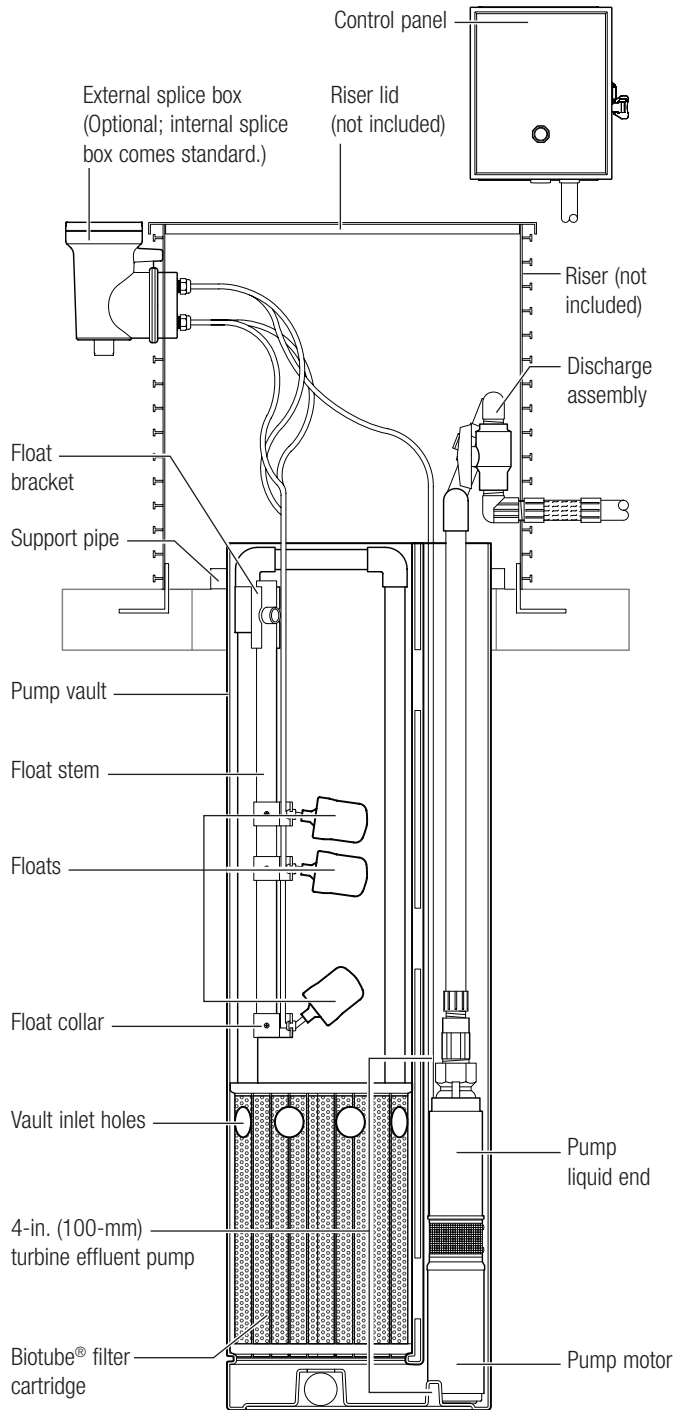


# Biotube® ProPak Pump Package™

## 60-Hz Series Pump Packages



*Biotube® ProPak™ pump package components.*

## General

Orenco's Biotube® ProPak™ is a complete, integrated pump package for filtering and pumping effluent from septic tanks. And its patented pump vault technology eliminates the need for separate dosing tanks.

This document provides detailed information on the ProPak pump vault and filter, 4-in. (100-mm) 60-Hz turbine effluent pump, and control panel. For more information on other ProPak components, see the following Orenco technical documents:

- *Float Switch Assemblies* (NSU-MF-MF-1)
- *Discharge Assemblies* (NTD-HV-HV-1)
- *Splice Boxes* (NTD-SB-SB-1)
- *External Splice Box* (NTD-SB-SB-1)

## Applications

The Biotube ProPak is designed to filter and pump effluent to either gravity or pressurized discharge points. It is intended for use in a septic tank (one- or two-compartment) and can also be used in a pump tank.

The Biotube ProPak is designed to allow the effluent filter to be removed for cleaning without the need to remove the pump vault or pump, simplifying servicing.

Complete packages are available for on-demand or timed dosing systems with flow rates of 20, 30, and 50-gpm (1.3, 1.9, and 3.2 L/sec), as well as with 50 Hz and 60 Hz power supplies.

## Standard Models

BPP20DD, BPP20DD-SX, BPP30TDA, BPP30TDD-SX, BBPP50TDA, BPP50TDD-SX

## Product Code Diagram



- Standard options:  
 Blank = 57-in. (1448-mm) vault height, internal splice box, standard discharge assembly  
 68 = 68-in. (1727-mm) vault height  
 SX = external splice box  
 CW = cold weather discharge assembly  
 DB = drainback discharge assembly  
 Q = cam lock  
 MFV = non-mercury float

- Control panel application:  
 DD = demand-dosing  
 TDA = timed-dosing, analog timer  
 TDD = timed dosing, digital timer, elapsed time meter & counters

- Pump flow rate, nominal:  
 20 = 20 gpm (1.3 L/sec)  
 30 = 30 gpm (1.9 L/sec)  
 50 = 50 gpm (3.2 L/sec)

Biotube® ProPak™ pump vault

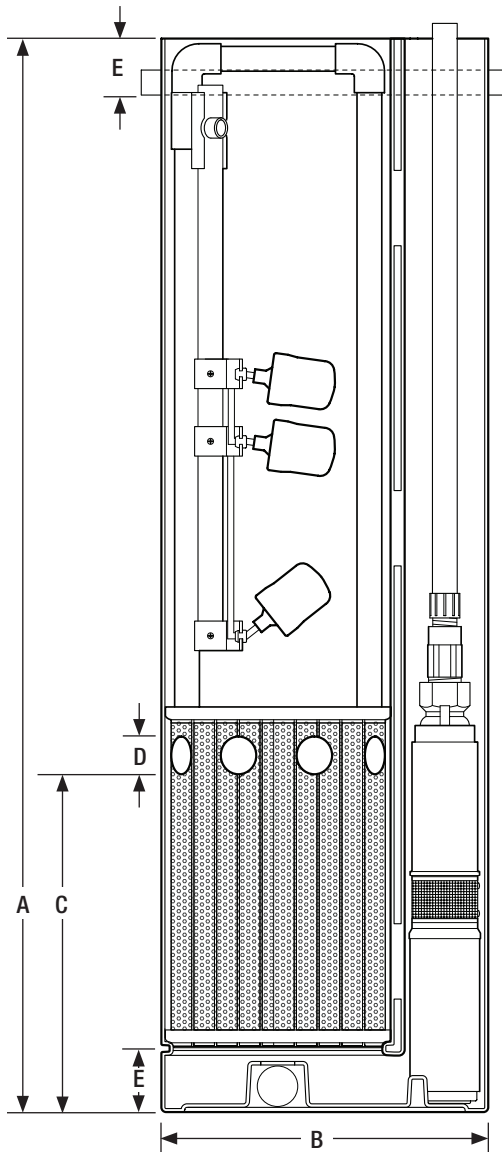
## ProPak™ Pump Vault

### Materials of Construction

Vault body	Polyethylene
Support pipes	PVC

### Dimensions, in. (mm)

A - Overall vault height	57 (1448) or 68 (1727)
B - Vault diameter	17.3 (439)
C - Inlet hole height	19 (475)
D - Inlet hole diameter (eight holes total)	2 (50)
E - Vault top to support pipe bracket base	3 (76)
F - Vault bottom to filter cartridge base	4 (102)



ProPak™ pump vault (shown with Biotube filter and effluent pump)

## Biotube® Filter Cartridge

### Materials of Construction

Filter tubes	Polyethylene
Cartridge end plates	Polyurethane
Handle assembly	PVC

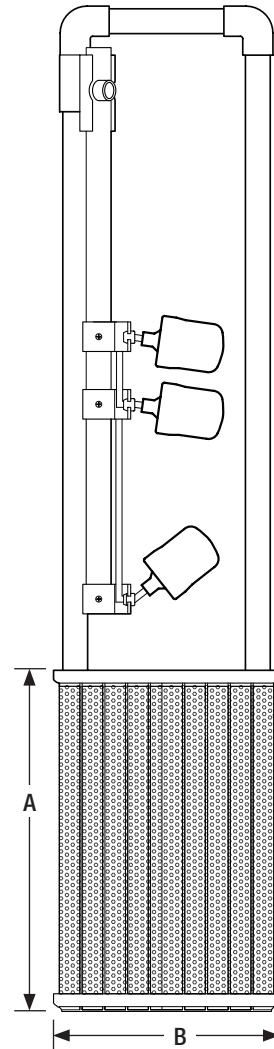
### Dimensions, in. (mm)

A - Cartridge height	18 (457)
B - Cartridge width	12 (305)

### Performance

Biotube® mesh opening	0.125 in. (3 mm)*
Total filter flow area	4.4 ft <sup>2</sup> (0.4 m <sup>2</sup> )
Total filter surface area	14.5 ft <sup>2</sup> (1.35 m <sup>2</sup> )
Maximum flow rate	140 gpm (8.8 L/sec)

\*0.062-in. (1.6-mm) filter mesh available



Biotube® filter cartridge (shown with float switch assembly)

## 4-in. (100-mm) Turbine Effluent Pumps

Orenco's 4-in. (100 mm) Turbine Effluent Pumps are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics; all are field-serviceable and repairable with common tools. All 60-Hz PF Series models are CSA certified to the U.S. and Canadian safety standards for effluent pumps, and meet UL requirements.

Power cords for Orenco's 4-in. (100-mm) turbine effluent pumps are Type SOOW 600-V motor cable (suitable for Class 1, Division 1 and 2 applications).

### Materials of Construction

Discharge:	Stainless steel or glass-filled polypropylene
Discharge bearing:	Engineered thermoplastic (PEEK)
Diffusers:	Glass-filled PPO
Impellers:	Acetal (20-, 30-gpm), Noryl (50-gpm)
Intake screens:	Polypropylene
Suction connection:	Stainless steel
Drive shaft:	300 series stainless steel
Coupling:	Sintered 300 series stainless steel
Shell:	300 series stainless steel
Lubricant:	Deionized water and propylene glycol

### Specifications

Nom. flow, gpm (L/sec)	Length in. (mm)	Weight lb (kg)	Discharge in., nominal <sup>1</sup>	Impellers
20 (1.3)	22.5 (572)	26 (11)	1.25	4
30 (1.9)	21.3 (541)	25 (11)	1.25	3
50 (3.2)	20.3 (516)	27 (12)	2.00	2

### Performance

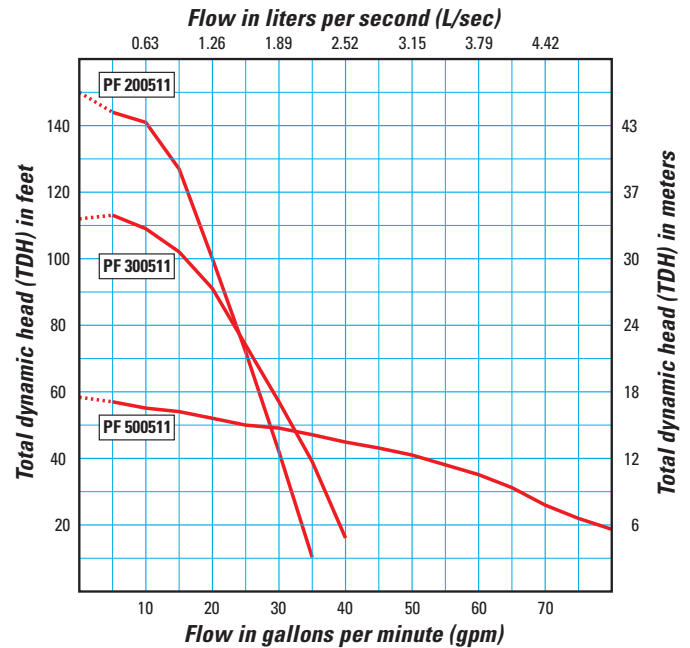
Nom. flow, gpm (L/sec)	hp (kW)	Design flow amps	Rated cycles/day	Min liquid level, in. (mm) <sup>2</sup>
20 (1.3)	0.5 (0.37)	12.3	300	18 (457)
30 (1.9)	0.5 (0.37)	11.8	300	20 (508)
50 (3.2)	0.5 (0.37)	12.1	300	24 (610)

<sup>1</sup> Discharge is female NPT threaded, U.S. nominal size, to accommodate Orenco® discharge hose and valve assemblies. Consult your Orenco Distributor about fittings to connect discharge assemblies to metric-sized piping.

<sup>2</sup> Minimum liquid level is for single pumps when installed in an Orenco Biotube® ProPak™ Pump Vault.

## Pump Curves

Pump curves, such as those shown here, can help you determine the best pump for your system. Pump curves show the relationship between flow (gpm or L/sec) and pressure (TDH), providing a graphical representation of a pump's performance range. Pumps perform best at their *nominal flow rate*, measured in gpm or L/sec.



## Control Panel (Demand Dose)

Orenco's ProPak™ demand dose control panels are specifically engineered for the ProPak pump package and are ideal for applications such as demand dosing from a septic tank into a conventional gravity drainfield.

### Materials of Construction

Enclosure	UV-resistant fiberglass, UL Type 4X
Hinges	Stainless steel

### Dimensions, in. (mm)

A - Height	11.5 (290)
B - Width	9.5 (240)
C - Depth	5.4 (135)

### Specifications

Panel ratings	120 V, 3/4 hp (0.56 kW), 14 A, single phase, 60 Hz
1. Motor-start contactor	16 FLA, 1 hp (0.75 kW), 60 Hz; 2.5 million cycles at FLA (10 million at 50% of FLA)
2. Circuit	120 V, 10 A, OFF/ON switch, Single pole breakers
3. Toggle switch	Single-pole, double-throw HOA switch, 20 A
4. Audio alarm	95 dB at 24 in. (600 mm), warble-tone sound, UL Type 4X
5. Audio alarm	120 V, automatic reset, DIN rail mount silence relay
6. Visual alarm	7/8-in. (22-mm) diameter red lens, "Push-to-silence," 120 V LED, UL Type 4X

## Control Panel (Timed Dose)

Orenco's ProPak timed dose control panels are specifically engineered for the ProPak pump package and are ideal for applications such as timed dosing from a septic tank into a pressurized drainfield or mound. Analog or digital timers are available.

### Materials of Construction

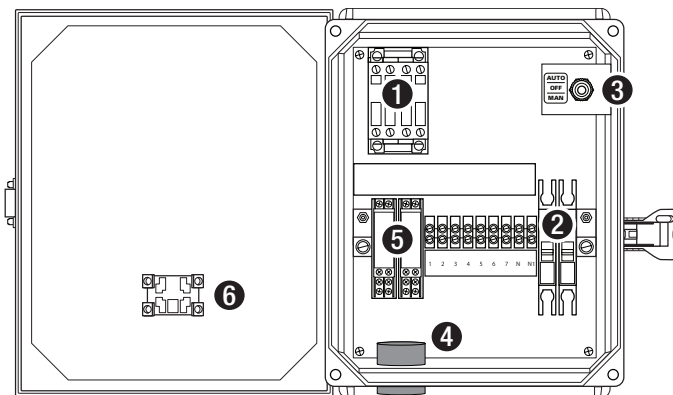
Enclosure	UV-resistant fiberglass, UL Type 4X
Hinges	Stainless steel

### Dimensions, in. (mm)

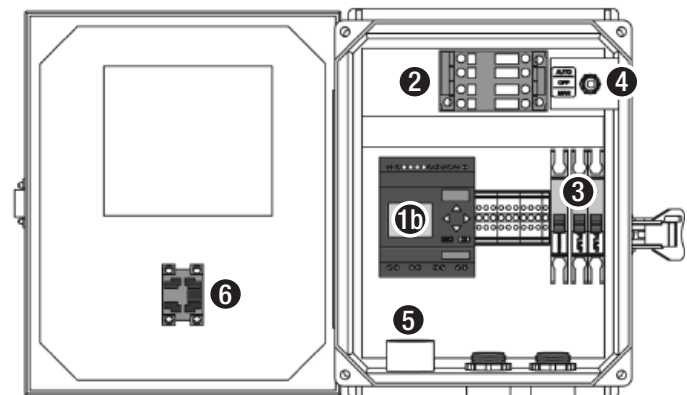
A - Height	11.5 (290)
B - Width	9.5 (240)
C - Depth	5.4 (135)

### Specifications

Panel ratings	120 V, 3/4 hp (0.56 kW), 14 A, single phase, 60 Hz
Dual-mode	Programmable for timed- or demand-dosing (digital timed-dosing panels only)
1a. Analog timer (not shown)	120 V, repeat cycle from 0.05 seconds to 30 hours. Separate variable controls for OFF and ON time periods
1b. Digital timer (shown below)	120-V programmable logic unit with built-in LCD screen and programming keys. Provides control functions and timing for panel operation
2. Motor-start contactor	16 FLA, 1 hp (0.75 kW), 60 Hz; 2.5 million cycles at FLA (10 million at 50% of FLA)
3. Circuit breakers	120 V, 10 A, OFF/ON switch. Single pole 120 V
4. Toggle Switch	Single-pole, double-throw HOA switch, 20 A
5. Audio alarm	95 dB at 24 in. (600 mm), warble-tone sound, UL Type 4X
6. Visual alarm	7/8-in. (22-mm) diameter red lens, "Push-to-silence", 120 V LED, UL Type 4X



Control panel, demand-dose



Control panel, timed-dose (digital timer model shown)