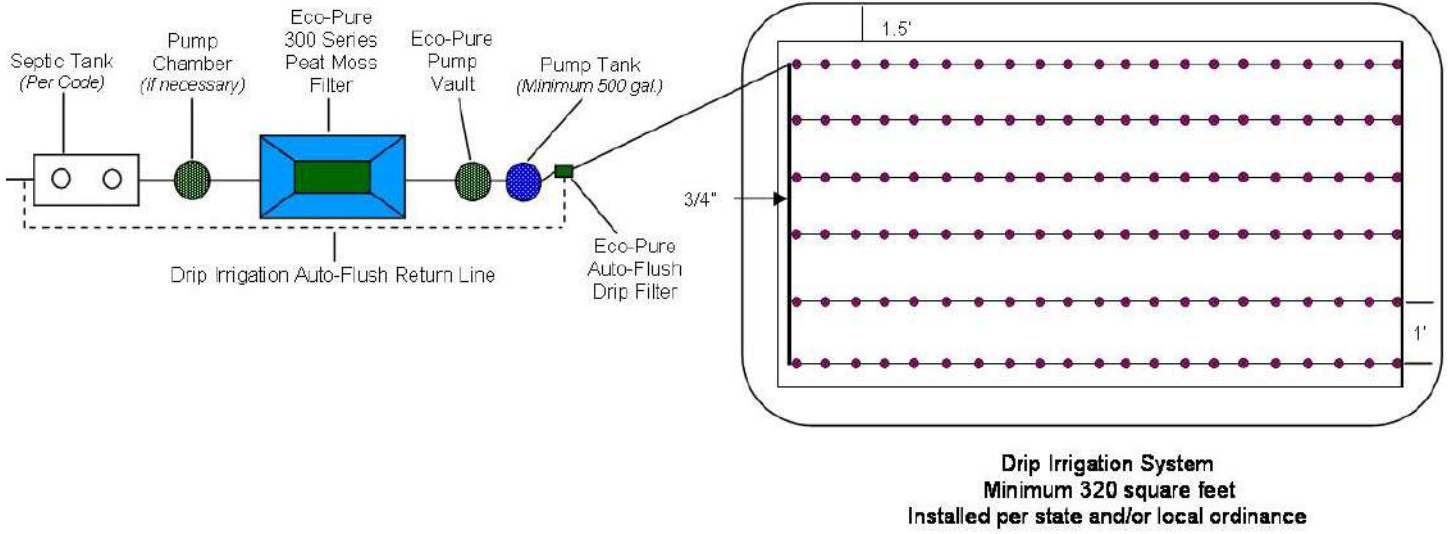
Component	Eco-Pure Part Number	Description	Vendor / Model
Peat Filter	300-SS	300 Series Peat Moss Filter	Eco-Pure, Inc.
Pump Vault	EPA-PV-1210	24" x 84" HDPE Pump Vault	A.K. Industries, Plymouth, IN
Drip Tubing	N/A	1.3 GPH Waste Flow Classic Emitter Drip Irrigation Tubing	GeoFlow, Corte Madera, CA
Control Panel	EPA-TD/CT-139	Simplex Drip Pump Control Panel Timed Dosed	SJE-Rhombus, Detroit Lakes, MN
Auto Flush Drip Filter with Motorized Ball Valve	EPA-AF-158	3/4" Motorized Ball Valve, 60 micron filter and 130 micron disc filter	Vu-Flow, Brooksville, FL Geoflow, Corte Madera, CA Gemini Valve, Raymond, NH
1-1/2" Ball Valve	EPA-BV-102	1-1/2" PVC Ball Valve, EPDM Seats, EPDM "O" Ring Stem Seal	Varies
3/4" Ball Valve	EPA-BV-101	3/4" PVC Ball Valve, EPDM Seats, EPDM "O" Ring Stem Seal	Varies
6" Valve Box	NA	6" HDPE Valve Box, Round	Varies
10" Valve Box	NA	10" HDPE Valve Box, Round	Varies
Drip Irrigation Air Pressure Valve	EPA-AP-151	1" Air Vacuum Breaker	GeoFlow, Corte Madera, CA

### NOTES:

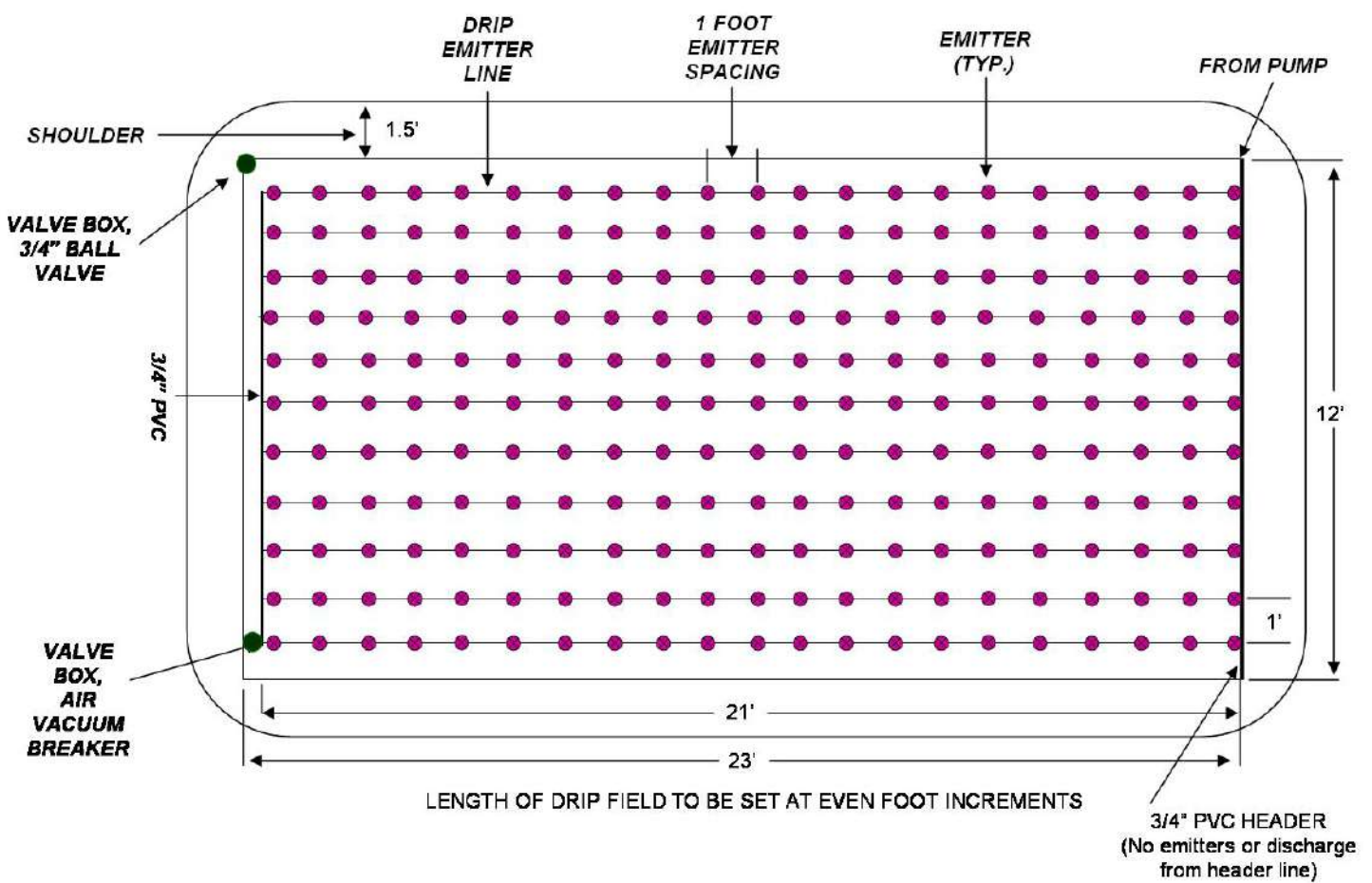
- A minimum pump tank must be ordered separately
- Drip tubing must be ordered separately
- Valve boxes must be ordered separately



# Eco-Pure Drip Irrigation System Layout



## Dripfield Detail



# Eco-Pure Drip Irrigation System Components

A typical Eco-Pure drip irrigation system will consist of the following items listed below:

- 1. Eco-Pure 300 Series Peat Moss Filter (previously described)**
- 2. Eco-Pure Pump Vault (if necessary) (previously described)**

Topography may require the use of the pump vault to collect the treated effluent from the 300 Series Peat Moss Filter. This is due to the discharge elevation from the peat filter. The pump vault system pumps the effluent to a larger pump tank sized in accordance with state and/or local regulations.

- 3. Geoflow Wasteflow Drip Tubing (see product sheet for specifications)**

Wasteflow dripline carries the water into the dispersal/reuse area. The dripline is connected to the supply and return manifolds with Compression or Lockslip fittings. Typical spacing between each dripline and between drip emitters is 24" on center.

Twelve-inch spacing is used regularly for soils with very low or high permeability. Dripline is usually buried 6"-10" below ground. Standard coil length is 500-ft. Rolls of alternative lengths, diameters and dripper spacing may be special ordered.

Wasteflow dripline features:

- a.) nano-rootguard<sup>®2</sup>

In 2008 Wasteflow dripline will have new nano-ROOTGUARD which has an extended expected life of 30 years. The risk of root intrusion with an emitter slowly releasing nutrient rich effluent directly into the soil is well known to anyone who has observed a leaking sewer pipe. All Geoflow drip emitters are guaranteed to be protected against root intrusion with nano-rootguard. This patented process fuses the root-growth inhibitor, treflan<sup>®3</sup> into each drip emitter during manufacturing. Treflan is registered with the United States EPA for this application. The nano-rootguard technology holds Treflan for extended time inside the plastic, slowly releasing it in minute quantities to prevent root cells from dividing and growing into the barrier zone. It is chemically degradable, non-systemic, and virtually insoluble in water (0.3 ppm). nanorootguard carries a 15-year warranty against root intrusion.

- b.) Geoshield<sup>TM4</sup> protection

Geoflow's Wasteflow has an inner lining impregnated with an antimicrobial, Tributyl tin maleate, to inhibit adhesion of biological growth on the inside walls of the tube and on the emitters. It does not have any measurable biological effect on the effluent passing through the tube. This minimizes the velocity required to flush Wasteflow dripline. The velocity only needs to move out the fine particles that pass through the 130 micron filter that, if not flushed, will ultimately accumulate at the distal end of each lateral. It is not necessary to scour growth off the inside wall of Wasteflow tubing. Since all pumps deliver more volume given less resistance to flow, just opening the flush valve will usually achieve this degree of flushing. When a minimum flushing velocity is requested by regulators, 0.5 feet per second is used with Wasteflow dripline to get the settled particles at the bottom of the pipe back into suspension. This equates to 0.375 gpm per dripline when using standard WASTEFLOW dripline (0.55"ID).

---

2. nano-ROOTGUARD is a registered trademark of A.I.Innovations

3. Treflan is a registered trademark of Dow Agro Sciences

4. Geoshield is a registered trademark of A.I.Innovations

### c.) Turbulent Flow Path

Wasteflow drip emitters are pre-inserted in the tube usually spaced 6", 12", 18", or 24" apart with 24" being the most popular. Angles in the emitter flow path are designed to cause turbulence in order to equalize flow between emitters and keep the emitters clean. Geoflow emitters boast large flow paths, which, coupled with turbulent flow, have proven over the years to be extremely reliable and dependable.



### d.) Wasteflow Classic and Wasteflow PC Dripline

Both WASTEFLOW Classic and WASTEFLOW PC have turbulent flow path emitters with nano-ROOTGUARD and Geoshield protection.

The WASTEFLOW PC has the added element of a silicone rubber diaphragm that moves up and down over the emitter outlet to equalize flows regardless of pressure between 7 and 60 psi. To ensure a long life the recommended operating range is 10 to 45 psi.

For Wasteflow Classic, the flow rate delivered by the emitter is a function of the pressure at the emitter. The Classic dripline has the advantage of no moving parts or rubber that may degrade over time. Also, when minimum flushing velocities are required, the flows during a dosing cycle and flushing cycle are very similar with the Wasteflow Classic because when the flush valve is opened, the pressure is reduced, causing the flows from the emitters to decline. PC dripline requires significantly higher flow for flushing than dosing as the emitter flow does not go down during the flushing cycle.

We generally recommend using Wasteflow Classic, unless the economic advantages to using PC is substantial.

- i. Wasteflow PC can run longer distances than Wasteflow Classic.
- ii. Steep slopes. Systems should be designed for the dripline lateral to follow the contour. When this is practical, the extra cost of installing pressure regulators required for Wasteflow Classic would likely be less than the incremental cost of Wasteflow PC.
- iii. Rolling terrain. If the difference in height from trough to peak exceeds six feet then Wasteflow PC should be used. Vacuum relief valves must be placed at the top of each rise.

## 4. Control Panel (see product sheet for specifications and timer setting instructions)

Control panels are used for time dosing and time flushing of the filter and dripfields. The Eco-Pure control panel contains a Siemens Logo Smart Relay for Programmed Timing and Control of the pump and ball valve. The settings for the pump run (on and off) times must be set in the field after the installation of the system. This will vary depending on size of dripfield, size of pump tank, pump performance, etc.

The automatic backwash feature must be set for 90 seconds and takes place during every pumping cycle.

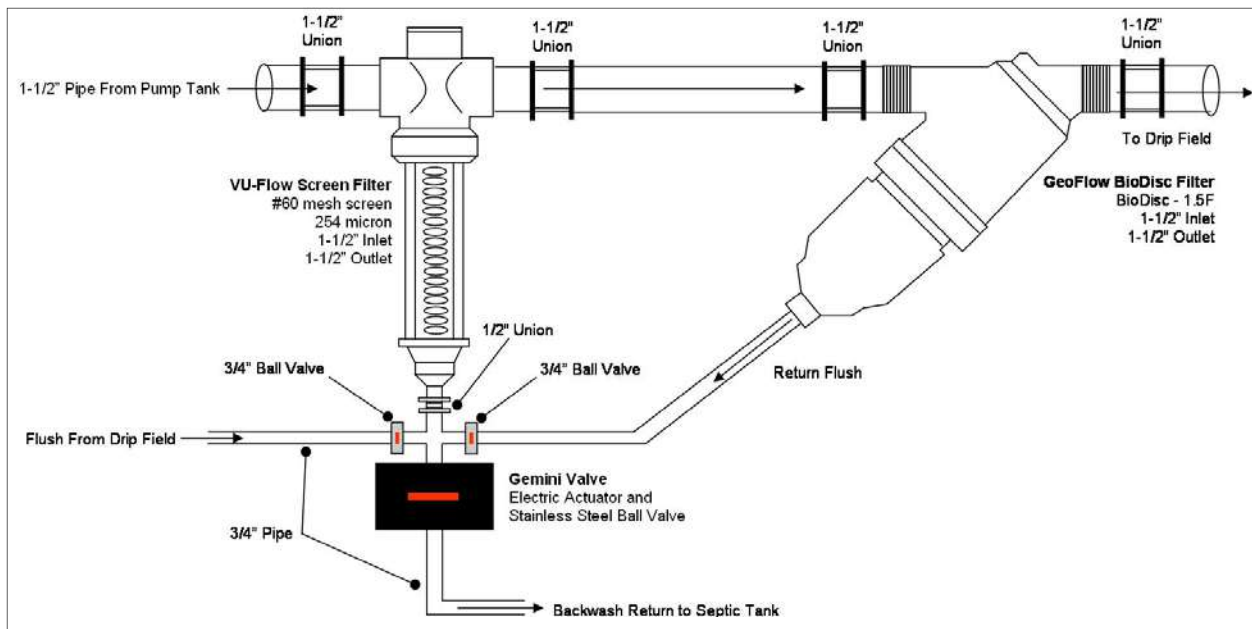
The control panel includes two (2) mechanical float switches, one is used to activate the high water alarm, the other is used as a low level cut-off which prohibits the pump from running dry.

## 5. Pumps and Pump Tanks

Dripfields depend on pumps to dose effluent under pressure to the field. These must be sized according to flow and pressure requirements. Look for submersible effluent pumps from a dependable source. Eco-Pure, Inc. does not endorse a single manufacturer, but does advocate you use a pump that is readily serviced in your area. Pump tanks should be sized in accordance with state and/or local regulations.

## 6. Auto Flush Drip Filter with Motorized Ball Valve

The Eco-Pure Auto Flush Drip Filter with Motorized Ball Valve automatically flushes the drip system of any accumulated debris. The sequence is programmed from the control panel using the Siemens Logo Smart Relay for Programmed Timing and Control and flushes the dripfield during every pump run cycle.



The Auto Flush Drip Filter with Motorized Ball Valve is prefabricated by Eco-Pure and contains the following parts:

- **VU-Flow Screen Filter Model CF150-60P** (see product sheet for specifications)

The VU-Flow Screen Filter is placed between the pump and dripfield to trap debris from entering the drip system. It has a # 60 mesh screen (254 micron). The flow rate is 10-50 gpm. The filter requires manual cleaning.

- **GeoFlow BioDisc Filter, BioDisc - 1.5F** (see product sheet for specifications)

The BioDisc<sup>(TM)</sup> filters are also placed between the pump and dripfield to trap debris from entering the drip system. Geoflow's disc filters are protected with anti bacteria compound. Designed for applications with high organics, the Geoshield<sup>®</sup> is molded into each disc to discourage unwanted growth on the filter element. A single filter can be placed in line, and requires manual cleaning.

- **Gemini Valve Electric Actuator and Stainless Steel Ball Valve**  
(see product sheets for specifications)

The Gemini Valve Electric Actuator and Stainless Steel Ball Valve assembly automatically directs the flow of water during the automatic flush cycle from the dripfield back to the septic tank.

The sequence is programmed from the control panel using the Siemens Logo Smart Relay for Programmed Timing and Control and flushes the dripfield during every pump run cycle. The flush cycle should last for ninety (90)seconds.

## **7. Supply Manifold and Line**

This carries the water from the dosing tank to the dispersal area. Rigid PVC schedule 40 is usually used. Schedule 80 is at times used to either avoid dips in the line that can collect water and freeze, or if pressure of at least 20 psi is required to pump water from the dose tank to the dripfield. To prevent water from freezing, the pipes should slope back to the pump tank, be buried below frost depth and/or be insulated. Refer to the PVC pipe sizing chart in the appendix to determine the best diameter for your application.

## **8. Return Manifold and Line**

In order to help clean the system, the ends of the drip lines are connected together into a common return line, most often made of rigid PVC. This line will help equalize pressures in the system. Flushing should be done frequently during the installation period. Periodic flushing will help to keep the manifolds clean. Many designers use the same size return line as they do the supply line for simplicity, or some down size the return line since return flow is lower than supply. To prevent water from freezing, the pipes should slope back to the pump tank, be buried below frost depth and/or be insulated.

## **9. Air Vacuum Breaker (see product sheet for specifications)**

Air vacuum breakers are installed at the high points, above dripline and below grade to keep soil from being sucked into the emitters due to back siphoning or backpressure. This is an absolute necessity with underground drip systems. They are also used for proper draining of the supply and return manifolds in sloping conditions. One is used on the high end of the supply manifold and one on the high point of the return manifold.

Additional air vents may be required in undulating terrain. Freezing conditions require the air vacuum breaker be protected with insulation.

Geoflow is the Eco-Pure preferred manufacturer of the drip irrigation tubing and some of the accessories used in the Eco-Pure drip irrigation system.

For drip system design parameters, drip system installation, and drip system maintenance, please refer to the Geoflow, Inc. Subsurface Drip Dispersal and Ruse, [Design, Installation and Maintenance Guidelines, V.1, October 2008.](#)

Copies of this document can be obtained at [www.geoflow.com](http://www.geoflow.com) or by contacting Eco-Pure, Inc.



# 300 Series Peat Moss Filter Warranty

1. For the purpose of this warranty DEALER means person who installs system, CUSTOMER means the user of the ECO-PURE system, SYSTEM means the ECO-PURE PEAT FILTER and components except the septic tank or pump tank not supplied by ECO-PURE. Transfer of OWNERSHIP means new owner, MANUFACTURER means ECO-PURE INC.

## 2. WARRANTY

ECO-PURE INC. warrants that the components supplied by the manufacturer will function properly for a period of three years from the date of purchase with the exception of pumps, floats, or any other items covered by another manufacturer's warranties. The warranty of ECO-PURE INC. is limited to this text.

3. For this warranty to be valid the customer must notify ECO-PURE INC. in writing as to the nature of any problem with the system or call 1-888-999-0936. This notice must be sent by registered mail to ECO-PURE INC. or to the dealer with a copy to ECO-PURE INC. Upon receipt of notice ECO-PURE INC. or the dealer will correct the problem within the terms of this warranty.

## 4. EXCLUSIONS

The following will be excluded from warranty coverage: Any damage caused by an Act of God without limitation such as floods, earthquakes, hurricane, landslide, tornado or blizzards. Any damages caused by the users or third parties such as any modification or installation or correction to the system not authorized by ECO-PURE INC.

Any modifications with regard to installation by a dealer which is not authorized by the manufacture. Any damage by not allowing maintenance to be performed in accordance with the maintenance agreement. Any damage by heavy vehicles such as cars, trucks and heavy equipment. Any change of use which does not comply with original design of intended use or excessive waste strength which is beyond residential waste strength.

## 5. OTHER EXCLUSIONS

It is expressly understood that the customer shall not make any attempt to maintain or repair any part of the system before notifying the dealer or ECO-PURE INC. in accordance with Section 3 until a reasonable time for a site visit is given and any problems can be solved, otherwise the warranty shall be null and void.

## 6. LIMITS OF DAMAGES

ECO-PURE INC. in no way shall be liable for any other damages that the customer may incur and compensation and indemnification shall be limited to the other provisions of this warranty.

## 7. TRANSFER OF OWNERSHIP

All provisions of this warranty shall remain in effect upon transfer of ownership with the express understanding that the new owner submits in writing by registered mail to ECO-PURE INC. that the intended use shall not change, that the waste strength is not increased by either over use or misuse and that there shall be no change of use.

The new owner will notify ECO-PURE INC. that they have read the Owner's Manual and agree to comply with all the provisions therein.

## 8. WARRANTY PRIORITY

This warranty supersedes any written or verbal contracts entered into by the customer or dealer or any agent for the sale or installation of the ECO-PURE PEAT FILTER and it is expressly understood in case of any contradictions whatsoever that the terms of this agreement shall prevail.

## 9. INDEMNITY

Liability under this warranty to correct defects shall be limited to correction or replacement of components in accordance to other provisions of this warranty agreement upon written notification.

## 10. INSPECTIONS

The customer shall allow the dealer of ECO-PURE INC. to carry out all necessary inspections as required in this warranty during normal business hours.

If any other request for inspection beyond the annual maintenance and inspection are requested and no problems exist, a fee shall be paid to ECO-PURE INC. by the customer.

## **Appendix A**



## 300 Series Peat Moss Filter



Edward Festa, Joan Brooks, PhD and Jeffery Festa developed the Eco-Pure 300 Series Peat Filter throughout 1998. The system was designed based on the research conducted at the University of Maine during the 1980's and 1990's and especially the research conducted by Dr. Brooks.

Throughout her professional career, Dr. Brooks dedicated herself to study the use of sphagnum peat moss as a wastewater treatment media. In addition, Dr. Brooks researched the influence of fungus on the process of wastewater treatment.

In her paper Pollution Abatement with Peat Onsite Wastewater Treatment Systems, Dr. Brooks concludes:

*"On adverse sites, where the use of conventional subsurface soil adsorption systems does not provide acceptable levels of treatment, sphagnum peat moss may be used as an economical method of onsite wastewater treatment. The peat system, when properly designed and constructed, is relatively simple to install, requires minimal energy and maintenance, and provides a high quality effluent without additional disinfection".*



900 Gallon Per Day System

### Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- Seasonal Use Homes
- Water-Front Homes
- Small Lots
- High Groundwater

## Part Number 300-SS

### Features and Benefits

- Depending on site conditions the 300 Series Peat Moss Filter can cost 30% - 40% less than other advanced secondary treatment systems
- The system can be completely passive
  - No Electricity Needed for System
  - No Dosing Pumps Needed
- No additional charges for training or use
- Ease of Installation
- Lowest Cost of Operation
  - No Costly Blowers to Replace
  - No Excess Sludge Removal
- Low Cost of Maintenance
- Ease of Maintenance
- Can discharge into the following:
  - Pad / mound system
  - Gravity leach field
  - Pressure dosed leach field
  - Drip Irrigation System
  - Surface or water body *(if allowed, check local regulations)*
- Low profile, great for high water table
  - Will not float
- Great For Seasonal Use Homes
  - No ramp up time
  - No shut down procedures

### Design Procedures

The 300 Series Peat Moss Filter must be designed per the Eco-Pure Design, Installation and Maintenance Guide, January 2009. All systems incorporating the 300 Series Peat Moss Filter must be designed by a state registered Professional Engineer or a state approved system designer.

### Installation Procedures

The 300 Series Peat Moss Filter must be installed per the manufacturer's Installation Guide, February 2007. Only factory certified personnel may install the 300 Series Peat Moss Filter.

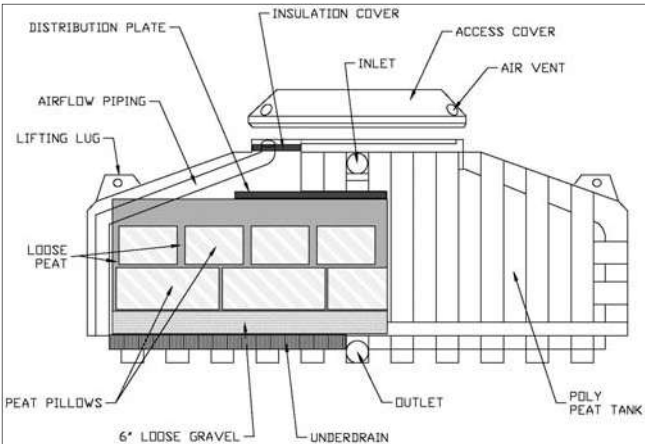
### Maintenance Procedures

Routine inspection and maintenance must take place at least once per year. Maintenance must be performed per the Eco-Pure Maintenance Manual, February 2007. Only factory certified personnel may perform maintenance.

*Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.*

# 300 Series Peat Moss Filter

## Sectional View



## Ordering Information

Part Number	300-SS
-------------	--------

## Dimensions

Length	Width	Height
120"	84"	50"

## Treatment Capacity

Parameter	Capacity
GPD	600 maximum peak flow
BOD5	240 mg/L
TSS	176 mg/L

*\*Up to a 4 bedroom home, 3,200 square feet or less  
\*Wastewater characteristics described as residential strength waste*

## Hydraulic Loading Rates

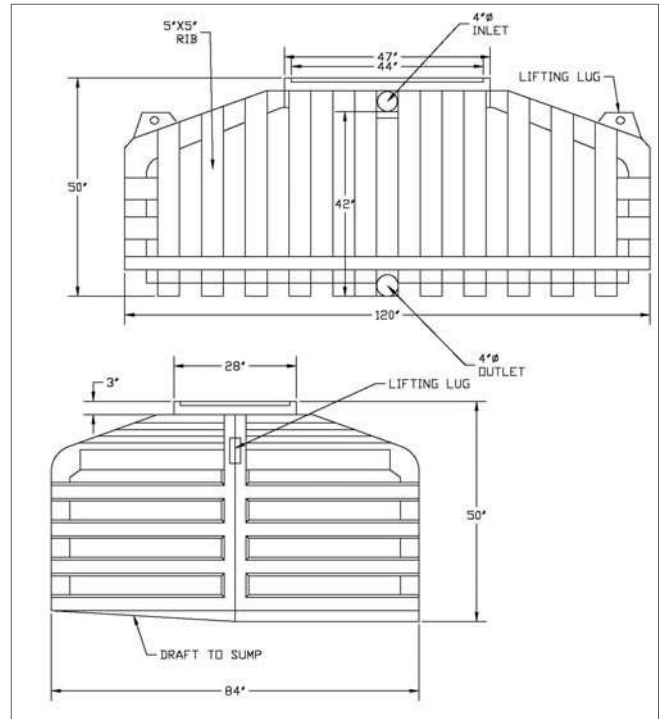
Gallons Per Day	GPD/ft. <sup>2</sup> /day
300	4.29
450	6.43
600	8.57

## Maximum Biochemical Loading Rates

(BOD5 Influent = 240 mg/L)

Gallons Per Day	Lbs./BOD/ft. <sup>2</sup> /day
300	.008583
450	.012878
600	.017166

## Outline Dimensions



## 300 Series Peat Moss Filter Component Materials

Part Number	Quantity	Description
NA	1	HDPE Module and Cover
EPA IC-109	1	Insulation Cover
EPA PP-99	41	Sphagnum Peat Moss Pillows
EPA PP-105	10	Sphagnum Peat Moss Bags
EPA DP-107	1	HDPE Distribution Plate
EPA FC-146	1	4" x 2" Inlet Pipe Assembly
NA	1	4" Discharge Pipe and Vent Pipe

In order to provide the best product possible, specifications and requirements are subject to change.

Patent #: US 6,620321 B2

EPPS300SS (1/09)



## High Density Polyethylene Septic and Pump Tanks



In 2004, Eco-Pure, Inc. introduced their line of high-density polyethylene septic and pump tanks. Eco-Pure realized that there was a need for a watertight, lightweight and very reliable alternative to pre-cast concrete septic tanks.

All of the Eco-Pure tanks have passed the stringent vacuum test as required by the Florida Department of Health. Please contact the factory for details.



### Specifications

Each tank shall be constructed of high density polyethylene (HDPE) and manufactured using the rotational molding process. The tank has been vacuum tested, water tested and certified by the Florida Department of Health as a Category 3 Tank. The color of the tank shall be blue. The inlet elevation shall be 45". The outlet elevation will be 43". The 4" diameter inlet and outlet pipes shall be connected to the tank using watertight 4" rubber grommets as approved by the Florida Department of Health. Tank must be backfilled with clean sand and filled with water.



### Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- High Groundwater

### Features

- Ultra Wide, Strong Reinforcing Ribs
- Load Deflecting Shape
- Wide, Anti-Flotation Ribbing
- Integral EZ Set Leveling Cradles
- Reinforced Man Ways, No "Egging"
- Ultra Safe Turn-to-Lock Cover
  - Domed or Flat Available
- Ultra Strong, Turn-To-Lock Risers
- UV Stabilized Resin protection

### Design Procedures

Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.

### Installation Procedures

1. Excavate hole to proper dimensions (length, height, width, etc.). We recommend a 2 foot over dig on each side of the tank for easy, and satisfactory backfilling.
2. Make sure that the bottom of hole is level and free of large rocks or other objects that may puncture the tank.
3. Place 6 to 8 inches of pea gravel or clean, fine material in hole if installing the tank in heavy, clay soils.
4. Place tank in the hole.
5. Make sure tank is level using a laser or a 4 foot level.
6. Begin to fill the tank with water.
7. Begin to backfill the tank in 6 inch lifts. Make sure that the backfill material is free from any large rocks or other materials that may damage or puncture tank. **If installing in heavy or clay soils backfill with pea gravel or clean, fine material.**
8. Fill the tank with water to the outlet.
9. Complete backfill.
10. Connect the inlet and outlet pipes.
11. Install the risers and lids. Secure covers using provided fasteners.

### Warranty

Eco-Pure, Inc. warrants the Pump and Septic Tanks against material defects and workmanship for a period of five years from the date of installation. This warranty is only valid for the purchaser of the product.

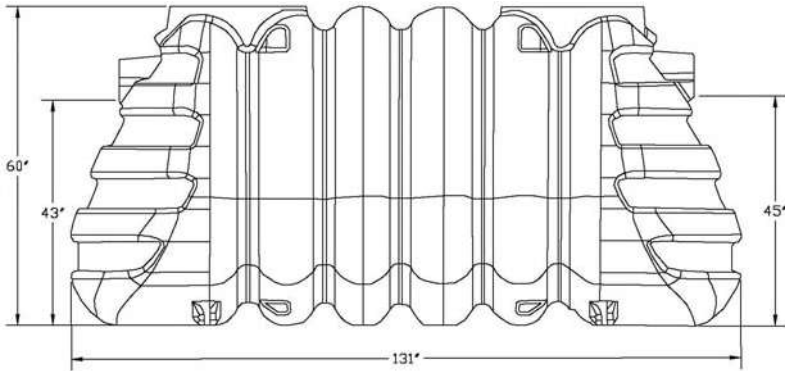
The following will be excluded from warranty coverage: any damage caused by an Act of God such as floods, earthquakes etc., damage caused the users or third parties such as any modification or installation practice not authorized by Eco-Pure, Inc., any damage by heavy vehicles such as cars, trucks, etc.

This warranty does not cover direct or indirect consequential damage due in part or in full of Eco-Pure, Inc., it's materials, or their workmanship.

# High Density Polyethylene Septic and Pump Tanks

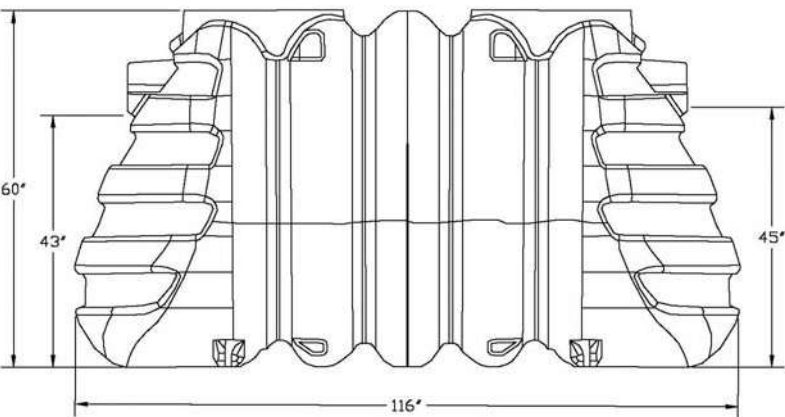
## 1,250 Gallon Septic Tank

### Outline Dimensions



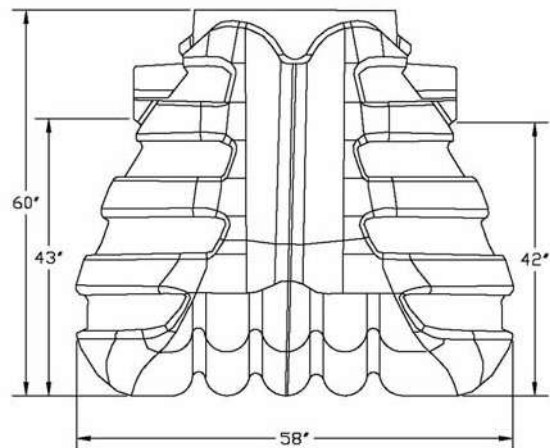
## 1,050 Gallon Septic Tank

### Outline Dimensions

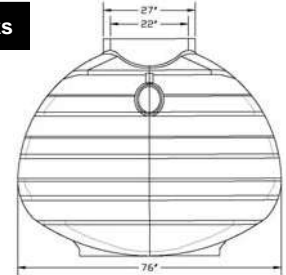


## 500 Gallon Septic / 600 Gallon Pump Tank

### Outline Dimensions



### Width Dimensions All Tanks



### Ordering Information

Part Number	EPA ST-124
-------------	------------

### 1,250 Gallon Septic Tank Specifications

Total Volume	1,460 gallons
Volume Below Inlet	1,250 gallons
Volume Per Inch	29.07 gallons
Air Space in Gallons / %	210 gallons / 17%
Inlet Compartment Volume	880 gallons
Outlet Compartment Volume	370 gallons

### Ordering Information

Part Number	EPA ST-123
-------------	------------

### 1,050 Gallon Septic Tank Specifications

Total Volume	1,290 gallons
Volume Below Inlet	1,110 gallons
Volume Per Inch	25.82 gallons
Air Space in Gallons / %	180 gallons / 16%
Inlet Compartment Volume	740 gallons
Outlet Compartment Volume	370 gallons

### Ordering Information

Part Number	EPA PT-122
-------------	------------

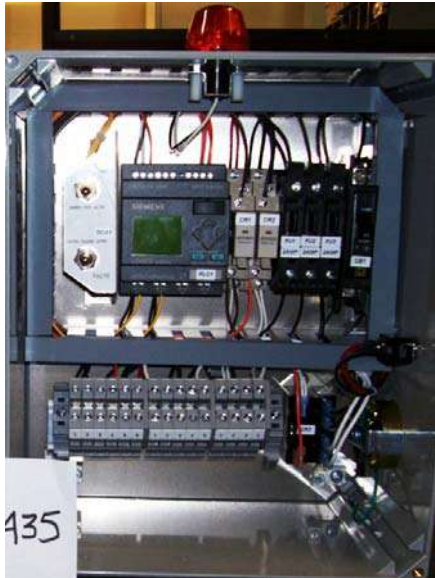
### 500 Gallon Septic / 600 Gallon Pump Tank Storage Capacity

Total Volume	676 gallons
Volume Below Inlet	585 gallons
Volume Per Inch	13.60 gallons

### Pump Tank Dimensions (Inches)

Circumference	Height	Manhole ID	Inlet
212"	60	22	42"

## Drip Irrigation Control Panel



Control panels are used for time dosing and time flushing of the filter and dripfields. The Eco-Pure control panel contains a Siemens Logo Smart Relay for Programmed Timing and Control of the pump and ball valve.

The settings for the pump run (on and off) times must be set in the field after the installation of the system. This will vary depending on size of dripfield, size of pump tank, pump performance, etc.

The automatic backwash feature must be set for 90 seconds and takes place during every pumping cycle.

The control panel includes two (2) mechanical float switches, one is used to activate the high water alarm, the other is used as a low level cut-off which prohibits the pump from running dry.



Drip Irrigation Field

### Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- Seasonal Use Homes
- Water-Front Homes
- Small Lots
- High Groundwater

## Part Number EPA TD/DP-137

### Features

- Simplex Pump and Ball Valve Control
- Single Phase Incoming Power
  - 120 VAC, Two Wire
- NEMA 4X Enclosure
  - Thermal Plastic
  - 12" x 10" x 6"
- Alarm Options
  - Red Alarm Beacon
  - 83 - 85 dB Alarm Horn
- Standard Switches
  - Hand-Off-Automatic Switch (Pump Only) Mounted on Internal Bracket
  - Alarm Test/Normal-Silence Toggle Switch (Mounted on Side By Horn)
- Control/Alarm Fuse
- Ball Valve Fuse
- Power Relay for Pump Start/Stop
  - 25 AMP Rating
- Pump Circuit Breaker
  - One Pole, 25 AMP
- Siemens Logo Smart Relay for Programmed Timing and Control
  - Timer setting functions for dosing pump and motorized ball valve
- UL 508 Listed
- Pump Ratings: 120 VAC, 5 - 15 FLA
- Includes Two (2) Floats
  - Two (2) 20' Mechanical Pipe Clamp, Normally Open

### Installation Procedures

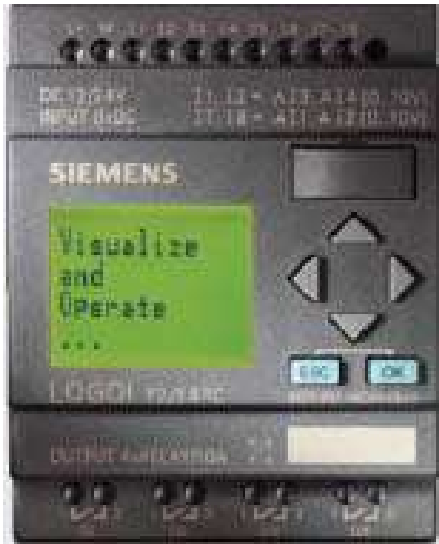
The EPATD/DP-137 must be installed per the SJE-Rhombus Installation Instructions and Operation/Troubleshooting Manual.

*Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance*



# Drip Irrigation Control Panel

## Siemens LOGO! Programmable Relay



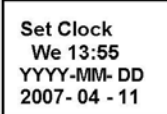
## Siemens LOGO! Set Up Instructions

### SETTING THE CLOCK:

Press the  $\blacktriangledown$  key until the clock/date screen is displayed.



Press the "ESC" key.  
Press the  $\blacktriangledown$  key to display "Set Clock" and press the "OK" key.



Press the  $\blacktriangleleft$   $\blacktriangleright$   $\blacktriangleup$   $\blacktriangledown$  keys to change the time/day/month/year.  
Press the "OK" key to save the setting.  
Press the "ESC" key to exit back to the clock display screen.

## Timer (Parameter) Setting Instructions

Press the  $\blacktriangledown$  key until the clock/date screen is displayed.



Press the "ESC" key.  
Press the  $\blacktriangledown$  key to display "Set Param" and press the "OK" key.  
Press the  $\blacktriangleup$  or  $\blacktriangledown$  keys to display the different Block#'s and Parameters.  
Press the "OK" key on the Block# / Parameter that needs to be set.

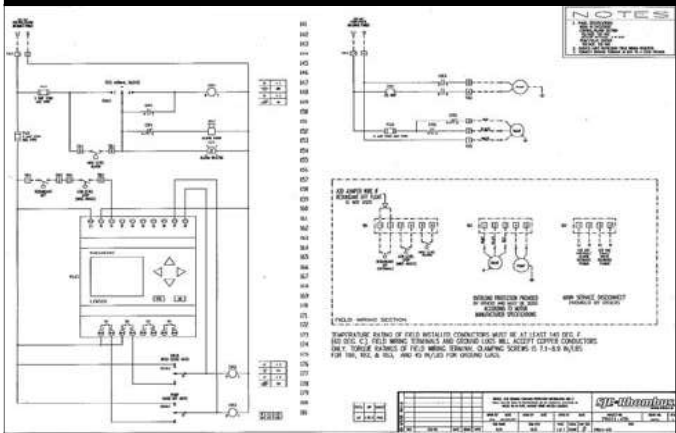
**OFF TIME:** T = pump off time between cycles  
**FLUSH:** T = valve open period at beginning of on cycle  
**ON TIME:** T = pump run time after flush is complete and valve is closed

<b>OFF TIME</b> T =03:00m Ta =00:00	<b>FLUSH</b> T =20:00s Ta =00:00	<b>ON TIME</b> T =19:00m Ta =00:00
---	--	--

Press the  $\blacktriangleleft$   $\blacktriangleright$   $\blacktriangleup$   $\blacktriangledown$  keys to change the cycle time length and increments:  
(s = seconds) (m = minutes) (h = hours)  
Press the "OK" key to save the parameter setting.  
Press the  $\blacktriangleup$  or  $\blacktriangledown$  keys to select another Block# / Parameter or press the "ESC" key twice to exit back to the clock display screen.

Press the  $\blacktriangleup$  or  $\blacktriangledown$  keys to view PUMP RUN total elapsed time and cycle counts

## Wiring Diagram



**This control panel must be installed and serviced by a licensed electrician in accordance with the National Electric Code NFPA-70, state and local electrical codes.**

All conduit running from the sump or tank to the control panel must be sealed with conduit sealant to prevent moisture or gases from entering the panel.

**NEMA 4X enclosures are for indoor or outdoor use,** primarily to provide a degree of protection against corrosion, windblown dust and rain, splashing water and hose-directed water.

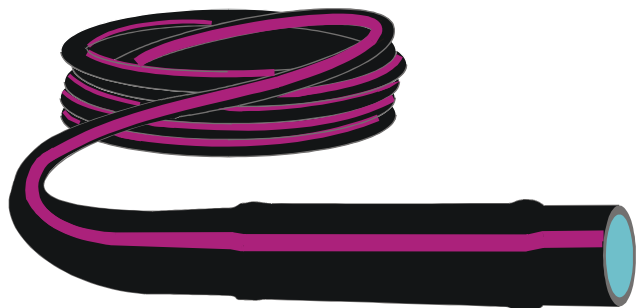
**Cable connectors must be liquid-tight in NEMA 4X enclosures.**

In order to provide the best product possible, specifications and requirements are subject to change.

Made to Eco-Pure, Specifications by: **SJE Rhombus**

### Description

The flexible 1/2" polyethylene dripline has large emitters regularly spaced in the line. With the dripline hidden about six inches below ground, effluent is distributed slowly and uniformly, reducing ponding, even in difficult soils and hilly terrain. WASTEFLOW is built to last. It is guaranteed to be trouble-free from root intrusion with built-in nano-ROOTGUARD® protection, and the dripline wall is protected from organic growth with the *Geoshield* lining. WASTEFLOW provides uniform distribution. The emitters have a Coefficient of variation of less than .05.



Different flow rates, dripline diameters and emitter spacings can be special ordered.

Use 600 series compression adapters or lockslip fittings to connect the dripline to PVC pipe.

### nano-ROOTGUARD® Protection



WASTEFLOW dripline features patented nano-ROOTGUARD technology to prevent roots from clogging the emission points. The pre-emergent, Treflan®, is bound into WASTEFLOW emitters when they are molded to divert roots from growing into the emitter outlet. The system is guaranteed against root intrusion for 15 years.

### BACTERICIDE Protection

**Geoshield®** is incorporated into the inner lining and emitters of WASTEFLOW dripline to prevent bacteria from forming and eliminates the need to scour the tubing. It is a tin based formula that defeats the energy system of microbial cells.

This means smaller pumps or larger zones can be used with WASTEFLOW dripline than unprotected dripline.

### PC vs. CLASSIC

Geoflow, Inc. offers WASTEFLOW dripline in both pressure compensating (WASTEFLOW PC) and non-compensating (WASTEFLOW Classic) models.

We recommend that WASTEFLOW PC be used when the advantages are of substantial economic value.

- Very long runs.
- Steep slopes. Systems should be designed for the dripline lateral to follow the contour. If this is possible, the extra cost of pressure regulators required for WASTEFLOW Classic would likely be less than the incremental cost of WASTEFLOW PC.
- Rolling terrain. If the difference in height from trough to peak exceeds six feet then WASTEFLOW PC should be used. Vacuum relief valves must be placed at the top of each rise.

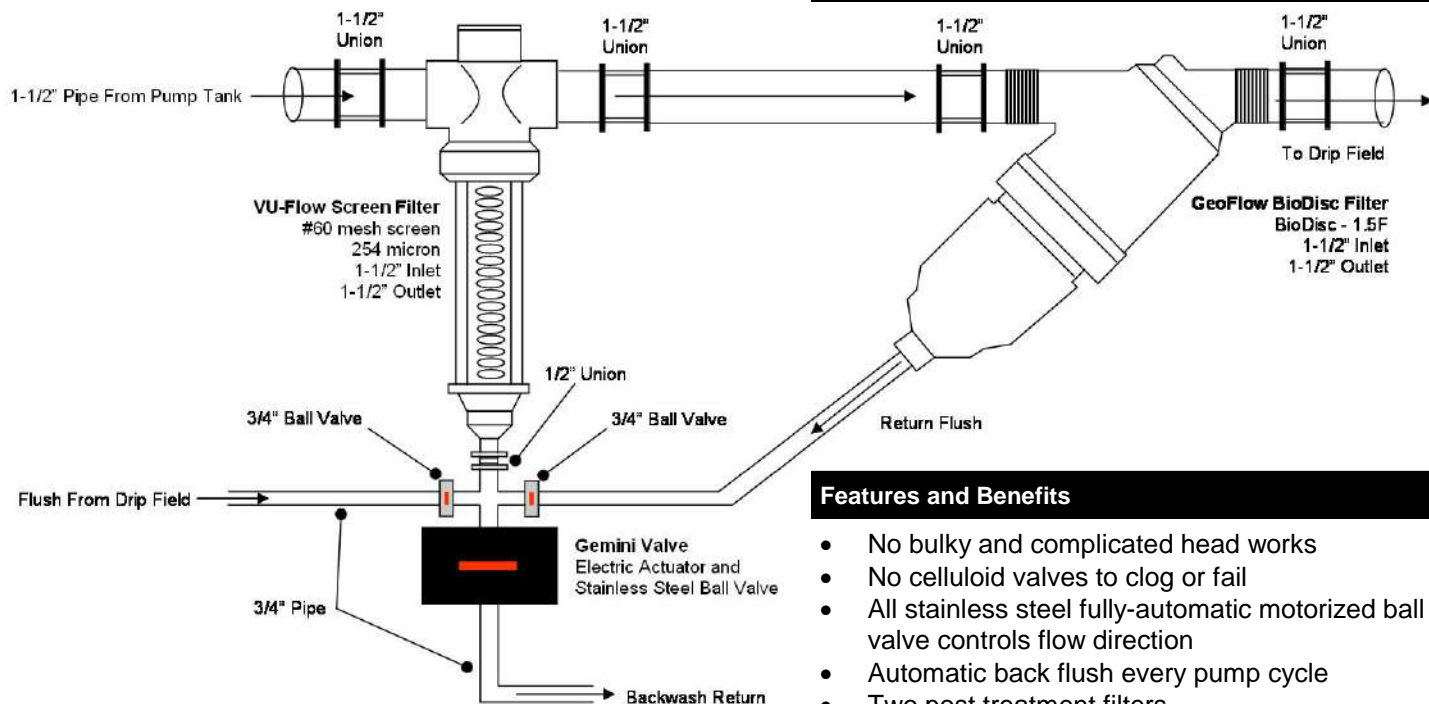
WASTEFLOW PC and WASTEFLOW Classic can be interchanged to meet filter and zone flow requirements.

- 
- WASTEFLOW is manufactured under US Patents 5332160, 5116414 and Foreign equivalents.
  - **Geoshield®** is a registered trademark of A.I.Innovations
  - WASTEFLOW is a registered trademark of A.I.Innovation
  - TREFLAN is a registered trademark of Dow Agro Chemicals.



# Drip Irrigation Auto Flush Assembly

**Part Number EPA AF-158**



## Features and Benefits

- No bulky and complicated head works
- No celluloid valves to clog or fail
- All stainless steel fully-automatic motorized ball valve controls flow direction
- Automatic back flush every pump cycle
- Two post treatment filters
- 254 micron vortex
- 130 micron BioDisc Filter
- Simple installation
- Simple maintenance

## Design Procedures

The 300 Series Peat Moss Filter must be designed per the Eco-Pure Design, Installation and Maintenance Guide, January 2009. All systems incorporating the 300 Series Peat Moss Filter must be designed by a state registered Professional Engineer or a state approved system designer.

## Installation Procedures

The 300 Series Peat Moss Filter must be installed per the manufacturer's Installation Guide, February 2007. Only factory certified personnel may install the 300 Series Peat Moss Filter.

## Maintenance Procedures

Routine inspection and maintenance must take place at least once per year. Maintenance must be performed per the Eco-Pure Maintenance Manual, February 2007. Only

*Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.*

The Eco-Pure Auto Flush Drip Filter Assembly was designed specifically for use with the 300 Series Peat Moss Filter.

The Eco-Pure Auto Flush Drip Filter with Motorized Ball Valve automatically flushes the drip system of any accumulated debris.

The sequence is programmed from the control panel using the Siemens Logo Smart Relay for Programmed Timing and Control and flushes the dripfield during every pump run cycle.



## Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- Seasonal Use Homes
- Water-Front Homes
- Small Lots
- High Groundwater

EPPSAFDA (1/09)

In order to provide the best product possible, specifications and requirements are subject to change.

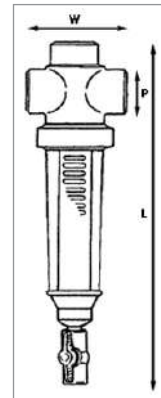
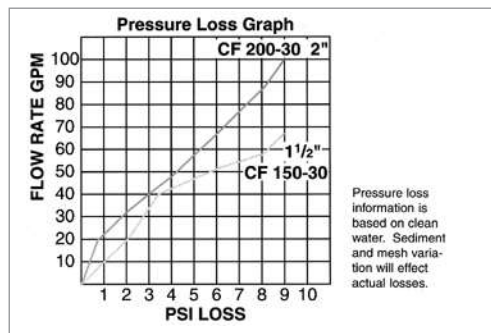
# Vu-Flow Screen Filters



CF Series

## Combination Style Screen Filter Features:

- Installs as a 90° “L” or 180° in-line “T” installation.
  - 10-100 GPM models.
  - 1-1/4” plug (supplied) adds versatility to unused outlet.
  - Maximum pressure: 150 PSI @ 73°F.
  - **1/2” MPT drain cleanout with purge valve.**
  - Supplied with polyester filter screen.
  - Also available with stainless steel screen as special order.
- **WATER USE ONLY**



Part Number	Inlet/Outlet "P" Slip x Slip x Slip	Mesh # and Size	Mesh # Opening	Min*/Max Flow GPM	"L"	"W"	List Price w/ Purge Valve
CF150-24P	1 1/2"	24 (711 mic)	0.028	10-50	16 5/8"	5 1/4"	\$ 127.07
CF150-40P	1 1/2"	40 (381 mic)	0.015	10-50	16 5/8"	5 1/4"	127.07
<b>CF150-60P</b>	<b>1 1/2"</b>	<b>60 (254 mic)</b>	<b>0.0100</b>	<b>10-50</b>	<b>16 5/8"</b>	<b>5 1/4"</b>	<b>133.58</b>
CF150-100P	1 1/2"	100 (152 mic)	0.006	10-50	16 5/8"	5 1/4"	133.58
CF150-140P	1 1/2"	140 (104 mic)	0.004	10-50	16 5/8"	5 1/4"	133.58
CF150-250P	1 1/2"	250 (61 mic)	0.0024	10-50	16 5/8"	5 1/4"	137.39
CF150-500P	1 1/2"	500 (30 mic)	0.0012	10-50	16 5/8"	5 1/4"	137.39
CF150-1000P	1 1/2"	1000 (15 mic)	0.0006	10-50	16 5/8"	5 1/4"	137.39
CF200-24P	2"	24 (711 mic)	0.028	18-100	18 7/8"	5 1/2"	206.79
CF200-40P	2"	40 (381 mic)	0.015	18-100	18 7/8"	5 1/2"	206.79
CF200-60P	2"	60 (254 mic)	0.0100	18-100	18 7/8"	5 1/2"	212.17
CF200-100P	2"	100 (152 mic)	0.006	18-100	18 7/8"	5 1/2"	212.17
CF200-140P	2"	140 (104 mic)	0.004	18-100	18 7/8"	5 1/2"	212.17
CF200-250P	2"	250 (61 mic)	0.0024	18-100	18 7/8"	5 1/2"	219.71
CF200-500P	2"	500 (30 mic)	0.0012	18-100	18 7/8"	5 1/2"	219.71

- Do not use metal valve or fitting on 1/2" drain connection.
  - Do not install filters with purge valve on suction side of pump.
- \* Minimum flow needed for "spin-out" action.

Carton Quantity of 10 for all products

## Description

The BioDisc™ filters are placed between the pump and dripfield to trap debris from entering the drip system.

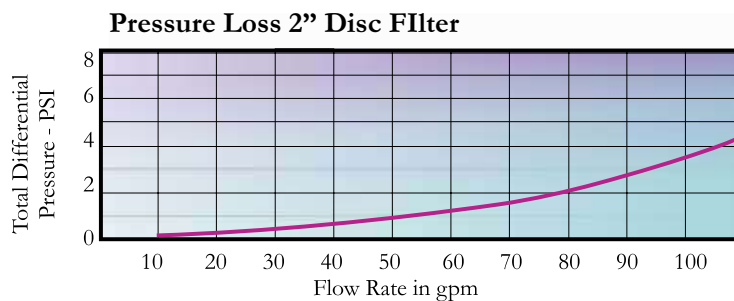
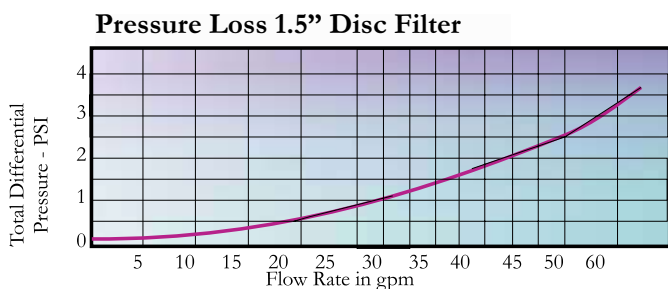
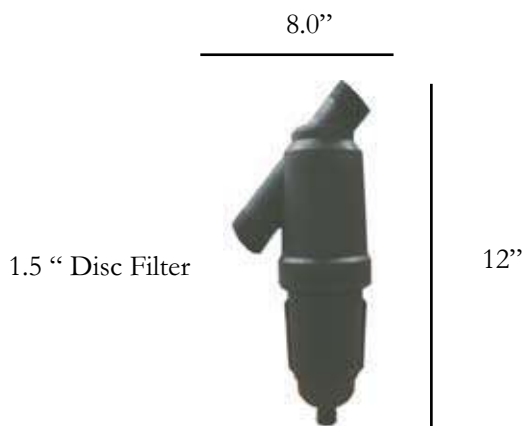
## Features

Geoflow's disc filters are protected with anti bacteria. Designed for applications with high organics, the *Geoshield*® is molded into each disc to discourage unwanted growth on the filter element. A single filter can be placed in line, and requires manual cleaning.

## Specification

The BioDisc filter body and discs shall be molded of polyethylene resins. The disc shall include *Geoshield*® anti-bacterial compound to protect the filter element against slime build-up. Filtration shall be 120 mesh/130 micron. The two piece body shall be capable of being serviced by untwisting and shall include an O-ring seal. The seals shall be manufactured from Nitrilo rubber. The inlet and outlet shall be \_\_\_\_ inch MPT. The UF disc filter shall be part number BioDisc\_\_\_\_ as supplied by Geoflow, Inc.

Part No.	Inlet/Outlet diameter	Max Flow Rate per Filter	Max Pressure PSI	Max Temp (°F)	Length	Filtration Surface Area	Filtration Size	Weight lbs.
BioDisc-1.5F	1.5"	30 gpm	145psi 335ft.	140	12"	72.7 sq. in.	120 mesh 130 micron	3.3.
BioDisc- 2F	2"	60 gpm	145 psi 335 ft.	140	20"	156.9 sq. in.	120 mesh 130 micron	13.2



- **BioDisc** is a trademark of A.I.Innovations.
- **Geoshield**® is a registered trademark of A.I.Innovations.



# TECHNICAL DATA SHEET

## 600 Series Electric Actuators

2 Otter Court, Raymond, New Hampshire 03077 • Tel. (603) 895-4761 • FAX (603) 895-6785 • www.geminivalve.com



### DESCRIPTION

The 600 Series electric actuators can be used with all sizes of the Gemini 76, 86, 96, 82, 89 and 309 Series ball valves. Two model sizes are available, the 150 in-lb model 615 and the 300 in-lb model 630.

### MATERIALS OF CONSTRUCTION

**ENCLOSURE:** Dupont® FR50 Cover, Teflon® Coated Cast Aluminum Base

**SHAFT:** 18-8 Stainless Steel

**EXTERNAL TRIM:** 300 Series Stainless Steel

### RATINGS / SPECIFICATIONS

**TEMPERATURE:** 40°F to 150°F

**MOTOR:** Reversing, Brushless, Capacitor-Run with Auto-Reset Thermal Overload Protection.

**GEAR TRAIN:** Permanently Lubricated, Maintenance Free

**POWER:** 120VAC 50/60 Hz Single Phase

**PORTS:** (2) 1/2" N.P.T. Conduit

**CYCLE TIME:** 6 Seconds

**DUTY CYCLE:** Model 615 - 100%, Model 630 - 75%

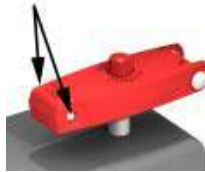
**TORQUE OUTPUT:** Model 615 - 150 in-lbs, Model 630 - 300 in-lbs.

**OVERRIDE:** Manual - Fold Out Lever Handle

## MANUAL OVERRIDE OPERATION

The push-button manual override system allows the user to easily disengage the electric drive gear train for manual operation of the actuator. All external power must be off prior to using the manual override feature. The actuator manual override handle can be used in the closed or open (lever extended) position to provide additional leverage. To open the handle, pinch the Lever Release Buttons and pull up. Press down the manual override button (atop the center) and turn the handle to manually open or close the actuated valve assembly. To reengage the drive train, release the override button and turn the handle until the manual override button 'clicks' signaling the re-engagement of the drive train. The manual override lever handle can then be closed.

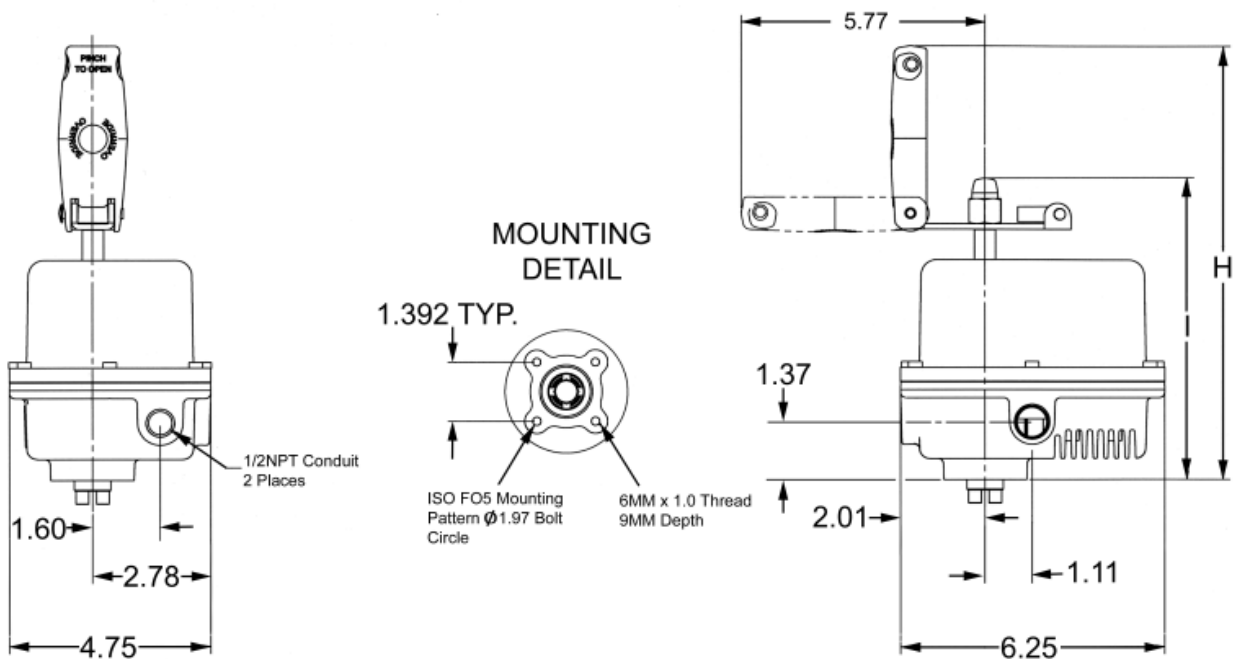
Lever Release Buttons



Manual Override Button



## DIMENSIONS



Model	Output (IN* LBS.)	Cycle Time (Seconds)	Amps (Full Load)	Duty Cycle*	H	I
615-120AC	150	6	0.5	100%	10.35	7.19
630-120AC	300	6	0.9	75%	10.85	7.69

\* Duty Cycle Measured at Maximum Output, 70 F Ambient





# TECHNICAL DATA SHEET

## 76 Series

2 Otter Court, Raymond, New Hampshire 03077 •Tel. (603) 895-4761 •FAX (603) 895-6785 •www.geminivalve.com



### DESCRIPTION

76 Series, one-piece bar stock body style valve offering broad applicability. Easily adaptable to pneumatic or electric automation.

### MATERIALS OF CONSTRUCTION

**BODY:** Brass - ASTM B-16, Carbon Steel - ASTM A108, 316 Stainless Steel ASTM A276, Alloy 20 - ASTM - B473, Monel - ASTM B164-75

**BALL AND STEM:** 316 Stainless Steel - ASTM A276 (standard except Alloy 20 & Monel)

**SEATS AND STEM SEAL:** Glass Filled Reinforced P.T.F.E. (Teflon ®)

**PIPE CONNECTIONS:** 1/2" - 2" N.P.T.F. (National Pipe Tapered Female) - ANSI B1.20.1, B.S.P.T. (British Standard Pipe Tapered), J.I.S. (Japanese Imperial Standard)

### RATINGS

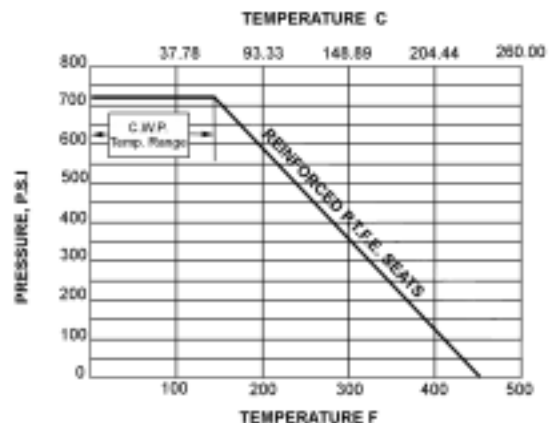
**TEMPERATURE:** -50 F to 450 F  
(also see Pressure Temperature Chart)

**PRESSURE:** 720 p.s.i. C.W.P. (Cold Working Pressure to 150 F)  
(also see Pressure Temperature Chart)

**VACUUM:** 20 Micron

**SATURATED STEAM:** 150 p.s.i.

### Pressure Temperature Chart



## RATINGS (continued)

### FLOW CHARACTERISTICS

The approximate flow rate through a valve can be calculated as follows:

$$Q = C_v \sqrt{\frac{\Delta P}{G}}$$

where;      Q = flow rate in gallons (U.S. Std.) per minute  
              Cv = valve constant  
              P = pressure drop across the valve in pounds per square inch  
              G = specific gravity of the media of relative to water

Note: The values derived from the flow equation are for estimating purposes only. Product variances or systemic factors may alter actual performance.

Size	1/2	3/4	1	1-1/4	1-1/2	2
Cv Value	5.5	10	15.5	20	37	60

### INSTALLATION INSTRUCTIONS

The following serves as a guideline for those experienced in pipe joint makeup. Otherwise, services of a certified pipe fitter should be utilized for installation.

1. Ensure that both the male pipe and female valve threads are free from dirt, debris and corrosion. Wire brushing of the male pipe threads is recommended to ensure a good metal-to-metal joint.
2. Apply a good quality thread lubricant (pipe dope) on the male threads. Lubricant reduces friction when pulling up the pipe joint. Note, thread lubricant is not intended to seal the joint and will not compensate for poor quality male pipe or fitting threads.
3. Turn the female valve threads onto the male pipe threads by hand. Upon free engagement of the threads, continue to turn the valve as far up as it will go (by hand). With the use of a wrench continue to tighten the valve onto the pipe. The pipe joint seal should occur within 1 to 3 turns. Care should be taken not to exceed 3 turns in which damage to the threads can occur.
4. The pipe joint should be tested for leakage to ensure the pipe joint has been achieved.

---

---

## **MAINTENANCE**

Like all Gemini Valves, the 76 Series utilizes our self compensating stem seal design. This design automatically compensates for wear as well as thermal expansion and contraction resulting in a leak tight, maintenance free, service life.

Once the stem seal has worn beyond the compensation afforded by the Belleville springs adjustment of the stem nut may enable valve to be returned to service. Holding the 'flats' of the stem, tighten the stem nut until Belleville springs become fully compressed (flattened); the torque required to tighten the nut further increases sharply when this point is reached. Do not tighten the stem nut beyond this point to avoid damage of the stem seal.

The Gemini Series 76, one piece body design, is not regarded as a maintainable product by Gemini Valve. Series 76 valves which have become worn out are ordinarily replaced. Additionally, the use of a special tool is necessary in dismantling and reassembling the valve. This tool is not available from Gemini Valve. Note that the price of a seat and seal kit may approach 60% of the cost of a new valve and does not include labor and any safety related issues should the valve be incorrectly repaired.

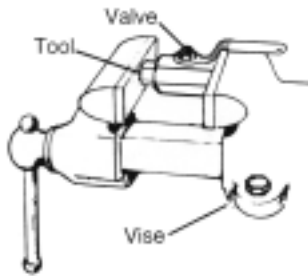
For those customers who desire to attempt repair a VRK (Valve Repair Kit) kit is available from Gemini Valve. Please see the following procedure;

## MAINTENANCE (continued)

The use of a tool is necessary in dismantling and reassembling the valve. A design suggestion is offered below. These instructions deal with valves which are equipped with lever handles. If your valve has another style handle or is equipped with an actuator, the steps required to complete the stem assembly will differ somewhat for those referred to in this instruction sheet. When the repaired valve is reinstalled, the insert should face upstream.

### Procedure

1. Place tool in wrenching slots of insert. Place valve with the inserted tool in vise lengthwise.



2. Break insert loose by turning tool with a wrench while holding valve body with a second wrench. Remove valve from vise, unscrew insert, remove seat from insert and discard.

3. Turn handle to "closed" position, remove ball. Remove seat from body and discard. Remove stem nut, handle grounding spring, Belleville springs, follower, and thrustwasher. Remove stem by pushing into valve. Discard thrustwasher. Make sure stem seal is

removed when stem is withdrawn from valve body; discard stem seal. 4. Clean all parts. The use of a lubricant is recommended on all parts.

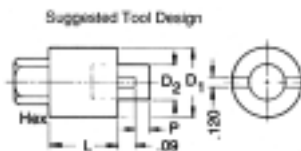
5. Place new stem seal on stem, position stem in body, place new thrustwasher over stem, install follower (flat metal washer) over stem. Position two Belleville springs (cupped) on stem with concave surfaces facing one another, put grounding spring over stem, position handle on stem atop Belleville springs. Secure assembly with stem nut. Tighten stem nut until Belleville springs become fully compressed (flattened); the torque required to tighten the nut further increases sharply when this point is reached. Do not tighten the stem nut beyond this point.

6. Position new seat in valve. Place new seat in loose insert. With handle in "closed" position, insert ball, making sure that the lower end of the

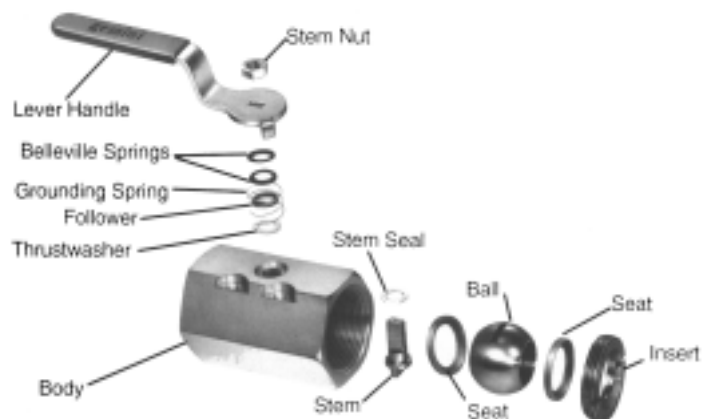
stem engages the slot in ball. Turn handle to "open" position. Reassemble insert to body hand tight using assembly tool. Place valve and tool in vise as in Step 1, tighten insert to torque value given in chart.

Assembly Torque Specifications			
76 Series	Foot - Pound Values For Inserts		
Size	Brass	Carbon	Stainless
1/2	18	28	40
3/4	30	40	80
1	50	70	120
1-1/4	60	120	150
1-1/2	100	150	225
2	180	250	285

7. Test valve for leak tightness in upstream-to-downstream direction. If leaks appear through valve, retighten the insert. If valve leaks through stem, increase torque on



Tool Dimensions - Inches				
76 Series	D1	D2	L	P
1/2	.62	.355	1.00	5/32
3/4	.87	.485	1.00	5/32
1	1.12	.610	1.00	5/32
1-1/4	1.42	.790	1.12	3/16
1-1/2	1.66	.860	1.12	3/16
2	2.12	1.240	1.25	3/16



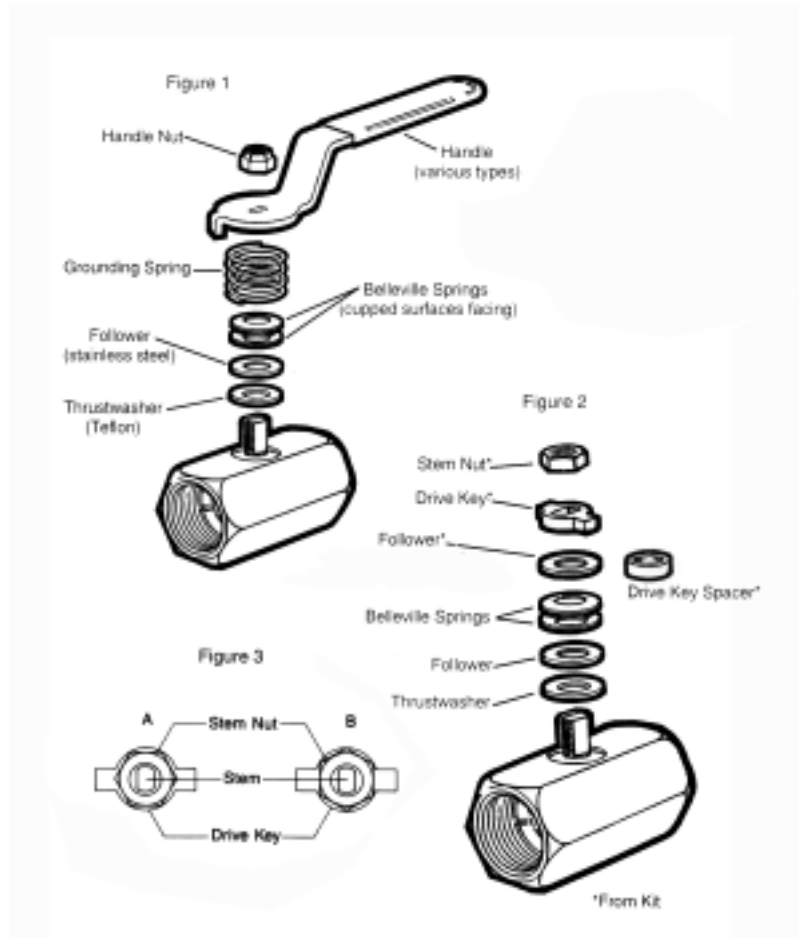
## CONVERSION FROM MANUAL TO AUTOMATION

These instructions cover the conversion of manual (handle-operated) valves for actuated operation. In addition to the valve and actuator, a mounting kit is also necessary to complete the installation.

1. With the valve in the 'open' position remove, and put aside, the handle nut, handle and grounding spring from the valve on which the actuator will be mounted. Leave the thrustwasher, follower and Belleville springs on the valve stem.

2. Assemble the drive key follower or spacer (if required, see the chart below), drive key, and stem nut from the kit. Do not reuse the handle nut from the manual valve assembly. Prevent the stem from turning as the nut is tightened by inserting a wooden or plastic dowel through the valve, then tighten the stem nut until the Belleville springs have just become fully compressed (flattened). Although the nut spins freely when first run onto the stem, the torque needed to continue tightening will increase progressively after the stem nut contacts the drive key and the Belleville springs begin to deflect. The torque required to tighten further will increase sharply once the Belleville springs have become fully flattened. Tightening beyond this point should not be attempted as damage to the stem seal may result.

3. The correct orientation of the stem nut to the drive key is shown in Figure 3; this orientation is necessary to permit engagement with the twelve-point socket in the actuator pinion driver. In order to achieve the desired orientation, loosen the stem nut until the nut / drive key relationship corresponds to either 'A' or 'B' in Figure 3. This adjustment should require less than one-twelfth (1/12) turn of the nut.

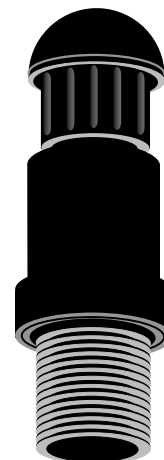


For Mounting To						
B410 & A420 Series				A500 Series		
Size	76 Series	86 Series	96 Series	76 Series	86 Series	96 Series
1/4	N/A	Follower	N/A	N/A	Follower	N/A
3/8	N/A	Follower	N/A	N/A	Follower	N/A
1/2	Follower	Follower	None	Follower	Follower	None
3/4	Follower	None	Spacer	Follower	None	None
1	None	Spacer	Spacer	None	None	Spacer
1-1/4	Spacer	Spacer	Spacer	None	Spacer	Spacer
1-1/2	Spacer	Spacer	Spacer	Spacer	Spacer	Spacer
2	Spacer	Spacer	N/A	Spacer	Spacer	N/A



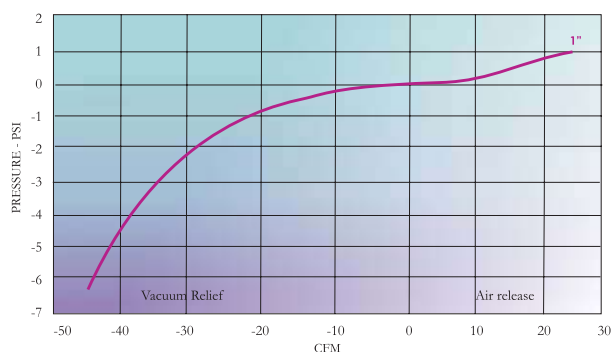
## Description

Air release allows air to escape the system at startup and vacuum relief allows air to enter the system during shutdown. Air vents are installed at the high point of the drip field to keep soil from being sucked into the drip emitter due to back siphoning or back pressure. This is an absolute necessity with underground drip systems. They are also used for proper drainage of the supply and return manifolds. Use one on the high point of the supply manifold and one on the high end of the return manifold and any high points in the system. A pre-installed schrader valve allows pressure testing off the air/vacuum breaker.



Item No.	Inlet	Pressure to seal	Max pressure	Height inches	Width inches	Weight Lbs.
APVBK-1	1" MPT	5 psi	80 psi	5.5	3.43	.67
APVBK-2	2" MPT	1 psi	200 psi	10.75	3.98	6.62

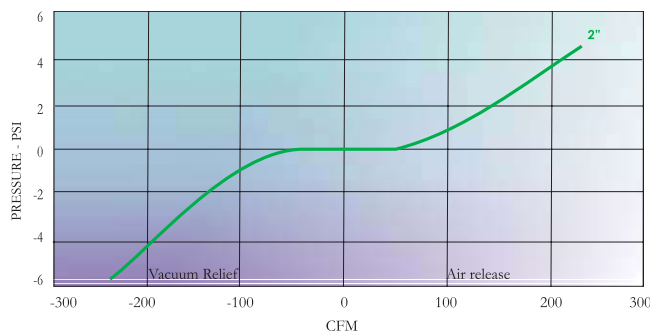
## 1" Vacuum Relief/Air Release



### Specification 1"

The air vacuum breakers provide instant and continuous vacuum relief and non-continuous air release. It shall be rated to 80 psi. Both the body and the removable dirt cover shall be constructed of molded plastic. The body and the dirt cover shall be connected with a  $\frac{3}{4}$  inch hose thread. The ball shall be constructed of low density plastic and the internal seat shall be constructed of vinyl. Inlet size shall be 1 inch male pipe thread. The air/vacuum relief valve shall Geoflow Item no. APVBK-1.

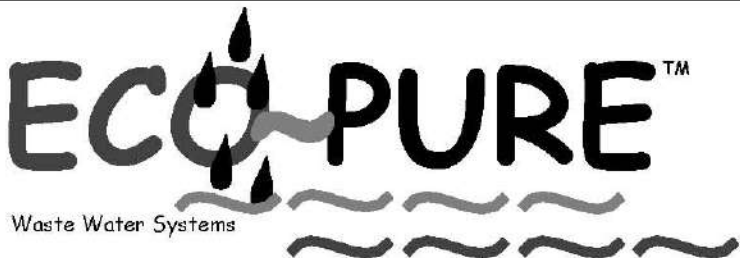
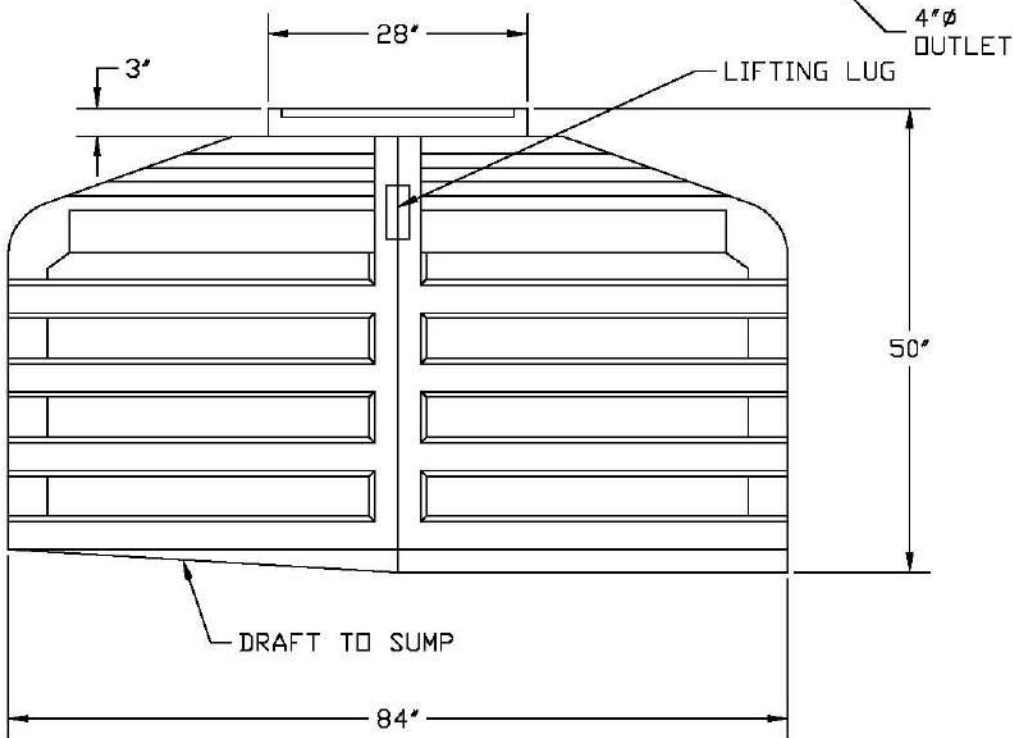
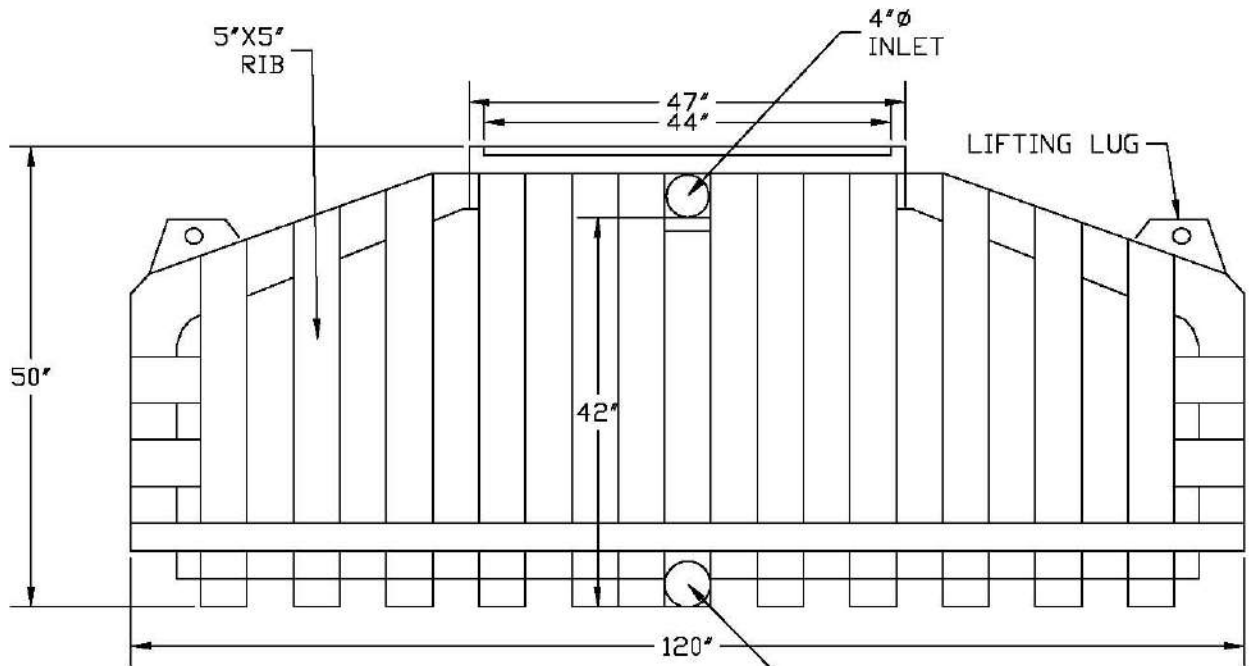
## 2" Vacuum Relief/Continuous Air Release



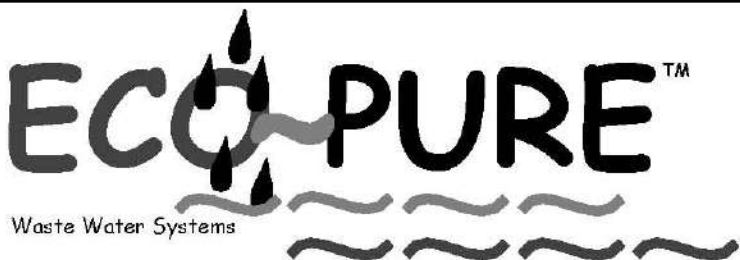
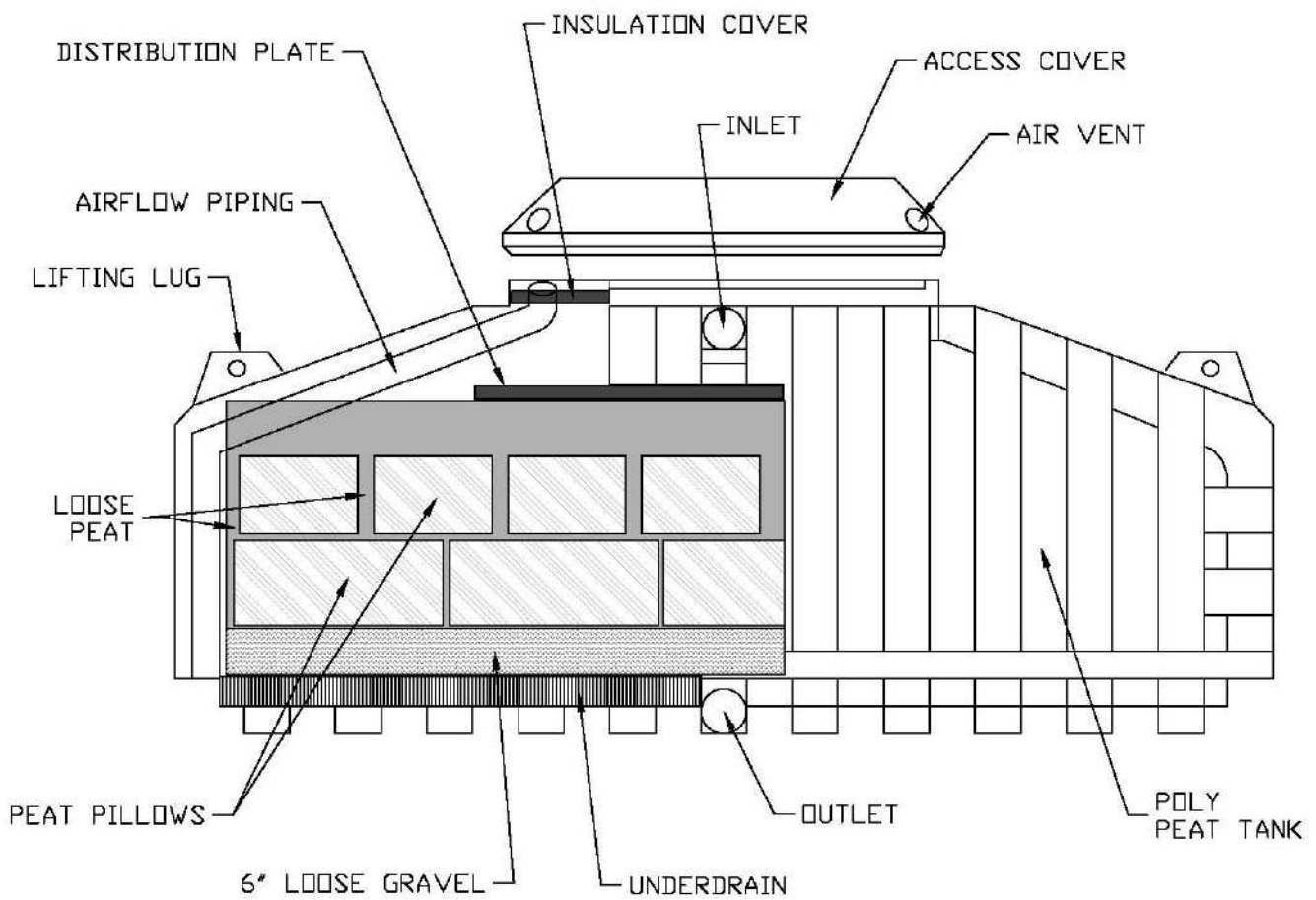
### Specification 2"

The air vent shall provide instant and continuous vacuum relief and air release and continuous air release. Both the body and the removable dirt cover shall be constructed of molded plastic. It shall be rated to 200 psi. The ball shall be constructed of low density plastic and the internal seat shall be constructed of vinyl. Inlet size shall be 2 inch male pipe thread. Outlet shall be 1.25" socket ell. The air/vacuum relief valve shall Geoflow Item no. APVBK-2.

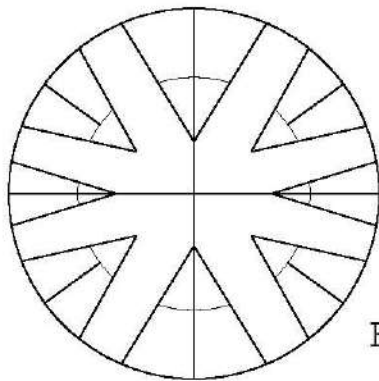
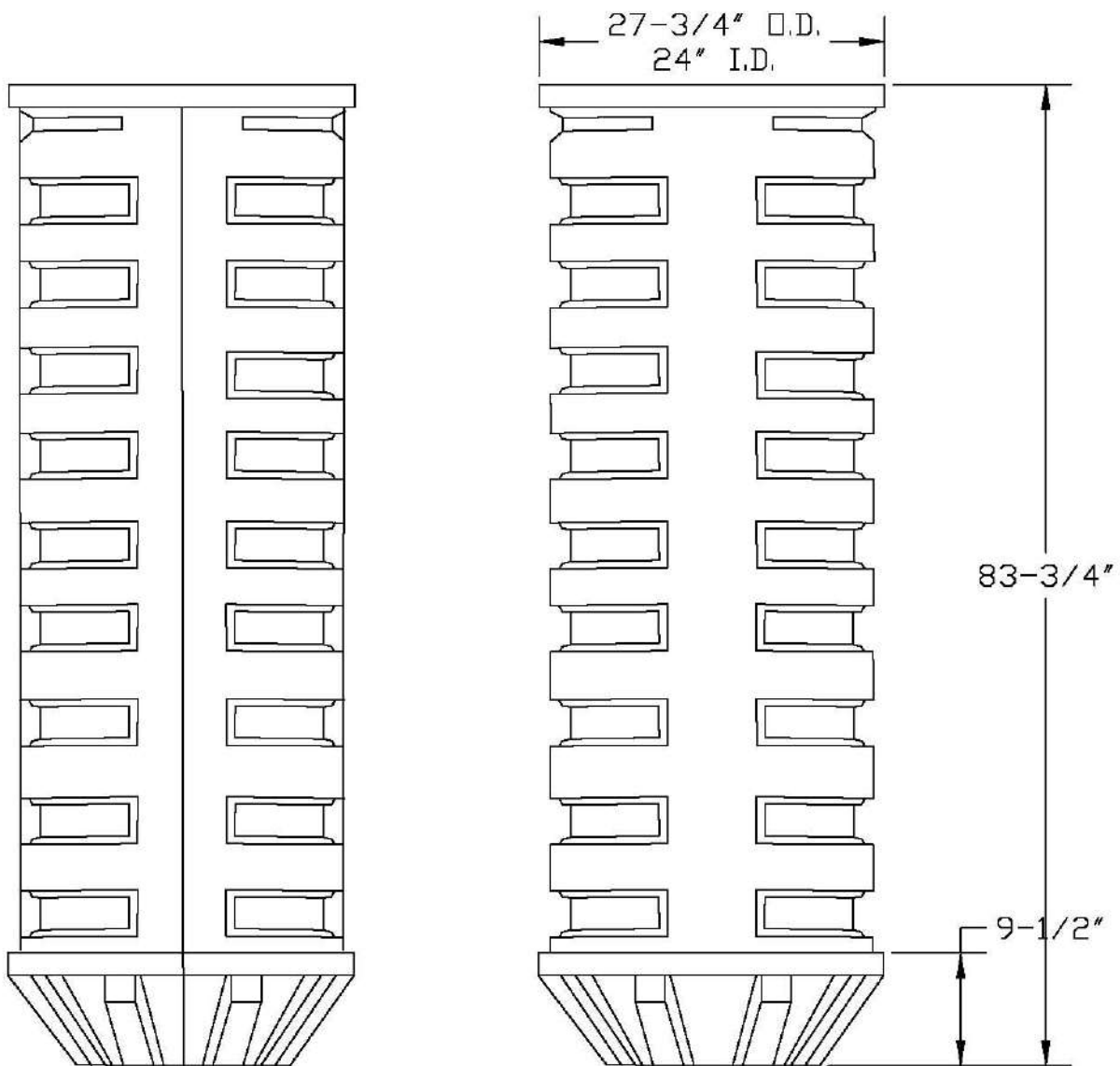
## **Appendix B**



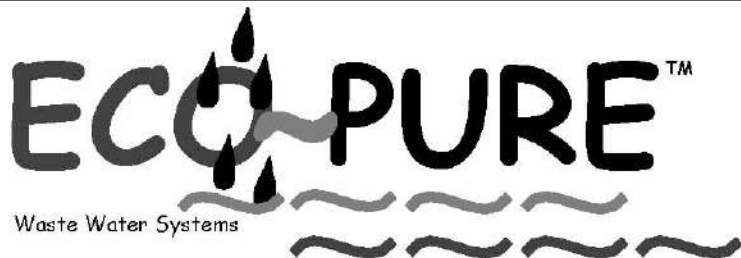
PEAT MOSS  
BIOFILTER  
POLYETHYLENE  
TANK



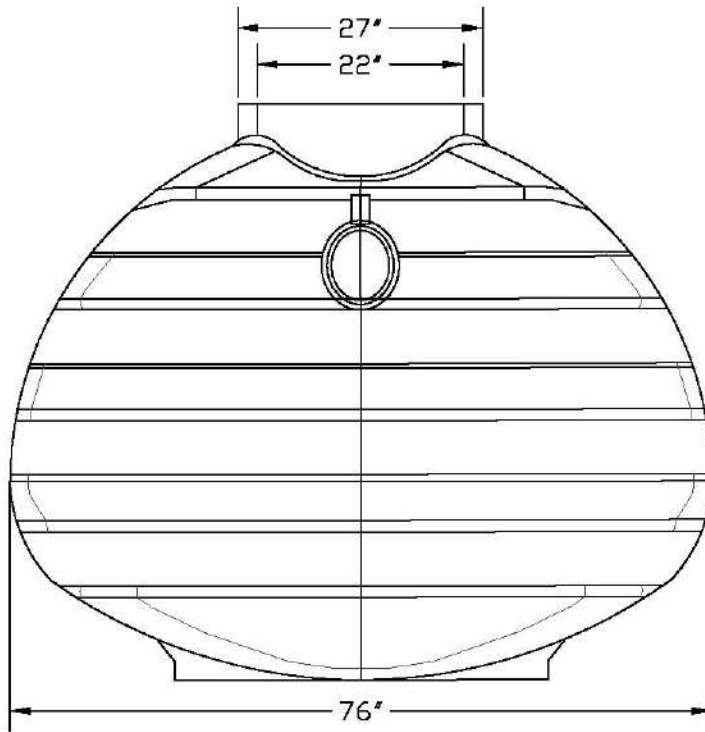
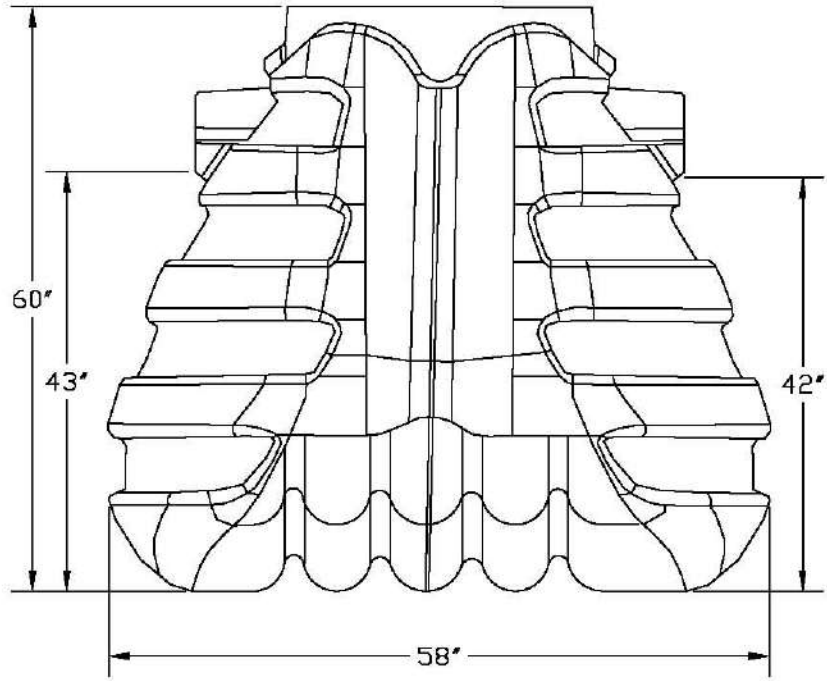
PEAT MOSS  
BIOFILTER  
SECTION VIEW



BOTTOM VIEW



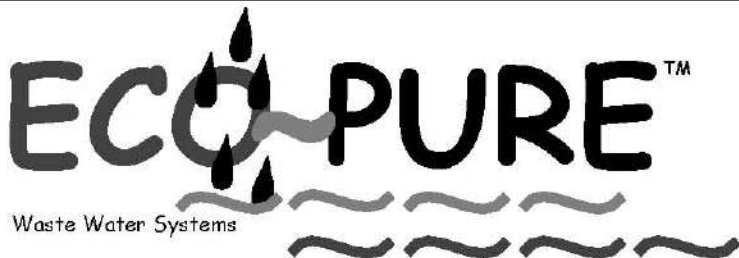
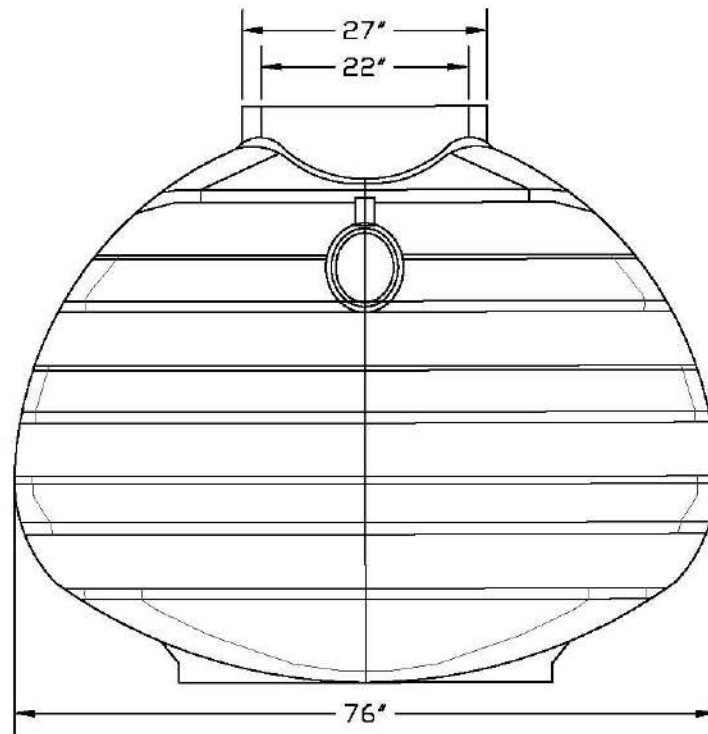
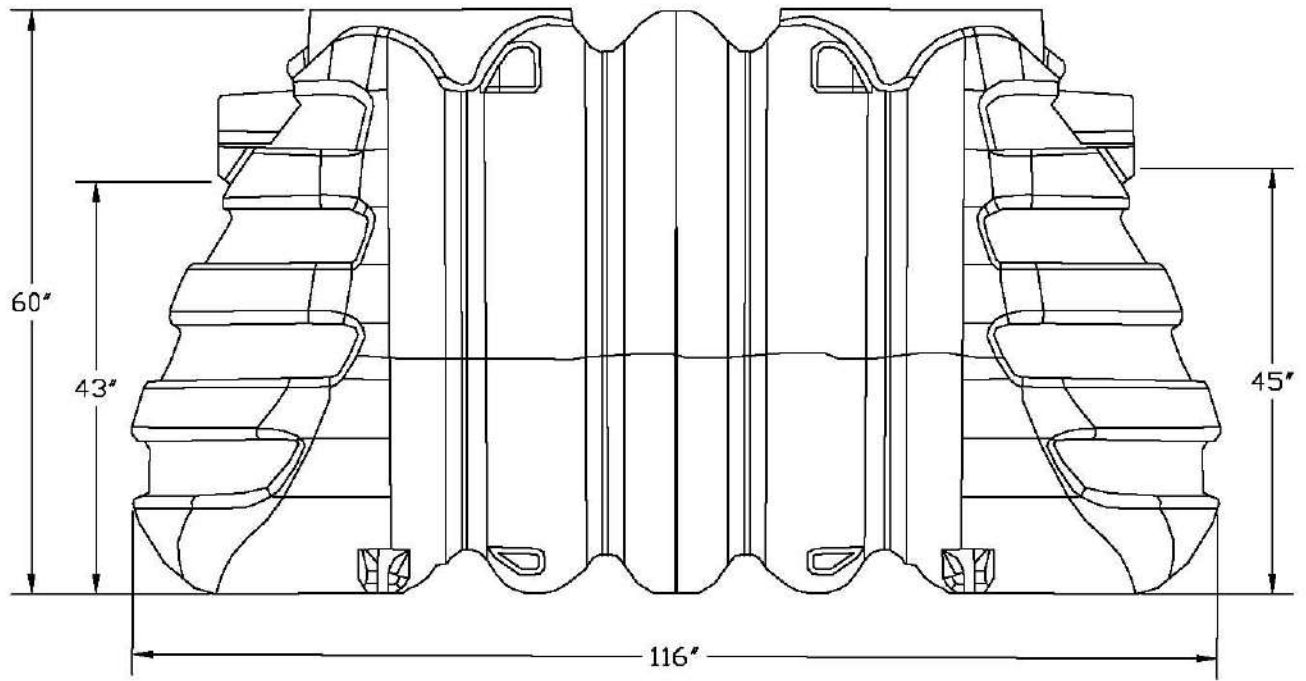
24" X 84"  
POLYETHYLENE  
PUMP VAULT



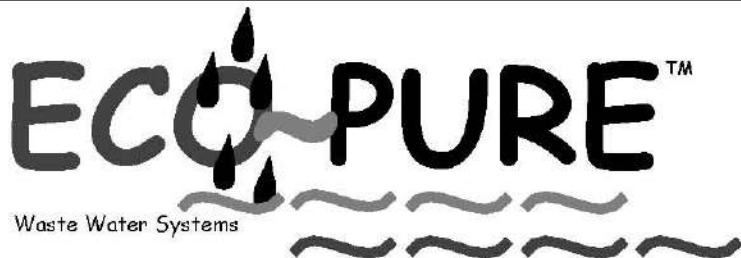
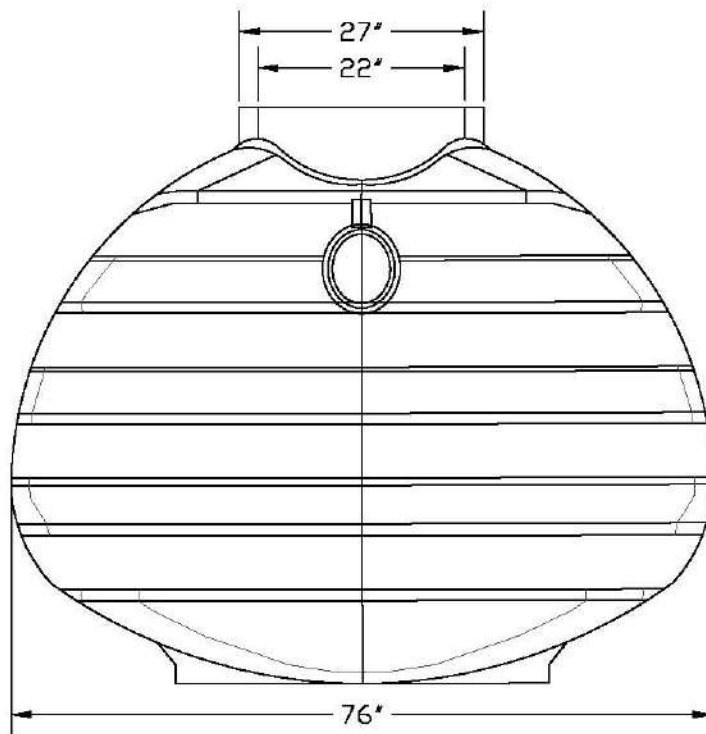
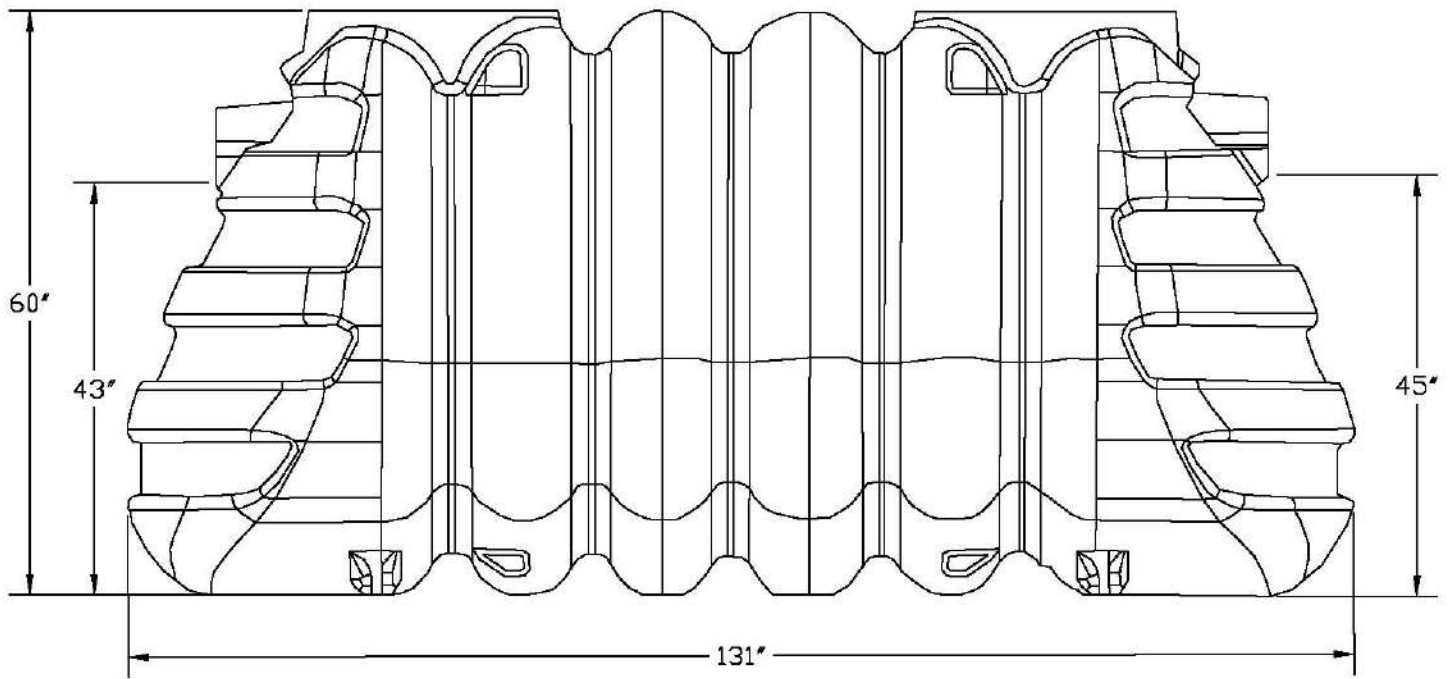
500 GALLON SEPTIC TANK  
(or 600 Gal. Pump Tank)







1050 GALLON  
SEPTIC TANK  
(2-compartment)



1,250 GALLON  
SEPTIC TANK  
(2-compartment)

## **Appendix C**



# OWNERS MANUAL

## 300 Series Peat Moss Filter

*The All Natural Wastewater Treatment System*



*Simply Natural, Naturally Simple*

Thank you for choosing the ECO-PURE 300 SERIES PEAT MOSS FILTER for treating your wastewater. This manual contains information about the use, operation, warranties and maintenance.

## OPERATION

The ECO-PURE 300 SERIES PEAT MOSS FILTER consists of a watertight poly tank which holds Enhanced Peat Moss which treats the wastewater from your septic tank to a very high degree before it enters the underlying ground surface.

## USING THE PEAT FILTER

The efficiency of the on-site system using the ECO-PURE 300 SERIES PEAT MOSS FILTER depends on common sense.

You should not use the following in your system:

Oil and grease from cooking or machinery, paints or solvents, pesticide products, any toxic substances, any petroleum products or any non-biodegradable substances i.e.: tampons, condoms, sanitary napkins.



## THINGS TO REMEMBER

DO NOT cover the ECO-PURE lid, DO NOT drive heavy equipment over the system, DO NOT overload system beyond design limits, DO NOT attempt your own repairs, DO NOT cover any vents, DO NOT plant large trees on system. Always keep system accessible.

## MAINTENANCE

Annual maintenance will have to be provided by an authorized service representative during normal business hours by inspecting the FILTER BED and cleaning the septic tank filter to ensure proper functioning, check for ponding or misuse.

If samples are required the owner will pay for all costs involved.

A maintenance record will be forwarded to the HEALTH UNIT and the Owner.

The filter media may have to be replaced every ten years or sooner depending on abuse or higher demand than design limits.

The owner shall maintain a new maintenance agreement every year as long as they own the system.

### In the unlikely event of:

- Back-up in you house, your sewer line may be clogged.
- Odors, your house vent may blocked; if not gravity fed, pump may not be functioning.





# 300 Series Peat Moss Filter Warranty

1. For the purpose of this warranty DEALER means person who installs system, CUSTOMER means the user of the ECO-PURE system, SYSTEM means the ECO-PURE PEAT FILTER and components except the septic tank or pump tank not supplied by ECO-PURE. Transfer of OWNERSHIP means new owner, MANUFACTURER means ECO-PURE INC.

## 2. WARRANTY

ECO-PURE INC. warrants that the components supplied by the manufacturer will function properly for a period of three years from the date of purchase with the exception of pumps, floats, or any other items covered by another manufacturer's warranties. The warranty of ECO-PURE INC. is limited to this text.

3. For this warranty to be valid the customer must notify ECO-PURE INC. in writing as to the nature of any problem with the system or call 1-888-999-0936. This notice must be sent by registered mail to ECO-PURE INC. or to the dealer with a copy to ECO-PURE INC. Upon receipt of notice ECO-PURE INC. or the dealer will correct the problem within the terms of this warranty.

## 4. EXCLUSIONS

The following will be excluded from warranty coverage: Any damage caused by an Act of God without limitation such as floods, earthquakes, hurricane, landslide, tornado or blizzards. Any damages caused by the users or third parties such as any modification or installation or correction to the system not authorized by ECO-PURE INC.

Any modifications with regard to installation by a dealer which is not authorized by the manufacture. Any damage by not allowing maintenance to be performed in accordance with the maintenance agreement. Any damage by heavy vehicles such as cars, trucks and heavy equipment. Any change of use which does not comply with original design of intended use or excessive waste strength which is beyond residential waste strength.

## 5. OTHER EXCLUSIONS

It is expressly understood that the customer shall not make any attempt to maintain or repair any part of the system before notifying the dealer or ECO-PURE INC. in accordance with Section 3 until a reasonable time for a site visit is given and any problems can be solved, otherwise the warranty shall be null and void.

## 6. LIMITS OF DAMAGES

ECO-PURE INC. in no way shall be liable for any other damages that the customer may incur and compensation and indemnification shall be limited to the other provisions of this warranty.

## 7. TRANSFER OF OWNERSHIP

All provisions of this warranty shall remain in effect upon transfer of ownership with the express understanding that the new owner submits in writing by registered mail to ECO-PURE INC. that the intended use shall not change, that the waste strength is not increased by either over use or misuse and that there shall be no change of use.

The new owner will notify ECO-PURE INC. that they have read the Owner's Manual and agree to comply with all the provisions therein.

## 8. WARRANTY PRIORITY

This warranty supersedes any written or verbal contracts entered into by the customer or dealer or any agent for the sale or installation of the ECO-PURE PEAT FILTER and it is expressly understood in case of any contradictions whatsoever that the terms of this agreement shall prevail.

## 9. INDEMNITY

Liability under this warranty to correct defects shall be limited to correction or replacement of components in accordance to other provisions of this warranty agreement upon written notification.

## 10. INSPECTIONS

The customer shall allow the dealer of ECO-PURE INC. to carry out all necessary inspections as required in this warranty during normal business hours.

If any other request for inspection beyond the annual maintenance and inspection are requested and no problems exist, a fee shall be paid to ECO-PURE INC. by the customer.



2725 Prince Street  
Unit 100  
Fort Myers, FL 33916  
239-466-4408 Phone  
239-466-0580 Fax  
[www.eco-purewastewatersystems.com](http://www.eco-purewastewatersystems.com)

# 300 Series Peat Moss Filter

Installation Guide February 2007



## 300 Series Peat Moss Filter Component Materials

Part Number	Quantity	Description
NA	1	HDPE Module and Cover
EPA IC-109	1	Insulation Cover
EPA PP-99	41	Sphagnum Peat Moss Pillows
EPA PP-105	10	Sphagnum Peat Moss Bags
EPA DP-107	1	HDPE Distribution Plate
EPA FC-146	1	4" x 2" Inlet Pipe Assembly
NA	1	4" Discharge Pipe and Vent Pipe



## Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- Seasonal Use Homes
- Water-Front Homes
- Small Lots
- High Groundwater

## Items Needed For Installation

- 2 cubic yards, 1/2 -1" clean, non-reactive stone (limestone)
  - Placed inside of module
- 8 cubic yards, clean sand (module backfill material)
- Backhoe for digging and backfilling
- Forks on loader or forklift to unload peat moss pallet
- Truck and trailer for transport of peat module and peat moss pallet
- Lifting straps with large hooks for placing module
- Nut drivers
- PVC pipe saw
- PVC Cleaner and Cement
- Assortment of PVC fittings (1-1/2", 2" and 4")
- Septic Tank Filter
- Garden Hose
- If dosing unit:
  - Effluent pump
  - Ball valve
  - Control Panel or Vertical Float Switch
  - 2" hole saw



## Design Procedures

The 300 Series Peat Moss Filter must be designed per the Eco-Pure Design, Installation and Maintenance Guide, January 2009. All systems incorporating the 300 Series Peat Moss Filter must be designed by a state registered Professional Engineer or a state approved system designer.

## Maintenance Procedures

Routine inspection and maintenance must take place at least once per year. Maintenance must be performed per the Eco-Pure Maintenance Manual, February 2007. Only factory certified personnel may perform maintenance.

*Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.*

# 300 Series Peat Moss Filter

## Installation Instructions

1. Install septic tank allowing enough fall to the Eco-Pure module to gravity feed. Install a septic tank filter in outlet baffle.
2. Remove the contents from the Eco-Pure module. Make sure 4" drain pipe is in drain area.
3. Push back vent pipe so the 90° fittings are between the opening of the tank and the support pipes.
4. Replace the green cover to prohibit soil intrusion into the module.
5. Excavate an area approximately 10' by 12' and approximately 42" deep for the Eco-Pure module.
6. Fill excavated area with 6" - 12" clean sand.
7. Place Eco-Pure module into the center of the excavation. Lift module by the lifting rings only. Make sure module is level.
8. Cut 1" off discharge hub. Connect the supplied rubber fitting to the Eco-Pure outlet. Connect discharge piping to rubber fitting.
9. Make sure all fittings are water-tight and bed discharge piping. Eco-Pure recommends a small amount of butyl mastic around all pipe connections.
10. Backfill the Eco-Pure module with clean sand to the lifting rings, approximately 14 cubic yards.
11. Place and level 2 cubic yards of non-reactive rock into bottom of module. **DO NOT USE LIMESTONE INSIDE OF MODULE!**
12. Wash rock so that it is free of dust and fine particles. This allows for proper drainage of the Eco-Pure module.
13. Remove peat from shipping pallet.
14. There will be 10 peat bags (3.8 Cubic Foot) and 41 peat pillows (green or orange sacks).
15. Fluff all green peat pillows by gently rolling them on the ground before placing them into module.
16. Place 20 peat pillows on bottom of module on top of stone. Start at ends of module and work toward center.
17. Make sure peat pillows are placed against walls of module. **DO NOT CRAM PILLOWS.**
18. Place 3 bags of loose peat over entire bottom row of peat pillows. Fill in all voids between peat pillows.
19. Break up any clumps. Rake loose peat level. Pay special attention that the voids against walls of module are filled in with loose peat.
20. Place the remaining 21 peat pillows on top of bottom row. Place pillows in the opposite direction of bottom layer.
21. Once again, start at ends of module and work toward center.
22. Place the remaining 7 bags of loose peat over entire top row of peat pillows.
23. Fill in all voids between peat pillows. **USE ALL 7 BAGS.**
24. Break up any clumps. Rake loose peat level. Pay special attention that the voids against walls of module are filled in with loose peat.
25. **VERY IMPORTANT!** Completely level the peat bed. This can be done by using a 3' x 1" x 2" wood stake or a 3' x 1/2" PVC pipe used as a screed.
26. Wet the peat bed thoroughly by gently spraying it with a garden hose. This prohibits the peat from "floating" upon system start-up.
27. Gently lay the HDPE distribution plate on the peat bed. Center the inlet of the manifold with the inlet of the module.
28. Level the distribution plate. **PLATE MUST BE LEVEL!**
29. Install the 4" x 2" inlet pipe to Eco-Pure Module. **TEST WITH CLEAN WATER FOR EVEN DISTRIBUTION!**
30. Place the insulation cover on the support pipes.
31. Place the green cover on the module. Use the 2 stainless steel screws to fasten the cover.
32. Backfill the Eco-Pure module with clean, rock free material or clean sand. **DO NOT LEAVE VOIDS IN BACKFILL!**
33. Hand rake backfill around module only. **DO NOT USE HEAVY EQUIPMENT NEAR MODULE!**



### When Dosing the Eco-Pure Peat Filter

- Simulate gravity flow by installing a ball valve
- Close ball valve approximately 3/4
- **Maximum pump volume is 20 gallons per cycle event**
- Installation of a 2" vent is recommended from the peat module tank to the septic tank

In order to provide the best product possible, specifications and requirements are subject to change.

Patent #: US 6,620321 B2

EPPS300IG (1/09)



# 300 Series Peat Moss Filter

## Maintenance Guide February 2007



### 300 Series Peat Moss Filter Component Materials

Part Number	Quantity	Description
NA	1	HDPE Module and Cover
EPA IC-109	1	Insulation Cover
EPA PP-99	41	Sphagnum Peat Moss Pillows
EPA PP-105	10	Sphagnum Peat Moss Bales
EPA DP-107	1	HDPE Distribution Plate
EPA FC-146	1	4" x 2" Inlet Pipe Assembly
NA	1	4" Discharge Pipe and Vent Pipe



### Applications

- Single Family Homes
- Multi-Family Homes
- Apartment Complexes
- Churches
- Office Buildings
- Restaurants
- Seasonal Use Homes
- Water-Front Homes
- Small Lots
- High Groundwater

To assure years of trouble free operation and proper wastewater treatment, Eco-Pure requires one annual routine maintenance visit.

This guide demonstrates a typical routine maintenance visit.

### Note to Maintenance Entities

Be sure to fill out enclosed Maintenance Report and fax it to Eco-Pure, Inc. at the number below.

Also be sure to enter this information into the Carmody Data Systems Eco-Pure data system web site.



### Items Needed For Installation

- Screw drivers / cordless drill
- Rake
- Level
- Garden Hose
- Screed to level peat (3' x 1" x 2" wood stake)
- Rubber Gloves
- Apparatus to obtain effluent sample

### Design Procedures

The 300 Series Peat Moss Filter must be designed per the Eco-Pure Design, Installation and Maintenance Guide, January 2009. All systems incorporating the 300 Series Peat Moss Filter must be designed by a state registered Professional Engineer or a state approved system designer.

### Installation Procedures

The 300 Series Peat Moss Filter must be installed per the manufacturer's Installation Guide, February 2007. Only factory certified personnel may install the 300 Series Peat Moss Filter.

*Please refer to your state and/or local onsite wastewater treatment and disposal regulations for details pertaining to your systems design, installation and maintenance requirements.*



## 300 Series Peat Moss Filter

### Routine Maintenance Instructions

1. If using a dosing pump to dose the Eco-Pure Peat Filter module (s) disconnect power.
2. Remove the green cover on the module. Loosen the stainless steel screws to remove the cover. This will expose the white insulation cover.
3. The insulation cover sits upon support pipes. Remove the white insulation by carefully sliding it out of the peat module.
4. Remove the 4" x 2" PVC inlet pipe. Use screwdriver or cordless drill to loosen stainless steel snake clamp and slide off pipe. Remove the distribution plate.
5. Rake peat moss bed to break up any bio-mass (if present). A child garden rake works best for this procedure.
6. Re-level the entire peat bed. Use the 3' x 1" x 2" wood stake or 3' x 1/2" PVC pipe to completely level peat bed. This step is absolutely vital.
7. Rinse the inlet pipe. Use a garden hose to rinse the 4" inlet pipe.
8. Replace the distribution plate. It is strongly recommended to do a water test to verify that the distribution plate is level. Run hose over plate to determine that equal distribution of the water is taking place.
9. Replace the 4" x 2" PVC inlet pipe. Use screwdriver or cordless drill to tighten stainless steel snake clamp and slide off pipe.
10. Obtain effluent sample from pump tank or other sampling device.
11. Inspect effluent. Effluent should be odor free. It may have a tea color for the first year of service and a slight color thereafter. This is due to peat "washing" and is completely normal.
12. Routine maintenance completion. Examine area for any unusual settling. Make sure that all surface and runoff water is diverted away from system. Cover and screw down all covers. Be sure to fill out enclosed Maintenance Report.
13. Maintenance Completion. Examine area for any unusual settling. Verify that surface water is diverted away from the Eco-Pure module (s). Make sure power is reconnected. Cover all valve boxes.





# **Design, Installation and Maintenance Guide**

## **300 Series Peat Moss Filter Septic and Pump Tanks Drip Irrigation Systems**

2725 Prince Street  
Unit 100  
Fort Myers, FL 33916  
239-466-4408 Phone  
239-466-0580 Fax  
[www.eco-purewastewatersystems.com](http://www.eco-purewastewatersystems.com)

*Simply Natural,  
Naturally Simple*

December 2008  
V 1.0