

Installation guide

ECOFLO°

Polyethylene Ecoflo compact biofilter EC7-500, EC7-600, EC7-750, EC7-1050, and EC7-1350 model series

This guide contains the information required to install the polyethylene Ecoflo compact biofilter EC7-500, EC7-600, EC7-750, EC7-1050, and EC7-1350 model series. The installation must be performed by a duly trained installer. A list of installers can be provided by contacting Premier Tech at 1800 632-6356.

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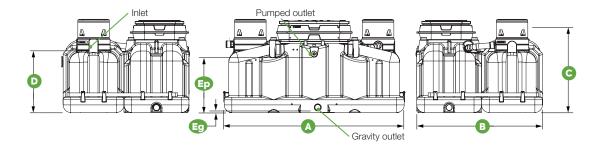
TECHNICAL DATA SHEETS

COMPONENT MATERIALS

- Tank and top slab: reinforced concrete
- Lid, central support, tipping bucket, and distribution plates: polyethylene
- Filtering medium: coconut husk fragment-based compound

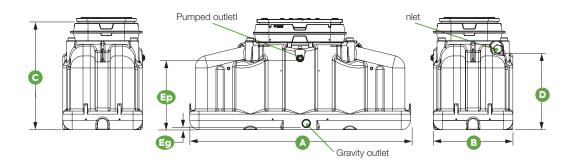
	2.8	3.4	4.1
Model	EC7-500-P-G/P-PACK	EC7-600-P-G/P-PACK	EC7-750-P-G/P-PACK
Hydraulic capacity	500 US gal/d	600 US gal/d	750 US gal/d
Primary tank volume	750 US gal	1,000 US gal	1,250 US gal
Effluent filter in the primary reactor/septic tank		Polylok PL-122	
Length	10' 2-3/4"	11' 7-3/4"	13' 3-1/2"
Width	3	8' 1-3/4"	
Height Includes 12" of risers	9	5' 9-3/4"	
Inlet invert height from bottom of the tank		4' 2-1/2"	
Inlet invert height from surface grade		1' 7-1/4"	
Gravity water outlet height	9	1-1/2"	
Pumped water outlet height	P	3' 9"	
Additional riser allowed		6"	
Weight* Includes internal components and coco filter	1,675 lb	1,870 lb	2,090 lb
Emergency storage above alarm float	545 US gal 665 US gal 760 US gal		760 US gal

 $^{^{\}star}\,$ Weights are approximate and not binding (for handling and lifting purposes only).



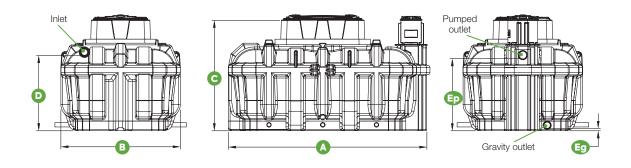
		2.8	3.4	4.1
Model		EC7-500-P-G/P	EC7-600-P-G/P	EC7-750-P-G/PDV
Hydraulic capacity		500 US gal/d	600 US gal/d	750 US gal/d
Length	A	10' 2-3/4"	11' 7-3/4"	13' 3-1/2"
Width	В		4' 2-1/2"	
Height Includes 12" of risers	9		5' 9-3/4"	
Inlet invert height from bottom of the tank	O	4' 1/2"		
Inlet invert height from surface grade		1' 9-1/4"		
Gravity water outlet height	Eg		1-3/4"	
Pumped water outlet height	Ep		3' 8-7/8"	
Additional riser allowed			6"	
Weight* Includes internal components and coco filter		1,235 lb	1,345 lb	1,455 lb
Emergency storage above alarm float		545 US gal	665 US gal	760 US gal

 $^{^{\}star}\,$ Weights are approximate and not binding (for handling and lifting purposes only).



		5.7	7.3	
Model		EC7-1050-P-G/PDV	EC7-1350-P-G/PDV	
Hydraulic capacity		1,050 US gal/d	1,350 US gal/d	
Length	A	11' 3/4"	13' 5-1/2"	
Width	В	6' 6-3/4"	6' 8-3/4"	
Height	G	6	3/4"	
Inlet invert height from bottom of the tank	D	4' 1-1/2"		
Inlet invert height from surface grade		1' 11-1/4"		
Gravity water outlet height	Eg	1-1/2"	3/4"	
Pumped water outlet height	Ep	4' 3/4"		
Additional riser		No additiona	al risers allowed	
Weight* Includes internal components and coco filter		2,640 lb	3,120 lb	
Total emergency storage capacity		1,155 US gal	1,595 US gal	

 $^{^{\}star}\,$ Weights are approximate and not binding (for handling and lifting purposes only).



1 DESCRIPTION OF SYSTEM COMPONENTS

1.1 PRIMARY/SEPTIC TANK

The size and configuration of the primary/septic tank shall be in accordance with the NSF listing (as applicable) or with state or local requirements. The primary/septic tank clarifies wastewater by letting suspended solids settle to the bottom and by retaining floating matter to avoid clogging the secondary or advanced secondary treatment system. Any septic tank **that complies with local regulations** can perform primary treatment.

The polyethylene Ecoflo compact biofilter also comes in the monobloc Pack configuration. The Pack model of the Ecoflo compact biofilter combines the primary/septic tank and the biofilter unit. Consult the respective technical data sheets and installation guides for more information on the Pack model of the Ecoflo compact biofilter.

You may decide to use an existing primary/septic tank for the installation. Carefully inspect it to ensure it is in good condition. Install an effluent filter at the final outlet of the primary/septic tank if it does not have one. Alternatively, you can install a tank with an effluent filter, such as Premier Tech Water and Environment's TLF-240P, downstream from the primary/septic tank. Learn more at *PT-WaterEnvironment.com/ProSpace*.

The effluent filter extends the life of any treatment system by keeping solids in the septic tank. The effluent filter is especially important if the household is equipped with a sewage pump or with any other appliance that is liable to increase the suspended solids content in the wastewater and, thereby, jeopardize the operation of the system and affect its performance. An effluent filter will also prevent solids from entering downstream components, such as effluent pumps.

Premier Tech does not recommend using a garbage disposal unit. If you are using a garbage disposal unit, you must follow the state and local code for tank and absorption field sizing.

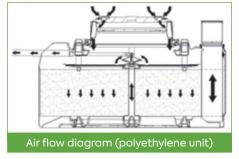
Effluent filters to be used with the Ecoflo compact biofilter shall have a minimal flow area of 9 in² and filter particles 1/16" and larger. While many effluent filter brands meet those specifications, Premier Tech Water and Environment highly recommends Polylok's PL-122 effluent filter or an equivalent.

1.2 ECOFLO COMPACT BIOFILTER

Once the wastewater has passed through the primary/septic tank, it then flows into the Ecoflo compact biofilter. A central tipping bucket equally scatters wastewater on both sides of the biofilter. Each side is equipped with specially designed plates which evenly distribute wastewater over the filtering medium. Wastewater trickles through the coconut husk fragment filtering medium, where the organic matter contained in wastewater is decomposed by the microorganisms attached to the filtering medium via an optimized water/air (oxygen) mass transfer process.

To ensure effective treatment, there must be enough oxygen in the Ecoflo compact biofilter to feed the microorganisms in the filtering medium. Air enters the system through vents located on the main access lid. Depending on the model, the pumping station and/or central support allows air to naturally circulate between the surface and base of the filtering medium. Convection circulates air (from a residential or standalone air vent) through the feed pipe to the septic tank.

The operating principle of the Ecoflo compact biofilter allows the system to be used continuously or intermittently without needing any special precautions and without affecting treatment performance. In most cases, no specific action is needed from the owner to start the system.



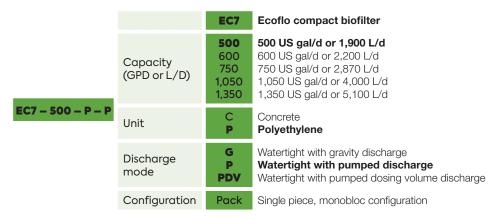
The Ecoflo compact model and number of units are usually determined by the residence's total number of bedrooms or by the total daily volume of domestic wastewater it produces. Selecting the model also depends (without limitation) on the available surface area, the topography of the site, the seasonal high groundwater table depth, and on soil characteristics such as type, permeability, and depth.

Each Ecoflo compact biofilter model has different characteristics. The biofilter is either housed in a concrete, polyethylene, or fiberglass unit. The following table presents the different Ecoflo compact biofilter models available according to the filtering medium's surface area and treatment capacity. All of these models are certified and compliant with Standard NSF/ANSI 40.

1.2.1 Product nomenclature

There are several available Ecoflo compact biofilter models with different characteristics. Each one can be identified by its model number.

EC7 models series:



Therefore, the EC7 – 500 – P – P refers to an Ecoflo compact biofilter model that can treat 500 US gallons per day and that is housed in a polyethylene unit with a watertight bottom and an integrated pump for effluent discharge.

1.3 INFLUENT PUMPING STATION (IF REQUIRED)

Whenever a septic installation cannot use gravity to convey wastewater between the primary/septic tank and the Ecoflo compact biofilter, it must rely on a pumping station. As with the primary/septic tank, the size and configuration of the pumping station must be based on occupancy, design flow, and must meet state or local requirements. The pumping station must be watertight. Premier Tech Water and Environment recommends a dose between 8 to 16 US gallons (30 to 60 liters) of wastewater per dosing cycle.

The pumping station must have adequate venting to avoid the buildup of harmful gases, air lock, and corrosion. This can be accomplished by using a vented lid, a separate vent pipe on the pumping station or primary/septic tank, or by connecting to the residence's vent stacks.

Premier Tech Water and Environment offers different pumping station models, such as the PSA-240 and the PSA-240H. Find more information about them or about Premier Tech Water and Environment's recommended pump station dosing *PT-WaterEnvironment.com/ProSpace*.



1.4 DISCHARGE PUMP (WHEN APPLICABLE)

As presented in table above, some polyethylene Ecoflo compact biofilter models have a closed bottom and an integrated pump vault. This allows the Ecoflo compact biofilter to pump treated effluent towards the site-specific final dispersal method. The pump vault's dosing can be accomplished on demand (pump to gravity or pressure dosing) or set to timed dosing.

The integrated pump vault includes a pump, a quick disconnect, an alarm box, and a float tree with an ON/OFF float and an alarm float.

Each model listed below offers a certain built-in capacity for dosing and storage in case of emergency. In case of emergency, water can accumulate for a limited period of time in the filter bed without adversely affecting the system's performance. These are presented on each products' respective technical data sheets.

Dosing and emergency storage capacity

Ecoflo compact biofilter size	Maximum volume available for dosing	Emergency storage capacity (total – above alarm float)
2.8	160 US gal (600 L)	545 US gal (2,050 L)
3.4	180 US gal (680 L)	665 US gal (2,300 L)
4.1	200 US gal (750 L)	760 US gal (2,850 L)
5.7	230 US gal (870 L)	1,155 US gal (3,500 L)
7.3	295 US gal (1,110 L)	1,595 US gal (4,900 L)

1.5 FLOW DIVIDER

An installation with two Ecoflo compact biofilter units that cannot use gravity distribution or with three or more Ecoflo compact biofilter units must consider using a flow divider to create even distribution between the biofilter units.

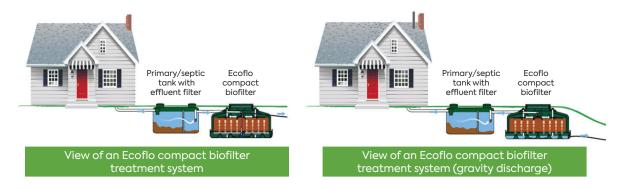
Premier Tech Water and Environment offers several pressurized flow dividers. Learn more at PT-WaterEnvironment.com/ProSpace.

1.6 FINAL DISPERSAL

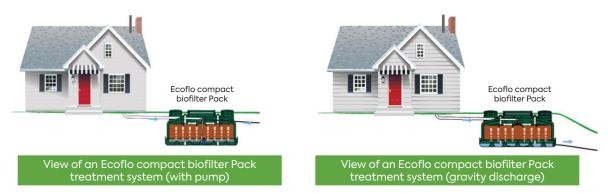
The final dispersal system must be designed in accordance with Premier Tech Water and Environment guidelines and/or state or local regulations.

2 LOCATION OF COMPONENTS AND SPECIFIC INSTRUCTIONS

2.1 RESIDENTIAL SEPTIC SYSTEM COMPONENTS: SEPARATE PRIMARY/SEPTIC TANK AND ECOFLO COMPACT BIOFILTER UNIT



2.2 RESIDENTIAL SEPTIC SYSTEM COMPONENTS: PACK CONFIGURATION



2.3 MINIMUM DISTANCES TO BE MAINTAINED

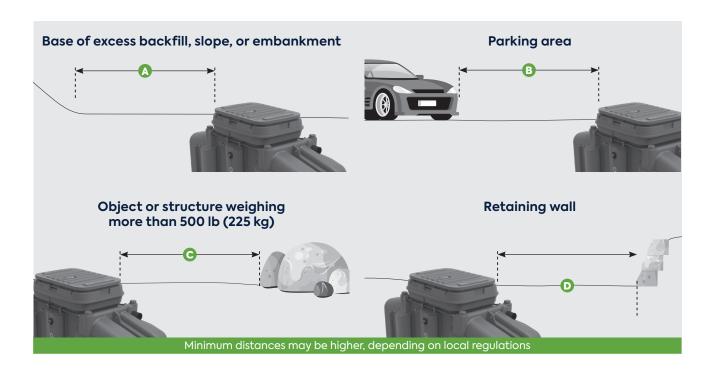
The wastewater treatment system must be installed in a place:

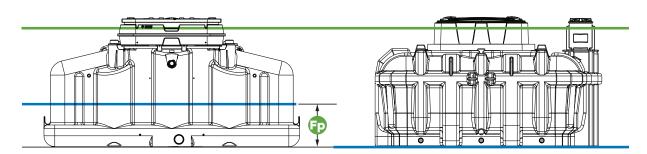
- where there is no motorized vehicle traffic
- in an area that is not likely to be flooded and where it will not be submerged (depending on the situation, a drain may be required around the primary/septic tank to prevent installing it in groundwater)
- that is accessible at all times for maintenance, inspection, and emptying

The treatment system's location must also comply with the distances in the following table:

Minimum distances to be maintained in accordance with Premier Tech Water and Environment specifications

Reference point	Polyethylene Ecoflo compact biofilter
Base of excess backfill, slopes, or embankments vs. compact biofilter lid (A)	13' (4 m)
Parking area (B)	13' (4 m)
Vehicle, object, or structure weighting more than 500 lb (225 kg) (C)	13' (4 m)
Base or retaining wall (D)	13' (4 m)
Finished landscaping vs. base of compact biofilter lid (E)	2" (50 mm)
Seasonal High Groundwater Table (SHGT) vs. base of Ecoflo	Maximum height of 2' (60 cm) up from the base of the unit for models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1).
compact biofilter unit with pumped discharge (Fp)	SHGT shall not exceed the base of the unit for models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3).
Seasonal High Groundwater Table (SHGT) vs. base of Ecoflo compact biofilter unit with gravity discharge	Do not install in groundwater.





Seasonal High Groundwater (SHGT) levels to respect pumped discharge for an Ecoflo compact biofilter installation

2.4 Installation conditions

2.4.1 Primary/septic tank

The primary/septic must be installed in compliance with the following instructions:

- Both openings must be extended to the soil surface through watertight and insulated risers and equipped with watertight lids (keep minimum clearance of 2" with final grade).
- Maximum 18" (45 cm) of risers can be added to models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1).
- The installation must be 100% watertight and receive only domestic wastewater (no roof water, surface water, or discharge from footing drains).
- The septic/primary tank must be placed in an area that is not likely to be flooded and where it will not be submerged (depending on the situation, a drain may be required around the primary/septic tank to prevent installing it in groundwater).
- The manufacturer's specifications.

2.4.2 Polyethylene Ecoflo compact biofilter

The Ecoflo compact biofilter must be installed in compliance with the following recommendations. It is important to notify all relevant parties (installer, landscaper, owner, snow removal company, etc.) of these recommendations to prevent any damage to the system and its components.

- NEVER obstruct access to the septic system's lids.
- NEVER cover or bury the lid of the Ecoflo compact biofilter (mulch, excess soil, fixed structure, etc.)
- The lid of the Ecoflo compact biofilter must be at least 2" (50 mm) above the surface of the final landscaping grade.
- Ensure an upslope interceptor drain or water diversion berm is installed to direct surface and/or ground water away from the biofilter unit and the soil absorption system.
- For models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1), a single 6" (150 mm) extension may be installed on the polyethylene biofilter unit and on each access to the pretreatment chamber (when present). The following extensions must be provided by Premier Tech: a STR-060 6" (150 mm) extension for the main access and a PSR-060 6" (150 mm) extension for the each access to the pretreatment chamber, or an STR-060P kit with both extensions for Pack models.
- NEVER connect a drain pipe, roof gutter, sump pump, or air conditioner drain to your septic installation.
- NEVER discharge content or water from a water softener, spa, or pool backwash into your septic system.
- NEVER discharge wastewater from a recreational vehicle (tent trailer, recreational vehicle, etc.) into your septic system.
- NEVER install extensions over the access of models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3).

By respecting these guidelines, you contribute to the proper operation of your wastewater treatment system. Failure to abide by these guidelines may void the warranty at Premier Tech's discretion.

3 DETERMINING THE EFFLUENT DISCHARGE METHOD

IMPORTANT! THIS STEP IS KEY TO ANY SEPTIC INSTALLATION.

The polyethylene Ecoflo compact biofilter offers a variety of disposal/dispersal methods of treated effluent depending on local regulations.

Premier Tech Water and Environment suggests the following as discharge methods for the Ecoflo compact biofilter (as applicable):

- Subsurface dispersal systems, such as absorption beds, pads, or trenches, at-grade beds or drip dispersal.
- Surface discharge when conditions and regulations permit it.

Effluent treated by the Ecoflo compact biofilter can be discharged either by gravity or pumped to the final dispersal, discharge method, or disinfection process of choice.

3.1 SUBSURFACE DISPERSAL

3.1.1 Site and soil assessment

Site assessment and soil conditions are critical to determine the appropriate type of treated effluent discharge. An accurate assessment of the soil's hydraulic conductivity is essential in planning any septic installation. This assessment should be performed in accordance with local regulations. Adequate sizing of the soil absorption system relies on the determination of the soil's infiltration capacity and will ensure adequate infiltration of the treated effluent into the soil at all times. The soil's infiltration capacity is often expressed as a percolation rate (average time in minutes that is required for water to drop one inch in the soil), which can be determined by a qualified individual through a field permeability test, a laboratory soil particle-size analysis, or any other method approved by local regulations. Soil permeability and analysis is most important within the horizon intended to be the point of application of the treated effluent.

Site and soil assessment must be conducted by a competent and duly authorized person, as per local regulations.

3.1.2 Required effective soil depth or vertical separation to limiting layer

The vertical separation between the infiltration area to the seasonal high groundwater table, impermeable layer, or bedrock must comply with applicable local requirements. Premier Tech Water and Environment recommends that the minimal **vertical distance** between the clean crushed stone (treated effluent distribution zone) and the limiting layer (groundwater, bedrock, or impervious layer) be at least 12" (300 mm).

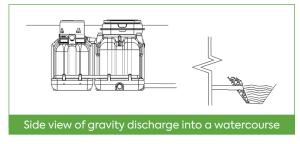
Always consider the following recommendations when designing and installing the subsurface dispersal area:

- When referring to groundwater, the Seasonal High Groundwater Table Level must be taken into account.
- The profile of the final grade must be such that runoff water flows away from the septic system.
- The shape of the soil absorption system may vary according to site conditions.
- Various means can be used to promote infiltration in low permeability soils.

Contact your local distributor or Premier Tech Water and Environment for suggestions.

3.2 SURFACE DISCHARGE

Depending on local regulations and jurisdictions, effluent treated by the Ecoflo compact biofilter could be surface discharged into a watercourse, stream, or dry swale. Requirements for such applications vary from one jurisdiction to another, but it will most likely require disinfection. When required, the Ecoflo compact biofilter can be combined with the Rewatec UV disinfection unit (DiUV) or other UV disinfection systems to reduce the fecal coliforms concentration below 200 UFC/100 ml.



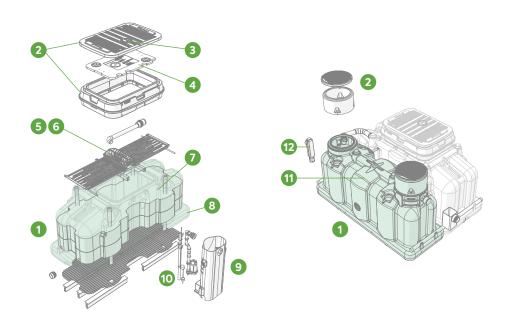
The Rewatec DiUV can either be integrated in the pump vault located inside the Ecoflo compact biofilter unit or installed separately as a standalone unit. The outlet pipe through which the effluent is discharged into the watercourse must be located at all times below the surface of the receiving watercourse. For more information on the Rewatec DiUV, such as technical data sheets and design or installation guides, go to *PT-WaterEnvironment.com/ProSpace*.

Ensure that the profile of the final grade is such that runoff water flows away from the septic system, Ecoflo compact biofilter unit, and other septic system components.

Please check with your local representative for availability and flow ratings related to surface discharge systems.

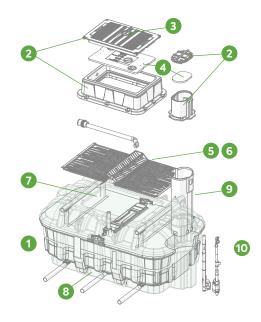
4 DESCRIPTION OF THE POLYETHYLENE ECOFLO COMPACT BIOFILTER COMPONENTS

4.1 EXPLODED VIEW OF MODELS EC7-500, EC7-600, AND EC7-750



	Component	Material	Description
			houses the system's components
1	Casing	Polyethylene	allows for the connection of the water and air supply lines
			• collects the treated effluent
2	Lid(s)/riser(s)	Polyethylene	protects inner components and provides access into the system
3	Vent cap	Polyethylene	allows for air circulation into the system
	Insulation beaut	Expansed	directs airflow towards the far ends of the unit
4	Insulation board	polystyrene	• seals the interior of the system (using cable ties)
5	Central support	ABS	supports the tipping bucket and one end of the distribution plates
9	Central support	ABS	allows air exchange between the surface and base of the filtering medium
6	Tipping bucket and	ABS	uniformly distributes wastewater on both sides of the filtering medium
•	distribution plates	AB5	• uses hydraulic events to ensure self-cleaning of the distribution plates
		Coconut husk fragments	supports the microbial flora that digests the matter in percolating wastewater
7	Filtering medium		filters the solid wastes contained in effluent
			maintains humidity levels to maintain biomass in absence of hydraulic events
8	Treated effluent		ensures proper filtering medium drainage
0	collection area	_	ensures air circulation beneath the filtering medium
9	Dump yoult	Dolyothylono	houses pumping equipment (or dosing devices for gravity systems)
9	Pump vault	Polyethylene	allows air exchange between the surface and base of the filtering medium
10	Pumping equipment	_	discharges effluent to the dispersal area
1	Baffle wall	_	• only for the Pack model
12	Effluent filter	_	NSF 46 rated effluent filter





	Component	Material	Description	
			houses the system's components	
1	Casing	Polyethylene	• allows for the connection of water and air supply lines	
			collects the treated effluent	
2	Lid(s)/riser(s)	Polyethylene	protects inner components and provides access into the system	
3	Vent caps	Polyethylene	allow for air circulation into the system	
	Insulation board	Expansed	directs the air flow towards the far ends of the unit	
4	insulation board	polystyrene	• seals the interior of the system (using cable ties)	
5	Central support	ABS	• supports the tipping bucket and one end of the distribution plates	
	Central support		allows air exchange between the surface and base of the filtering medium	
6	Tipping bucket and	ABS	• uniformly distributes wastewater on both sides of the filtering medium	
•	distribution plates		• uses hydraulic events to ensure self-cleaning of the distribution plates	
		0	• supports the microbial flora that digests the matter in percolating wastewater	
7	Filtering medium	Coconut husk fragments	• filters the solid wastes contained in effluent	
		agee	maintains humidity levels to maintain biomass in absence of hydraulic events	
8	Treated effluent	_	ensures proper filtering medium drainage	
0	collection area		ensures air circulation beneath the filtering medium	
9	Pump vault	Polyethylene	houses pumping equipment (or dosing devices for gravity systems)	
	ruiiip vault	Folyethylene	• allows air exchange between the surface and base of the filtering medium	
10	Pumping equipment	_	discharges effluent to the dispersal area	

5 INSTALLATION SEQUENCE

IMPORTANT: THE INSTALLER IS RESPONSIBLE FOR TAKING THE NECESSARY SAFETY MEASURES AT ALL STEPS OF THE INSTALLATION. THIS INCLUDES THE USE OF HARDHATS, GLOVES, BOOTS, SAFETY GLASSES, MASKS, ETC.

During a typical installation, the components are installed in the following sequence:

- 1- primary/septic tank
- 2- Ecoflo compact biofilter
- 3- water inlet and discharge pipe connections

5.1 EXCAVATION, BASE, AND INSTALLATION OF THE ECOFLO COMPACT BIOFILTER

Excavate a sufficiently large area to free up approximately 12" (300 mm) around the Ecoflo compact biofilter. The excavated area for a EC7-1050 or EC7-1350 polyethylene unit (Ecoflo compact biofilter 5.7 or 7.3) will need 36" excavated on the long side to account for the anti-buoyancy system. Depending on soil conditions, it may be necessary to add a 6" (150 mm) layer of \emptyset 0 – %" (0-20 mm) clean crushed stone that is free of organic matter or fillers. The layer of clean stone must be wrapped in engineering fabric (geotextile). Place the unit down on the surface of the soil and ensure that the installation elevation is adequate. There is **no extension available for polyethylene Ecoflo compact biofilter models EC7-1050 and EC7-1350** (Ecoflo compact biofilter 5.7 and 7.3). However, it is possible to add a 6" (150 mm) riser to models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1). Ensure that the unit is level and rests fully on the levelled and compacted base.

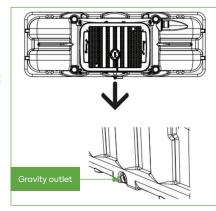
5.1.1 Systems with gravity discharge

NOTE: refer to the next section for information on modifying a pumped unit into a gravity unit.

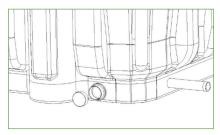
For models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1)

For Ecoflo compact biofilter models EC7-500, EC7-600, and EC7-750 with gravity discharge, remove the protective cap, remove the gravity outlet's punch-out prior to connecting the discharge pipe if it was not already removed, and use a watertight and flexible outlet adapter to connect the effluent discharge pipe. Make sure that the maximum seasonal high ground water level is never higher than the base of the unit.

Connect the Ecoflo compact biofilter's discharge pipe while making sure to maintain a constant downslope over the entire length of the pipe towards the dispersal area or final discharge. Note that the soil under the pipes must be adequately compacted.



For models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3)



In the case of Ecoflo compact biofilter models EC7-1050 and EC7-1350 with gravity discharge, remove the protective red cap, remove the gravity outlet's punch-out prior to connecting the discharge pipe if it was not already removed, and use a watertight and flexible outlet adapter to connect the effluent discharge pipe. Make sure that the maximum seasonal high ground water level is never higher than the base of the unit.

Connect the Ecoflo compact biofilter's discharge pipe while making sure to maintain a constant downslope over the entire length of the pipe towards the dispersal area or final discharge. Note that the soil under the pipes must be adequately compacted.

5.1.2 Modifying a pumped unit into a gravity unit

For all models

To modify an Ecoflo compact biofilter with an integrated pump into a gravity discharge biofilter, remove the protective red cap, remove the punch-out baffle in the outlet fitting, and use a watertight and flexible outlet adaptor to connect the effluent discharge pipe. Ensure that the maximum water table level is never higher than the base of the unit. Remove the pump and float tree from the pump vault.

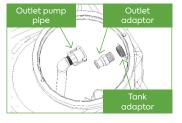
5.1.3 Systems with pumped discharge

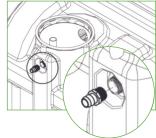
For models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1)

Unscrew the cap and screw on the appropriate outlet adaptor from the component box.

For models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3)

Install the screwed adaptors provided in the component box (placed in the main access at the time of delivery of the unit) for the pumped discharge outlet. The component box contains the 1" (25 mm) and 1-1/2" (38 mm) outlet adaptors as selected by the installer.





5.2 ANCHORING

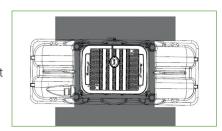
5.2.1 Anchoring kit for models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1)

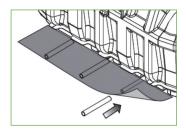
When you use the 6" main access riser instead of the 12" riser for installing biofilter models 2.8, 3.4, or 4.1 in sites with shallow depth, the unit must be anchored with geotextile before the final backfill to maximize its stability, as illustrated below. The geotextile must be a Mirafi S800 or an equivalent.

Spread out the geotextile as illustrated in the following figures and make sure it overextends by 20" (500 mm) on each side. Next, use 6 cable ties to secure the geotextile at each of the pulstrations. Add backfill material over the geotextile to anchor it in place.

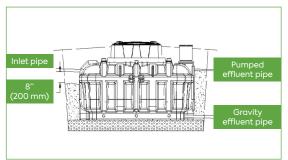
5.2.2 Anchoring for models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3) — Installation of the extension pipes and membranes

To ensure that the unit stays secure, install the six included extension pipes onto the ends of the unit's pipes. Place a section of the included geotextile fabric over the three extension pipes on each side of the unit. Adequately spread out and level the backfill material beneath and above the geotextile fabric.





5.3 INITIAL BACKFILL OF THE UNIT



Backfill around the unit up to 8" (200 mm) below the invert of the inlet pipe. Begin with the two longest sides and end with the extremities. Note that the backfill material must be laid down rather than pushed. Do not compact the backfill material using a power shovel. When installing the Pack model of the Ecoflo compact biofilter, fill the primary reactor with water to the invert of the outlet pipe prior to backfill.

The backfill material must be sandy and free of rocks or stones.

ATTENTION: Make sure that no backfill material enters the biofilter unit during the backfilling operation.

5.4 ASSEMBLY OF COMPONENTS ON THE SITE OF INSTALLATION

5.4.1 EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1)

Primary reactor/septic tank for Pack models

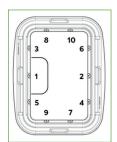
To assemble the riser on the primary reactor:

- Clean the rim of the primary reactor's access (where four holes have been punched to allow for the installation of the lag screws).
- · Install the watertight gasket on the rim.
- Place the extension on the access by aligning the holes on the base of the extension with the holes on the primary reactor.
- Insert the plastic washers in the four lag screws provided with the extension and screw the lag screws into the holes to secure the extension in place.



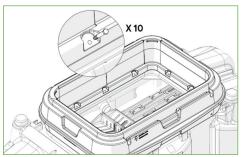
Ecoflo compact biofilter

Remove the access lid by turning the two ¼ turn locks. Remove the insulation board.



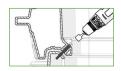
Using the 3/8" screws provided and a 9/16" socket driver (not provided), loosely fasten the riser through the hole above the pump vault (1 on the accompanying diagram). Center the riser on the Ecoflo compact biofilter by running your hand along the riser's outer rim and repositioning it if necessary. Follow this process for the 12" and 6" main access risers.

Using the provided drill bit, pre-drill a hole on the opposite side and loosely fasten the riser to the Ecoflo compact biofilter (2 on the accompanying diagram). Drill a new hole only when the previous screw is positioned. Do not drill all holes at once. Alternating sides and following the order shown, loosely fasten all 10 bolts. Evenly secure and compress the gasket by progressively tightening each bolt at least twice.

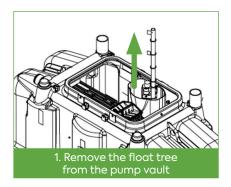


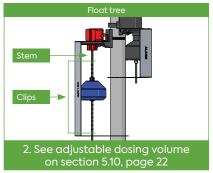
At this stage, the D-shaped gasket is about 30% compressed. The best practice is to alternate screws and sides instead of going from one screw to the next.

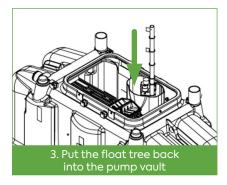
Completely tighten each screw by going over each of them one last time. By securing the riser in multiple tightening sequences, you evenly compress the gasket and ensure maximum sealing.



Note for pumped models: If the installation includes a pressurized dispersal area, higher dosing volumes may need to be attained. Be sure to check elevation changes and distances to the dispersal area to determine if dose adjustments are needed.

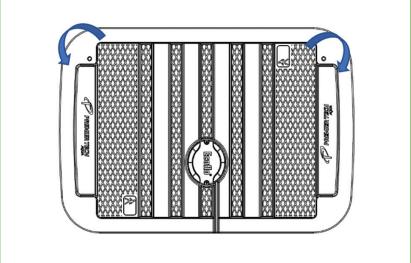






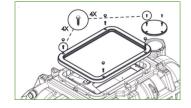
• Put the insulation board and the lid back in place. Use the quarter turns to secure the lid: first, insert the two metal tabs and tip the lid while making sure that the metal tabs properly insert into the slot provided to this effect. Next, lock the fasteners toward the outside.

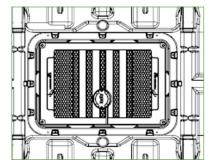


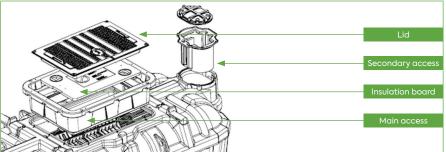


5.4.2 EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3)

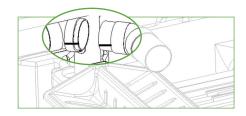
- Unscrew and remove the packaging material from both accesses.
- Remove the main and secondary accesses by lifting them up. The main access assembly includes the lid and the insulation board. To remove the lid, unscrew the four lag screws in the corners.
- Remove the box and internal components located on the distribution plates.





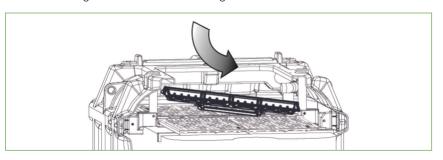


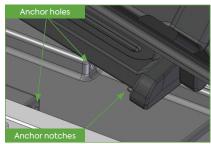
Glue the elbow assembly onto the water inlet pipe. Line up the alignment
marks to properly position the elbow assembly. Once in place, the inlet
pipe must be centered with the tipping bucket. The elbow assembly can
be found in the component box, placed in the main access at the time
of delivery of the biofilter unit.



ATTENTION: Do not invert the direction of the elbow. This may decenter the water inlet pipe.

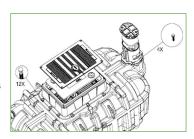
• Set the tipping bucket on the central support by inserting the two anchor pins into the central support's anchor holes and fold back the opposite end to maintain the tipping bucket in place. Verify the installation of the tipping bucket by tipping it from left to right. It must not block along its course.





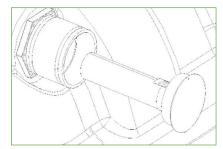
· Verify that:

- the plates are firmly in place
- the top of the filtering medium is level
- the float tree and the pump are firmly in place (for models equipped with a pump)
- the tipping bucket operates correctly on either side and has a full range of motion
- Screw both accesses in place using the lag screws provided and place the insulation boards and lids on both accesses. Close the main access lid using the four lag screws and close the secondary access lid using the two quarter turns. The secondary access lid and insulation board are in the component box (placed in the main access at the time of delivery of the unit).



5.5 CONNECTION OF THE WATER INLET PIPE

- Remove the protective cap before making the connection. Set aside the documents rolled up under the cap as they are
 to be provided to the owner. These documents contain the owner's manual and maintenance agreement to be signed by the
 homeowner and submitted to Premier Tech Water and Environment.
- Connect the pipe arriving from the primary reactor/septic tank to the water inlet of
 the Ecoflo compact biofilter while making sure to maintain a constant downslope
 along the entire length of the pipe to the inlet of the Ecoflo compact biofilter. The
 soil under the pipe must be adequately backfilled with proper material to prevent
 any settling under this connection. The Ecoflo compact biofilter is equipped with
 a standard flexible inlet adaptor. A standard pipe clamp is used to make the
 connection.

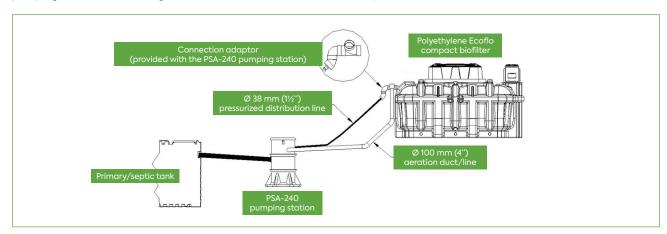


6.5.1 Details concerning the installation of pipes when an influent pumping/lifting station is needed to feed water to the Ecoflo compact biofilter

If the installation includes a pumping station upstream of the Ecoflo compact biofilter, the following instructions must be taken into consideration:

- When the pumping station is used, it is important to verify that the volume of water reaching the Ecoflo compact biofilter is of the order of 16 US gal (60 L) per hydraulic event (approximately 15 tipping bucket cycles for models EC7-1050 and EC7-1350 or 8 US gal (30 L) per hydraulic event (approximately 15 tipping bucket cycles for models models EC7-500, EC7-600, and EC7-750).
- The pumping station must be watertight from the outside (infiltration) and the inside (exfiltration).
- The water inlet pipe (Ø 1-1/2" [38 mm] flexible pipe) is connected to a connection adaptor (provided with Premier Tech Water and Environment's PSA-240 pumping station). This pipe shall also be connected to the inlet of the Ecoflo compact biofilter (nominal diameter of 4" [100 mm]). Note that the connection adaptor must be installed to break up the jet of water coming from the pumping station.
- A ventilation pipe must be installed between the pumping station and the Ecoflo compact biofilter to ensure adequate ventilation. This ventilation pipe is connected to the adaptor equipped with a true Y bend.
- The residence must be equipped with a functional air vent that meets the applicable standards.
- Depending on site conditions, a standalone vent may be required if it is not possible to connect the unit to the home air vent.
- The pumping station must be accessible at all times.

To facilitate the understanding of these instructions, refer to the diagram below and to Premier Tech Water and Environment's pumping station installation guide on *PT-WaterEnvironment.com/ProSpace*.



5.6 CONNECTION OF THE WATER OUTLET PIPE (PUMPED DISCHARGE)

Connect the pipe between the primary/septic tank and the Ecoflo compact biofilter to the biofilter unit's water inlet while making sure to maintain a constant downslope along the entire length of the pipe to the inlet of the Ecoflo compact biofilter. Note that the soil under the pipe must be adequately compacted. The Ecoflo compact biofilter is equipped with a standard flexible inlet adaptor. Use a standard pipe clamp to make the connection.

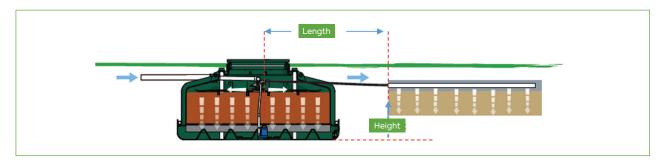
Additionally, the effluent of models equipped with a built-in pump must be directed toward the inlet of the final discharge dispersal area with a \varnothing 1" (25 mm) or \varnothing 1-1/2" (38 mm) flexible pipe that is capable of supporting a pressure of at least 700 kPa (100 PSI) and that is compatible with underground applications. A \varnothing 1" (25 mm) or \varnothing 1-1/2" (38 mm) notched connector, provided in the component box, is used to connect the pipe to the biofilter unit's outlet. The other end of the pipe is connected from the distribution pipes to the final discharge dispersal area. Specific measures must be taken against freezing if the discharge spills into a watercourse.



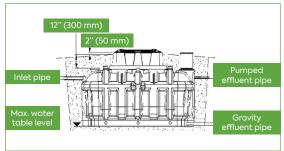
What you need to know:

• The **maximum length of the pressurized pipe** starting from the pump with a pipe measuring 1" (25 mm) or 1-1/2" (38 mm) in diameter depends on the pressure head (for instance, the difference in gradient between the base of the pump and the end of the pressurized pipe). The following table indicates the different pressurized pipe lengths allowed. Models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3) without DV must use a 1" pipe.

Height of the pressure head	25' (7.5 m)	20' (6 m)	15' (4.5 m)	10' (3 m)	5' (1.5 m)
Maximum Ø 1" (25 mm) pipe length	25' (7.5 m)	60' (18 m)	70' (21 m)	80' (24 m)	90' (27 m)
Maximum Ø 1-1/2" (38 mm) pipe length	100' (30 m)	_	200' (60 m)	_	_



5.7 FINAL BACKFILL OF THE ECOFLO COMPACT BIOFILTER (STANDALONE OR PACK)



Before completing the final backfill, do not forget to pass the two electrical wires from the house through the tank wall by the watertight connector (installation of those may be required for some models. Refer to the following section for more details.)

For the Pack model of the Ecoflo compact biofilter, start by carefully backfilling the area under the pipe which connects the septic tank and the Ecoflo compact biofilter unit by hand. Ensure there are no air gaps between the pipe and the backfill material. Premier Tech Water and Environment recommends wetting backfill sand to improve compaction. Do not compact soil above the PVC pipe after the final backfill.

Complete the backfill. Note that the backfill material must be laid down rather than pushed onto the unit. For that reason, do not use a bulldozer at this stage. **The backfill material must be sandy and free of rocks or stones.** Plan for the layer of vegetation and make sure that the system's lids are 2" (50 mm) above the surface once the landscaping has been completed. This height is noted on the side of the risers for models EC7-500, EC7-600, and EC7-750 (Ecoflo compact biofilter 2.8, 3.4, and 4.1).

Make sure that the profile of the final grade is such that runoff water flows away from the septic system, the Ecoflo compact biofilter unit, and any other septic system components.



5.8 PUMP PERFORMANCE CURVE

The figure below illustrates the performance curve of the pump built into the polyethylene Ecoflo compact biofilter. Note that this curve was produced with clean water and that the pump's performance may not be as high with wastewater. Follow the instructions below to make the necessary adjustments to increase the dosing volume. If you have questions on how to interpret this curve, please contact Premier Tech at 1 800 632-6356.

Pump characteristics:

- Champion 0.5 HP CPE5
- 8.5 A
- single phase, 60 Hz, 115 V

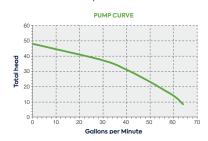
If you are using a pump other than the one provided, first ensure it will be compatible with the provided float tree as noted on the float tree's tag. If the pump's running amperage exceeds that of the float tree (13A), a separate pump control panel should be used.

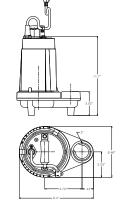
Champion 0.5 HP pump | 8.5 A | 1 phase, 60 Hz, 115 V

Electrical specifications for floats

Float switches must be used with pumps that provide integral thermal overload protection.

		Single phase		
		Maximum pump running current	Maximum pump starting current	
	120 VAC 50/60 Hz	13 A	60 A	
	230 VAC 50/60 Hz	12 A	60 A	





5.9 VERIFICATION AND ELECTRICAL CONNECTIONS OF THE PUMP (MODELS EQUIPPED WITH A BUILT-IN PUMP)

Step 1 - Verification of the pump

Make sure not to send debris (earth, clean stone, cable ties, electrical connectors, tape, etc.) into the unit while making the electrical connections. All debris must be removed. Carry out a visual inspection of the pump vault's interior components (float tree, floats, pump) to make sure that everything is in the right place. If using a pump other than the one provided with the Ecoflo compact biofilter, please ensure that its running amperage is compatible with the float tree's electrical specifics above. Ensure that the aftermarket pump fits in the pump vault prior to installation.

Step 2 - Electrical connections

A professional electrician must make the electrical connections. To make the system's electrical connections (from the residence to the system), two double-stranded electrical wires are needed. Premier Tech recommends using a pipe/conduit to protect the buried wires. The professional electrician will choose the appropriate wire size. One of these wires will provide the power supply, whereas the other one will send current from the alarm float to the alarm box (Item A) or the control panel (when required).

Some states or local areas require the use of an internet-based telemetry (Wi-Fi) alarm or an auto dialer equipped to a phone line. These types of alarms are not supplied with the Ecoflo compact biofilter. Please verify with the local authority prior to installation if they are required.

The use of watertight electrical connectors (**Item C**) are required to pass through the interior of the secondary or main access, depending on the model. The wires must enter beneath the channel built into the access. Use a reference point to this effect (refer to the secondary access diagram when applicable).



Make the appropriate electrical connections using the parts provided (electrical junction box [Item B], watertight wire screw connectors, and electrical connectors [Item C]). First, the float and pump wires' plugs must be removed by cutting them at 2" (50 mm) from their ends. The junction box is located on the insulation board of the secondary or main access, depending on the model.

For models EC7-1050 and EC7-1350 (Ecoflo compact biofilter 5.7 and 7.3) only, drill two holes measuring 20 mm (13/16") in one of the sides of the pump vault to later pass the two connectors through that side. Regardless of the model, pass the electrical wiring entering the system through these two holes.

Identify and insert the wires in the junction box as per the electrical diagram on the following page. Make the electrical connections using the provided watertight wire screw connectors to prevent water from affecting the electrical circuit. Follow the diagram's color code.

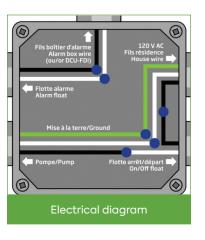
The ON/OFF float's white wire is connected to the pump's black wire ("hot" wire). Premier Tech strongly recommends wrapping the white wire with black electrical tape.

Close the electrical junction box. Pass the electrical wires arriving from the pumping unit through the groove of the insulation board. Place the insulation board within the access with the electrical box on top of it, or as prescribed by a local authority, and close the secondary access cover, if applicable.

Unless otherwise prescribed by state regulation or local jurisdiction, use two standalone breakers: one for the pump's power supply and the other for the alarm box. Do not connect anything else to these breakers (for example, household appliances). They are to serve exclusively for the pump and alarm box.

Please follow all applicable local regulations as it applies to electrical connections, components, and the location of any junction boxes.

Electrical connectors Electrical connectors Insulation board Pumped outlet Ecoflo compact biofilter models EC7-1050 and EC7-1350

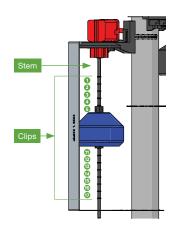


5.10 DOSE ADJUSTMENT

The factory setting will give the minimum dose. To customize the setting to accommodate local regulations or on-site requirements, please refer to the following table.

Adjustable dosing volume

•					
	Desir				
2.8	3.4	4.1	5.7	7.3	Adjustment
EC7-500	EC7-600	EC7-750	EC7-1050	EC7-1350	
25 US gal	30 US gal	35 US gal	30 US gal	40 US gal	None (factory setting)
80 US gal	95 US gal	100 US gal	85 US gal	115 US gal	Place a clip at the 5 th and 15 th spaces from the top of the stem.
105 US gal	120 US gal	130 US gal	110 US gal	155 US gal	Place a clip at the 3 rd and 15 th spaces from the top of the stem.
130 US gal	150 US gal	165 US gal	140 US gal	195 US gal	Place a clip at the 2 nd and 16 th spaces from the top of the stem.
160 US gal	180 US gal	200 US gal	175 US gal	235 US gal	Place a clip at the 1st and 17th spaces from the top of the stem.
			000 110 and	005 LIC and	Place a clip at the 17th space from the top of the stem.
			230 US gal 295 US gal		DO NOT PLACE ANY OTHER CLIPS.



5.11 IDENTIFICATION AND WARRANTY SEALS

Check the Ecoflo compact biofilter model installed and the type of discharge on the provided sticker.

Install the insulation board and seal it in place using the two Premier Tech fasteners. Once in place, these fasteners secure the Ecoflo compact biofilter's collar to the handle of the insulation board. Finally, use the lag screws to close the main access lid. Note that no specific actions are needed from the owner to begin using the system.





DON'T FORGET THE INSPECTION PERMIT, WHERE APPLICABLE.

6 SHIPPING AND HANDLING

6.1 SHIPPING FROM THE DISTRIBUTOR TO THE INSTALLATION SITE

- Use a vehicle with enough space to load and ship the Ecoflo compact biofilter.
- Use appropriate straps to adequately fasten the Ecoflo compact biofilter.
- The carrier is responsible for complying with traffic regulations and for any damage occurring during shipping and handling.

6.2 HANDLING

6.2.1 Suggested instructions for the Ecoflo compact biofilter

- It is always recommended to use the lift rings built into the upper casing of the Ecoflo compact biofilter.
- The lift rings must always be used in combination with lift straps or shackles of appropriate size and capacity.
- Also, a unit may only be lifted from underneath using a forklift if the forks are long enough to ensure even and stable load
 distribution. This applies only to polyethylene Ecoflo compact biofilter models EC7-500, EC7-600, and EC7-750, including
 equivalent Pack models (see photo below).
- Lift straps are provided with all Pack models. They must be used whenever the system is handled from above. Always
 use the blue strap to handle the system.







All handling methods

- Always use the lifting points (lift rings, galvanized pipes, etc.) to lift the system. Make sure that the load is spread out
 evenly between the lifting points.
- · Always keep the system level during handling operations to avoid shifting its internal components.
- · Safely move the unit by making sure that all people are kept at a safe distance from the system and any on-site equipment.
- The system must always be handled smoothly and evenly.
- Never handle more than one system at a time.

- Avoid using handling methods that may cause any damage.
- Use the two lift rings (or lift straps provided with the Pack model) built into the upper casing of the Ecoflo compact biofilter to unload the unit. Otherwise, use a forklift with forks of sufficient length to pass all the way underneath the Ecoflo compact biofilter.
- The handler is responsible for any damage that occurs during handling operations.

6.3 LOAD CONFIGURATION

- The configuration depends on the type of vehicle used to ship the Ecoflo compact biofilter to the site.
- The vehicle must have a minimum surface area of 14' x 8' (4.2 m x 2.4 m) to accommodate the Ecoflo compact biofilter.

IMPORTANT REMARKS

- NEVER open the lids or enter the septic tank, pre-treatment chamber, or Ecoflo compact biofilter once fully installed.
- Always keep your septic system lids accessible. NEVER cover them with mulch, dirt, or any permanent structure.
- Once the landscaping work has been completed, the lids of your septic system must be 2" (50 mm) higher than the surface of the landscaped terrain.
- Ensure the profile of the final grade around the Ecoflo compact biofilter is such that water flows away from the septic system and all of its components.
- NEVER install extensions on the accesses of the polyethylene Ecoflo compact biofilter (models 5.7 and 7.3).
- NEVER connect a drainpipe, roof gutter, sump pump, or air conditioner drain to the septic system.
- NEVER discharge content or water from a water softener, spa, or pool backwash into your septic system.
- NEVER discharge wastewater from a recreational vehicle into your septic system.
- NEVER use automatic toilet bowl cleaners.
- NEVER pile material that creates an excessive load (for instance, compacted snow) on top of your septic system.
- Never drive a vehicle or place objects weighing more than 500 lb (225 kg) within a radius of 16' 5" (4 m) from the lids (remember to notify the landscapers of this instruction).
- If there is a delay between the initial installation and the final landscaping work, install reference marks and protective barriers that identify the Ecoflo compact biofilter to prevent any motor vehicle traffic on the unit and to take note of the final level of the system.
- The residence must be equipped with a functional air vent that meets the applicable standards. Premier Tech Water and Environment strongly recommends using a pipe measuring 4" (100 mm) in diameter.
- Hand the plastic bag containing the owner's manual and maintenance contract to the owner. The pouch is located under the water inlet cap.
- The homeowner must complete and sign Premier Tech's maintenance agreement. The homeowner must keep the white copy, give the yellow copy to their municipality, and send the pink copy to Premier Tech Water and Environment.

Respecting these guidelines contributes to the wastewater treatment system's proper proper operation. Failure to abide by these guidelines may, at Premier Tech Water and Environment's discretion, render the system's warranty invalid.

Problems, questions, or comments?

Please contact Premier Tech Water and Environment by calling 1-800-632-6356.



PT Water and Environment

+1 800 632-6356 info.ptwe.na@premiertech.com PT-WaterEnvironment.com



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