

Orenco^a | Wastewater Pumping Products Catalog

To Our Customers

Thank you for the opportunity to introduce you to the products we design and manufacture for wastewater pumping applications.

Whether you need a complete pump package or just a splice box and waterproof wire nuts, Orenco's wastewater pumping products offer many advantages. They're carefully engineered, durable, reliable, and competitively priced. Of course, we're also proud of our pre-sales and post-sales technical support, which many people say is the best in the industry.

The purpose of this catalog is to show you the range of Orenco's product offerings for wastewater pumping and control. Your local distributor and Orenco's sales staff are ready to assist you with product selection to help you place your order.

In addition to these pumping products and packages, Orenco sells general onsite products for wastewater applications, fiber-glass tanks, advanced wastewater treatment systems, and an extensive line of controls and monitoring products, as well as effluent sewer components and supplies. Please call us at 800-348-9843 (toll free) or +1-541-459-4449 (international) or visit www. orenco.com for assistance.

We appreciate your business and look forward to serving you.

Using This Catalog

This catalog is an excellent technical resource for Orenco's pumping products and packages. It is organized by "product families." And the families are organized (roughly) by the "flow path" of the system's wastewater flows, from pump vaults and screens to discharge assemblies and control panels.

Each section of the catalog covers a specific group of products. With products that have several standard options, you'll find a sample of our more popular models listed at the end of product descriptions. For a number of key products, you'll also find "product code diagrams" at the back of the catalog.

Orenco has thousands of products and product variants. For information on the full range of our standard options, as well as pricing, contact your Distributor.

Additional Catalogs

Orenco has two additional wastewater catalogs:

- General Onsite Products
- Controls & Monitoring Products

If you would like to order a hard copy version of any Orenco catalog, go to the Request Literature page of Orenco's website to place your order: http://www.orenco.com/corporate/request_lit.cfm

Online Catalogs

Downloadable versions of all Orenco's catalogs are available on Orenco's website: http://www.orenco.com/product_catalogs.

About Orenco

Orenco was founded in 1981 to respond to widespread failures in onsite wastewater systems. Orenco designs and manufactures onsite and decentralized wastewater products for individual properties and small communities.

Our wastewater solutions include tanks, general onsite products (risers, lids filters, pumping products), secondary treatment systems (textile filters, sand filters), collection systems (effluent-only sewers), controls and monitoring products, and accessory items. Our products and systems allow treated effluent to be returned harmlessly to the environment via drainfield, subsurface irrigation, or surface discharge.

We maintain an environmental lab and invest in a continuing research program. Our research and technologies appear in numerous publications, including Metcalf and Eddy's Wastewater Engineering: Treatment, Disposal, Reuse and Crites and Tchobanoglous's Small and Decentralized Wastewater Treatment Systems. Our engineers are regularly asked to give workshops, and our products and systems have been installed in more than 70 countries around the world.

With about 250 employees and 300 points of distribution in North and South America, Australia, New Zealand, Europe, Africa, and Southwest Asia, Orenco has become the onsite wastewater industry leader. Research, product development, manufacturing, and sales support are headquartered at our 26-acre (10.5 ha) facility in Sutherlin, Oregon, USA.

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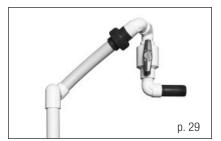
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Biotube[®] Pump Packages

Biotube® Pump Packages manufactured by Orenco® are complete, integrated pump packages for pumping effluent from single or double compartment septic tanks, dosing tanks, or pump basins. Orenco's patented Biotube vault technology filters up to two-thirds of solids so that only liquid from the "clear zone" between the tank or basin's scum and sludge layers is pumped. This reduces biological loading and clogging of downstream components, which saves money in O&M and helps extend the lives of drainfields and other downstream components.

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Biotube® Pump Packages

EasyPak™ Pump Packages (BEP)

Biotube® EasyPakTM Pump Packages are designed to filter and pump effluent from pump tanks to gravity or pressurized dispersal systems. They are the first complete pump packages intended specifically for filtering and pumping effluent from pump tanks.

- 10-, 30-, and 50-gpm (0.6, 1.3, 1.9, and 3.2 L/sec) versions available
- 60-Hz or 50-Hz operation
- · PVC, ABS, and fiberglass vault construction
- Polypropylene and PVC filter construction
- 1/8-inch (3-mm) filter mesh
- 14 ft² (1.3 m²) total filter surface area
- 75 gpm (4.7 L/sec) maximum flow rate
- Corrosion-resistant, stainless steel 4-inch (100-mm) turbine effluent pump
- Float switch assembly and float switches included
- Internal or external splice box available
- Demand-dose, analog timed-dose, or digital timed-dose control panel available
- Standard, drainback, or cold weather discharge assemblies available
- 5-year warranty

Some jurisdictions restrict the use of products containing mercury. Check local or state regulations for potential restrictions in your area.

- BEP10DD 10-gpm (0.6 L/sec) pump, demand-dose controls
- BEP30DD 30-gpm (1.3 L/sec) pump, demand-dose controls
- BEP30TDD 30-gpm (1.3 L/sec) pump, digital timed-dose controls



Biotube[®] EasyPak™ Pump Package



Biotube[®] EasyPak™ Components

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Biotube® Pump Packages

ProPak™ Pump Packages (BPP)

Orenco® Biotube® ProPak™ Pump Packages are complete, integrated pump packages for filtering and pumping effluent from septic tanks or pump tanks. They are designed to filter and pump effluent to either gravity or pressurized discharge points. And their patented pump vault technology eliminates the need for separate dosing tanks.

- 10-, 30-, and 50-gpm (0.6, 1.9, and 3.2 L/sec) versions available 60-Hz or 50-Hz operation
- Two models of corrosion-resistant, stainless steel 4-inch (100-mm) turbine effluent pumps available
- Polyethylene and PVC pump vault construction
- Polyethylene and PVC filter construction
- 1/8-inch (3-mm) or 1/16-inch (1.5-mm) filter mesh available
- 14.5 ft² (1.35 m²) total filter surface area
- 140 gpm (8.8 L/sec) maximum flow rate
- Float switch assembly and float switches included
- Internal or external splice box available
- Demand-dose, analog timed-dose, or digital timed-dose control panel available
- 5-year warranty

Some jurisdictions restrict the use of products containing mercury. Check local or state regulations for potential restrictions in your area.

- BPP30DD 30-gpm (1.9 L/sec) pump, demand-dose controls
- BPP30TDD 30-gpm (1.9 L/sec) pump, digital timed-dose controls



Biotube[®] ProPak™ Pump Package



Biotube[®] ProPak™ Components

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Biotube[®] Pump Vaults and Flow Inducers

Biotube® Pump Vaults manufactured by Orenco® are used to filter effluent that is being pumped from septic tanks or separate dosing tanks in on-site wastewater systems and effluent sewers. Biotube Pump Vaults remove up to two thirds of suspended solids from wastewater effluent, on average. Orenco's patented Biotube vault technology filters out solids so that only liquid from the "clear zone" between the tank or basin's scum and sludge layers is pumped. This reduces biological loading and clogging of downstream components, which saves money in O&M and helps extend the lives of drainfields and other downstream components.

Biotube® Pump Vaults and Flow Inducers

Universal Pump Vaults (PVU)

Universal Biotube® Pump Vaults can house one or two Orenco high-head effluent pumps. They are used to filter up to two-thirds of the suspended solids from wastewater effluent flowing from septic tanks or separate dosing tanks in onsite wastewater systems and effluent sewers. Effluent enters through inlet holes around the perimeter of the vault and flows through the Biotube effluent filter cartridge to the external flow inducers. The filter cartridge can be removed without pulling the pump or the vault.

Vaults are suspended in a tank by two Schedule 80 support pipes. "Earless" vaults that rest on the bottom of a tank are also available. For flows of more than 40 gpm (2.5 L/sec), contact your Distributor or Orenco.

- Durable, one-piece molded polyethylene vault
- Schedule 80 PVC support pipes
- Ball valve for easy draining and vault removal
- · Removable effluent filter cartridge
- · Capable of accepting one or two pumps
- 57-inch, 68-inch, 72-inch, 84-inch, or 95-inch standard vault height (1448-mm, 1727-mm, 1829-mm, 2134-mm, and 2413-mm)
- Custom heights from 42 inches to 135 inches available in 6-inch increments (1067 mm to 3429 mm in 152-mm increments)
- 17.3-inch (439-mm) vault width at widest point
- 13-inch, 19-inch, or 25-inch standard inlet hole height (330-mm, 483-mm, or 635-mm)
- 18-inch, 24-inch, or 36-inch standard cartridge height (457-mm, 610-mm, or 914-mm)
- 1/8-inch (3-mm) or 1/16-inch (1.5-mm) filter mesh available
- 24-inch (610-mm) standard support pipe length
- Longer support pipes available for 30-inch (750-mm) access risers

- PVU57-1819 universal pump vault, 57-inch (1448-mm) vault height, 18-inch (457-mm) cartridge height, 19-inch (483-mm) inlet hole height
- PVU68-2419 universal pump vault, 68-inch (1727-mm) vault height, 24-inch (610-mm) cartridge height, 19-inch (483-mm) inlet hole height
- PVU84-2419 universal pump vault, 84-inch (2134-mm) vault height, 24-inch (610-mm) cartridge height, 19-inch (483-mm) inlet hole height
- PVU95-3625 universal pump vault, 95-inch (2413-mm) vault height, 36-inch (914-mm) cartridge height, 25-inch (635-mm) inlet hole height



Universal Biotube® Pump Vault

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Biotube® Pump Vaults and Flow Inducers

PV Series Pump Vaults (PV)

PV Series Biotube® Pump Vaults have a smaller diameter designed to fit in tanks with narrow access openings. They incorporate a molded-in flow inducer that houses one Orenco high-head effluent pump. PV Series Pump Vaults are used to filter up to two-thirds of the suspended solids from wastewater effluent flowing from septic tanks or separate dosing tanks in effluent sewer (STEP) systems and onsite wastewater systems. Effluent enters through inlet holes around the perimeter of the vault and flows through the Biotube effluent filter cartridge to the external flow inducers. The filter cartridge can be removed without pulling the pump or the vault.

For flows of more than 40 gpm (2.5 L/sec), contact your Distributor or Orenco.

- Durable, one-piece molded polyethylene vault
- Schedule 80 PVC support pipes
- · Ball valve for easy draining and vault removal
- Removable effluent filter cartridge
- Capable of accepting one pump
- 48-inch or 55-inch vault height (1219-mm or 1397-mm)
- Narrow, 13½-inch (343-mm) diameter
- 17-inch or 23-inch inlet hole height (432-mm or 584-mm)
- 24-inch (610-mm) cartridge height
- Fits in 16-inch (406-mm) minimum diameter tank openings with 21-inch (533-mm) minimum riser diameter
- 24-inch (610-mm) standard support pipe length
- Shorter support pipes available for 21-inch (533-mm) risers

- PV48-2417 PV series pump vault, 48-inch (1219-mm) vault height, 24-inch (610-mm) cartridge height, 17-inch (432-mm) inlet hole height
- PV48-2423 PV series pump vault, 48-inch (1219-mm) vault height, 24-inch (610-mm) cartridge height, 23-inch (584-mm) inlet hole height
- PV55-1813 PV series pump vault, 55-inch (1397-mm) vault height, 18-inch (457-mm) cartridge height, 13-inch (330-mm) inlet hole height



PV Series Biotube® Pump Vault

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Biotube® Pump Vaults and Flow Inducers

Universal Flow Inducers (UFI)

Universal Flow Inducers manufactured by Orenco® are used to house Orenco high-head effluent pumps after treatment or filtration, in applications such as pump tanks, disinfection systems, effluent reuse systems, and cisterns. Because the universal flow inducer's mounting flange is installed on a sliding tee, its length can be adjusted to fit any size tank. Universal flow inducers come with a float bracket, so an Orenco float switch assembly can be easily attached.

- Accommodates flows up to 65 gpm (4.1 L/sec)
- Class 125 PVC inducer housing
- · ABS mounting flange
- PVC float bracket
- Fiberglass base
- 4-inch nominal diameter (100-mm DN)
- 72-inch (1829-mm) height
- Adjustable, cut-to-fit design adapts to any tank size
- · Includes float bracket

Product Code

• UFI-4



Orenco Flow Inducer

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Biotube® Pump Vaults and Flow Inducers

Flow Inducer Towers (FIT)

Flow Inducer Towers manufactured by Orenco® are used to house two to five Orenco high-head effluent pumps in recirculation tanks or final discharge tanks following filtration or secondary treatment in commercial and municipal wastewater systems. For tanks with curved bottoms, an Orenco vault basin is required to create a flat surface on which the flow inducer tower can rest. Flow inducer towers include a float bracket for attaching an Orenco float switch assembly (ordered separately).

- · Fiberglass structural plates and tower base
- PVC flow inducer tubes and float bracket
- Schedule 80 PVC support pipes.
- Models available to house two, three, four, or five 4-inch (100-mm) high-head effluent pumps
- · Recirculation or discharge tank models available
- Eight inlet holes per flow inducer tube
- · 2-inch (50-mm) inlet hole diameter
- 1914-inch (483-mm) inlet hole height for recirculation tank models
- 9-inch (229-mm) inlet hole height for discharge tank models

- FITR-D102 flow inducer tower, recirculation tank; duplex towers; 102-inch (2590-mm) tower height
- FITR-Q126 flow inducer tower, recirculation tank; quad towers; 126-inch (3200-mm) tower height
- FITD-D102 flow inducer tower, discharge tank; duplex towers; 102-inch (2590-mm) tower height
- FITD-Q126 flow inducer tower, discharge tank; quad towers; 126-inch (3200-mm) tower height
- VB1806-FRP vault basin for rounded tanks



Orenco Flow Inducer Tower

^{*} For the full range of available product options, contact your local Orenco Distributor or Orenco.

Wastewater Pumping Products Catalog | Orenco®

Pump Basins

Orenco® Pump Basins are used to house high-head pumps or low-head pumps in a variety of residential and commercial wastewater systems and other pumping applications. They are also used to house UV disinfection units in onsite wastewater systems.

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Pump Basins

Fiberglass Pump Basins (PBF)

Orenco® Fiberglass Pump Basins have an extremely high strength-to-weight ratio. They are designed to house high-head effluent pumps, low-head effluent pumps, sewage pumps, or grinder pumps in wastewater pumping applications, including onsite septic systems, effluent sewers, and grinder sewers. They are also used to house Orenco UV disinfection units. Fiberglass pump basins are constructed of filament-wound fiberglass with a fiberglass base attached with epoxy for durability and watertightness. Options include splice boxes, float stem holders, and cleanout/vent assemblies.

- · High strength-to-weight ratio
- Filament-wound
- Watertight
- Lightweight
- Durable
- Integral antiflotation base
- 24-inch, 30-inch and 36-inch nominal diameters available, standard (600-mm, 750-mm, and 900-mm DN)
- · Larger diameters available
- 48-inch, 60-inch, 72-inch and 84-inch basin heights, standard (1219-mm, 1524-mm, 1829-mm and 2134-mm)
- Custom heights to 15 feet (4.6 m) available
- · Fiberglass lid, standard

- PBF2474 fiberglass pump basin, 24-inch nominal diameter (600-mm DN), 72-inch (1524-mm) basin height
- PBF3072 fiberglass pump basin, 30-inch nominal diameter (750-mm DN), 72-inch (1524-mm) basin height
- PBF3672 fiberglass pump basin, 36-inch nominal diameter (900-mm DN), 72-inch (1524-mm) basin height



Orenco Fiberglass Pump Basin

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Pump Basins

PVC Pump Basins (PB)

Orenco® PVC Pump Basins are designed to house effluent pumps, sewage pumps, or grinder pumps in wastewater pumping applications and to house Orenco UV disinfection units. They are constructed of PVC pipe with a fiberglass base, attached with epoxy for durability and watertightness. Options include splice boxes, float stem holders, and cleanout/vent assemblies.

- PVC construction
- Watertight
- Durable
- Standard basin nominal diameters of 24-inch and 30-inches (600-mm and 750-mm DN); other diameters available
- Standard basin heights from 48 inches (1422 mm) in 3-inch (76-mm) increments
- Durable, watertight PVC and fiberglass construction
- 4-inch NPS (100-mm DN) inlet elbow and float switch assembly bracket included
- Fiberglass access lids ordered separately (see "Fiberglass Access Lids" in Orenco's General Onsite Products catalog)

Sample Product Code*

 PB3072-BLANK — PVC pump basin, 30-inch nominal diameter (750-mm DN), 72-inch (1829-mm) height, no holes, no float bracket



Orenco PVC Pump Basin

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Screened Pump Vaults and Effluent Screens

Orenco® Screened Pump Vaults and Effluent Screens are designed to screen effluent for low-head effluent and sewage pumps. They are also used with Orenco high-head effluent pumps in limited applications.

Screened Pump Vaults and Effluent Screens

Screened Pump Vaults (SV)

Screened Pump Vaults manufactured by Orenco® are designed to screen effluent for low-head effluent pumps in single-compartment and two-compartment septic tanks and dose tanks. They include a PVC vault, polyethylene effluent screen, and two support pipes. Screened Pump Vaults are not typically recommended for use with high-head effluent pumps. Contact Orenco for more information.

- For low-head effluent pumps
- For use in single-compartment tanks
- 15-inch (380-mm) vault diameter
- 48-96 inch vault height, available in 6-inch increments (1220-2434 mm in 150-mm increments)
- Eight inlet holes in vault (inlet height specified by customer)
- 1/8-inch (3-mm) screen mesh
- 50% nominal open area in screen mesh

- SV1548-16 15-inch (380-mm) diameter, 48-inch (1219-mm) vault height, 16-inch (406-mm) inlet hole height
- SV1560-18 15-inch (380-mm) diameter, 60-inch (1524-mm) vault height, 18-inch (457-mm) inlet hole height



Orenco Screened Pump Vault

^{*} For the full range of available product options, contact your local Orenco Distributor or Orenco.

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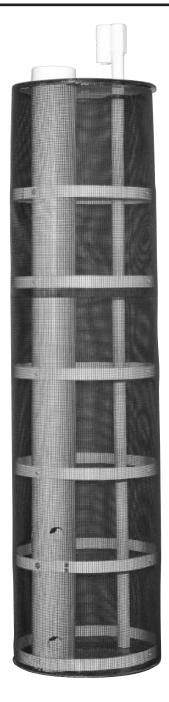
Screened Pump Vaults and Effluent Screens

Effluent Screens (ES)

Effluent Screens manufactured by Orenco® are typically used to house Orenco® low-head pumps in dosing tanks to minimize the amount of solids leaving the tank. In limited applications, they are used with high-head effluent pumps. Contact Orenco for more information.

- · For low-head effluent pumps
- For use in dose tanks
- 15-inch, 18-inch, 20-inch, and 24-inch vault diameter (380-mm, 450-mm, 500-mm, and 600-mm)
- 1/8-inch (3-mm) screen mesh
- 50% nominal open area

- ES1548 effluent screen, 5-inch (380-mm) diameter, 48-inch (1219-mm) screen height
- ES1560FI effluent screen, 5-inch (380-mm) diameter, 60-inch (1524-mm) screen height, with flow inducer



ES1560FI Effluent Screen

^{*} For the full range of available product options, contact your local Orenco Distributor or Orenco.

Wastewater Pumping Products Catalog | Orenco

High-Head Effluent Pumps

Orenco® high-head effluent pumps are designed for pumping screened effluent with low counts of Total Suspended Solids (TSS) in onsite wastewater systems. They are used to pump effluent from septic tanks or dosing tanks to AdvanTex® filters, other packed bed filters, aerobic units, mounds, effluent sewer lines, drip irrigation systems, lagoons, and gravity or pressurized drainfields.

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High-Head Effluent Pumps

PF Series 4-inch (100-mm) Submersible Effluent Pumps (PF)

PF Series 4-inch (100-mm) Submersible Effluent Pumps are designed to transport screened effluent with low counts of Total Suspended Solids (TSS) from septic tanks, dosing tanks, and pump vaults. They are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics. All PF series 4-inch (100-mm) pumps are field-serviceable and repairable with common tools.

- Lightweight
- Constructed of corrosion-resistant stainless steel and engineered plastic
- For use with a Biotube® Pump Vault or after secondary wastewater treatment
- 60-Hz and 50-Hz models available
- Minimum 24-hour run-dry capability with no deterioration in pump life or performance [excludes 5-hp (3.73 kW) models]
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- Super Stainless motor by Franklin Electric; rated for continuous use
- · Rated for frequent cycling
- Type SOOW 600-V motor cable; suitable for Class I, Division 1 and Division 2 applications
- Repairable liquid end (repair kits available)
- TRI-SEALTM floating impeller design on 10, 15, 20, and 30 gpm (0.6, 1.3, and 1.9 L/sec) models; floating stack design on 50 and 75 gpm (3.2 and 4.7 L/sec) models
- · CSA certified to US and Canadian safety standards
- 5-year warranty on pump or retrofit liquid end from date of manufacture against defects in materials or workmanship
- Manufactured exclusively for Orenco

- PF100511 PF series 4-inch (100-mm) submersible effluent pump;
 10 gpm (0.6 L/sec); ½-hp (0.37 kW); 60 Hz; 1-phase; 115 VAC; 12.7
 A; three impellers; 1¼-inch NPT discharge; rated 300 cycles per day
- PF150311 PF series 4-inch (100-mm) submersible effluent pump;
 15 gpm (1.0 L/sec); 1/3-hp (0.25 kW); 60 Hz; 1-phase; 115 VAC; 8.7
 A; three impellers; 1½-inch NPT discharge; rated 300 cycles per day
- PF300512 PF series 4-inch (100-mm) submersible effluent pump;
 30 gpm (1.9 L/sec); ½-hp (0.37 kW); 60 Hz; 1-phase; 230 VAC; 6.2
 A; three impellers; 1¼-inch NPT discharge; rated 300 cycles per day
- PF500532 PF series 4-inch (100-mm) submersible effluent pump;
 50 gpm (3.2 L/sec); ½-hp (0.37 kW);
 60 Hz;
 3-phase;
 230 VAC;
 3.0
 A; two impellers;
 2-inch NPT discharge;
 rated 300 cycles per day
- PF751012 PF series 4-inch (100-mm) submersible effluent pump;
 75 gpm (4.7 L/sec); 1½-hp (1.11 kW); 60 Hz; 1-phase; 230 VAC;
 12.1 A; four impellers; 2-inch NPT discharge; rated 100 cycles per day



PF Series 4-inch (100-mm) Effluent Pump



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

High-Head Effluent Pumps

Specifications for Selected PF Series High-Head Effluent Pumps

Pump Model	Design gpm (L/sec)	Horsepower (kW)	Phase	Nameplate Voltage	Actual Voltage	Design Flow Amps	Maximum Amps	Impellers	Discharge Size and Material¹	Length in. (mm)	Min Liquid Level, in. (mm)²	Weight, lb. (kg) ³	Rated Cycles per Day
PF100511	10 (0.6)	0.50 (0.37)	1	115	120	12.7	12.7	6	1 ¼ in. GFP	23.0 (660)	16 (406)	26 (12)	300
PF100512	10 (0.6)	0.50 (0.37)	1	230	240	6.3	6.3	6	1 ¼ in. GFP	23.0 (660)	16 (406)	26 (12)	300
PF100712 ^{4,5}	10 (0.6)	0.75 (0.56)	1	230	240	8.3	8.3	8	1 ¼ in. GFP	25.9 (658)	17 (432)	30 (14)	300
PF101012 ^{5,6}	10 (0.6)	1.00 (0.75)	1	230	240	9.6	9.6	9	1 ¼ in. GFP	27.9 (709)	18 (457)	33 (15)	100
PF200511	20 (1.5)	0.50 (0.37)	1	115	120	12.3	12.5	4	1 ¼ in. GFP	22.3 (566)	18 (457)	25 (11)	300
PF200512	20 (1.5)	0.50 (0.37)	1	230	240	6.4	6.5	4	1 ¼ in. GFP	22.5 (572)	18 (457)	26 (12)	300
PF201012 ^{4,5}	20 (1.5)	1.00 (0.75)	1	230	240	10.5	10.5	7	1 ¼ in. GFP	28.4 (721)	20 (508)	33 (15)	100
PF300511	30 (1.9)	0.50 (0.37)	1	115	120	11.8	11.8	3	1 ¼ in. GFP	21.3 (541)	20 (508)	28 (13)	300
PF300512	30 (1.9)	0.50 (0.37)	1	230	240	6.2	6.2	3	1 ¼ in. GFP	21.3 (541)	20 (508)	25 (11)	300
PF300712	30 (1.9)	0.75 (0.56)	1	230	240	8.5	8.5	5	1 ¼ in. GFP	24.8 (630)	21 (533)	29 (13)	300
PF30073200	30 (1.9)	0.75 (0.56)	3	200	208	4.9	4.9	5	1 ¼ in. GFP	24.6 (625)	21 (533)	30 (14)	300
PF301012 ⁴	30 (1.9)	1.00 (0.75)	1	230	240	10.4	10.4	6	1 ¼ in. GFP	27.0 (686)	22 (559)	32 (15)	100
PF301512 ^{4,5}	30 (1.9)	1.50 (1.11)	1	230	240	12.6	12.6	8	1 ¼ in. GFP	32.8 (833)	24 (610)	40 (18)	100
PF30153200 4,5	30 (1.9)	1.50 (1.11)	3	200	208	6.9	6.9	8	1 ¼ in. GFP	29.8 (757)	22 (559)	34 (15)	300
PF301534 ^{4,5}	30 (1.9)	1.50 (1.11)	3	460	480	2.8	2.8	8	1 ¼ in. GFP	29.5 (685)	22 (559)	34 (15)	300
PF500511	50 (3.2)	0.50 (0.37)	1	115	120	12.1	12.1	2	2 in. SS	20.3 (516)	24 (610)	27 (12)	300
PF500512	50 (3.2)	0.50 (0.37)	1	230	240	6.2	6.2	2	2 in. SS	20.3 (516)	24 (610)	27 (12)	300
PF500532	50 (3.2)	0.50 (0.37)	3	230	240	3.0	3.0	2	2 in. SS	20.3 (516)	24 (610)	28 (13)	300
PF50053200	50 (3.2)	0.50 (0.37)	3	200	208	3.7	3.7	2	2 in. SS	20.3 (516)	24 (610)	28 (13)	300
PF500534	50 (3.2)	0.50 (0.37)	3	460	480	1.5	1.5	2	2 in. SS	20.3 (516)	24 (610)	28 (13)	300
PF500712	50 (3.2)	0.75 (0.56)	1	230	240	8.5	8.5	3	2 in. SS	23.7 (602)	25 (635)	31 (14)	300
PF500732	50 (3.2)	0.75 (0.56)	3	230	240	3.9	3.9	3	2 in. SS	23.7 (602)	25 (635)	32 (15)	300
PF500734	50 (3.2)	0.75 (0.56)	3	460	480	1.8	1.8	3	2 in. SS	34.8 (884)	25 (635)	31 (14)	300
PF501012	50 (3.2)	1.00 (0.75)	1	230	240	10.1	10.1	4	2 in. SS	27.0 (686)	26 (660)	35 (16)	100
PF501034	50 (3.2)	1.00 (0.75)	3	460	480	2.2	2.2	4	2 in. SS	26.4 (671)	26 (660)	39 (18)	300
PF501512⁴	50 (3.2)	1.50 (1.11)	1	230	240	12.5	12.6	5	2 in. SS	32.5 (826)	30 (762)	41 (19)	100
PF50153200 ⁴	50 (3.2)	1.50 (1.11)	3	200	208	7.0	7.0	5	2 in. SS	29.3 (744)	26 (660)	35 (16)	300
PF503012 ^{4,5,7,8}	50 (3.2)	3.00 (2.23)	1	230	240	17.7	17.7	8	2 in. SS	43.0 (1092)	37 (940)	55 (25)	100
PF503034 4, 5, 8	50 (3.2)	3.00 (2.23)	3	460	480	5.3	5.3	8	2 in. SS	40.0 (1016)	31 (787)	55 (25)	300
PF751012	75 (4.7)	1.00 (0.75)	1	230	240	9.9	10.0	3	2 in. SS	27.0 (686)	27 (686)	34 (15)	100
PF751512	75 (4.7)	1.50 (1.11)	1	230	240	12.1	12.3	4	2 in. SS	33.4 (848)	30 (762)	44 (20)	100

Discharge is female U.S. Nominal Pipe Thread (NPT) threaded, to accommodate Orenco® discharge hose and valve assemblies. Contact your Orenco Distributor or Orenco about fittings to connect hose and valve assemblies to metric-sized piping. GFP = glass filled polypropylene; SS = stainless steel. Both the 1½-in. GFP discharge and 2-in. NPT SS discharge are 2½-in. octagonal across the flats.

² Minimum liquid level applies to single pumps when installed in an Orenco Biotube® Pump Vault or Universal Flow Inducer. In other applications, the minimum liquid level is equal to the top of the pump. Contact your Orenco Distributor or Orenco for more information.

³ Weight includes carton and 10-ft (3-m) power cord.

⁴ High-pressure discharge hose and valve assembly required.

 $^{^{\}mbox{\tiny 5}}$ Do not use cam-lock option (Q) on discharge assembly.

⁶ Custom discharge assembly required for this pump. Contact your Orenco Distributor or Orenco for more information.

⁷ Capacitor pack (sold separately or installed in an Orenco Controls custom control panel) required for this pump. Contact your Orenco Distributor or Orenco for more information.

⁸ Torque locks supplied with 3-hp and 5-hp pumps (and available for all other PF series pumps)

Orenco^{*} | Wastewater Pumping Products Catalog

High-Head Effluent Pumps

PF Series High-Flow Submersible Effluent Pumps (PF)

PF Series High-Flow Submersible Effluent Pumps are designed to transport screened effluent with low counts of Total Suspended Solids (TSS) in high-flow AdvanTex® AX-Max and AX-Mobile Treatment Systems. They are also used in pump applications that require both high head and high flows. To provide high head and high flow, PF Series high-flow pumps combine a 6-inch (150-mm) liquid end and a 4-inch (100-mm) pump motor. PF high-flow pumps are lightweight and made of corrosion-resistant stainless steel and engineered plastics. They are field-serviceable with common tools. PF high-flow pumps are not rated for run-dry capability.

- Lightweight
- Constructed of corrosion-resistant stainless steel and engineered plastic
- Requires 8-inch (200-mm) flow inducer
- 60-Hz and 50-Hz models available
- Super Stainless motor by Franklin Electric; rated for continuous use
- · Motor rated for frequent cycling
- Type 14/4 S00W 600-V motor cable for 145-gpm (9.2 L/sec) pumps and 3-phase 120-gpm (7.6 L/sec) pumps; suitable for Class I, Division 1 and Division 2 applications (145-gpm pumps)
- Type 16/3 S00W 600-V motor cable for single-phase 120-gpm (7.2 L/sec) pumps; suitable for Class I, Division 1 and Division 2 applications
- 5-year warranty on pump or liquid end from date of manufacture against defects in materials or workmanship
- · CSA certified to US and Canadian safety standards
- · Manufactured exclusively for Orenco

- PF1452012 PF series high-flow submersible effluent pump; 145 gpm (9.2 L/sec); 2-hp (1.5 kW); 60-Hz; single phase; 230 VAC; 11.2 A; single impeller; 3-inch NPT, stainless steel discharge end; rated 100 cycles per day
- PF1452032 PF series high-flow submersible effluent pump; 145 gpm (9.2 L/sec); 2-hp (1.5 kW); 60-Hz; three-phase; 230 VAC; 6.7 A; single impeller; 3-inch NPT, stainless steel discharge end; rated 300 cycles per day
- PF1452034 PF series high-flow submersible effluent pump; 145 gpm (9.2 L/sec); 2-hp (1.5 kW); 60-Hz; three-phase; 460 VAC; 3.5 A; single impeller; 3-inch NPT, stainless steel discharge end; rated 300 cycles per day
- PF1201552 PF series high-flow submersible effluent pump; 120 gpm (7.2 L/sec); 1.5 hp (1.1 kW); 50-Hz; single phase; 220 VAC; 8.8 A; single impeller; 3-inch NPT, stainless steel discharge end; rated 100 cycles per day



PF Series High-Flow Effluent Pump



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

High-Head Effluent Pumps

PVA Series 4-inch (100-mm) Submersible Effluent Pump (PVA)

PVA Series 4-inch (100-mm) Submersible Effluent Pumps are used to transport screened effluent with low counts of Total Suspended Solids (TSS). They are designed to be used in a variety of Orenco pumping packages, typically in a Biotube® ProPak™ or Biotube ProSTEP™ pumping package. PVA pumps are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics. The liquid end is field-serviceable with common tools. PVA pumps are only available for sale in a limited number of Orenco pumping packages.

- Lightweight
- Constructed of corrosion-resistant stainless steel and engineered plastic
- Run-dry capability
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- Composite Franklin Electric motor
- Built-in thermal overload protection
- 16 AWG, 3-conductor Type SOOW 600-V motor cable (suitable for Class I, Division 1 and Division 2 applications)
- 18-month warranty from date of manufacture on liquid end against defects in materials or workmanship
- Manufactured exclusively for Orenco

Product Codes

- PVA100511 PVA series 4-inch (100-mm) submersible effluent pump; 10 gpm (0.6 L/sec); ½-hp (0.37 kW); 60 Hz; single phase; 115 VAC; 12.4 A; six impellers; 1¼-inch NPT, glass-filled polypropylene discharge end; rated 300 cycles per day
- PVA300511 PVA series 4-inch (100-mm) submersible effluent pump; 30 gpm (1.9 L/sec); ½-hp (0.37 kW); 60 Hz; single phase; 115 VAC; 11.9 A; three impellers; 1¼-inch NPT, glass-filled polypropylene discharge end; rated 300 cycles per day
- PVA500511 PVA series 4-inch (100-mm) submersible effluent pump; 50 gpm (3.2 L/sec); ½-hp (0.37 kW); 60 Hz; single phase; 115 VAC; 12.2 A; two impellers; 2-inch NPT, stainless steel discharge end; rated 300 cycles per day



PVA Series High-Head Effluent Pump



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Low-Head Effluent Pumps

Orenco® low-head effluent pumps are used primarily for pumping effluent to low-pressure (gravity) dispersal areas, transporting sewage from pump basins to primary tankage, or grinding and transporting sewage from a pump basin to primary tankage or a pressure sewer line. They are also used in applications where low-head pumps are specified by regulation or code.

Low-Head Effluent Pumps

PFEF Submersible Effluent Pumps (PFEF)

PFEF Effluent Pumps are used primarily for pumping effluent — including solids up to 3/4-inch (19-mm) in diameter — to low-pressure (gravity) dispersal areas. Their corrosion-resistant construction makes them highly durable in wastewater applications where low-head pumps are suitable. All PFEF units are CSA and UL listed. Manufactured by Franklin Electric.

- Handles solids up to 3/4-inch (19-mm) diameter
- · Cast-iron pump housing and cover
- · Corrosion-resistant epoxy coating
- · Corrosion-resistant mechanical seals
- Oil-filled motor housing for lubrication and heat dissipation
- Thermal overload protection
- · Rated for continuous duty
- · CSA and UL listed
- Three-year warranty from date of manufacture

- PFEF4011-B PFEF series submersible effluent pump; 0.4 hp (0.30 kW); 60 Hz; single phase; 115 VAC
- PFEF4012-B PFEF series submersible effluent pump; 0.4 hp (0.30 kW); 60 Hz; single phase; 230 VAC
- PFEF5011-B PFEF series submersible effluent pump; 0.5 hp (0.37 kW); 60 Hz; single phase; 115 VAC
- PFEF5012-B PFEF series submersible effluent pump; 0.5 hp (0.37 kW); 60 Hz; single phase; 230 VAC
- PFEF10012-B PFEF series submersible effluent pump; 1 hp (0.75 kW); 60 Hz; single phase; 230 VAC



PFEF4012 Low-Head Effluent Pump



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Low-Head Effluent Pumps

PFSW Submersible Sewage Pumps (PFSW)

PFSW Sewage Pumps are typically used to transport sewage — including solids up to 2 inches (50 mm) in diameter — from pump basins to primary tankage. Their corrosion-resistant construction makes them highly durable in wastewater applications where low-head pumps are suitable. Manufactured by Franklin Electric.

- Handles solids up to 2-inches (50-mm) diameter
- · Cast-iron pump housing and cover
- · Corrosion-resistant epoxy coating
- · Corrosion-resistant mechanical seals
- Oil-filled motor housing for lubrication and heat dissipation
- Thermal overload protection
- Rated for continuous duty
- CSA and UL listed (PFSW50XX and PFSW15012)
- CSA listed only (PFSW10012)
- Three-year warranty from date of manufacture

- PFSW5011 PFSW series submersible sewage pump; 0.5 hp (0.37 kW); 60 Hz; single phase; 115 VAC
- PFSW5012 PFSW series submersible sewage pump; 0.5 hp (0.37 kW); 60 Hz; single phase; 230 VAC
- PFSW10012-B PFSW series submersible sewage pump; 1 hp (0.75 kW); 60 Hz; single phase; 230 VAC
- PFSW15012 PFSW series submersible sewage pump; 1.5 hp (1.12 kW); 60 Hz; single phase; 230 VAC



PFSW Low-Head Sewage Pump



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Low-Head Effluent Pumps

PFSWG Sewage Grinder Pumps (PFSWG)

PFSWG Sewage Grinder Pumps are typically used to grind and transport sewage from a pump basin to primary tankage or to a pressure sewer line. They are also used in applications where grinder pumps are specified by regulation or code. The PFSWG's corrosion-resistant construction adds durability in wastewater applications that require grinder pumps. The PFSWG is CSA and UL listed. Manufactured by Franklin Electric.

- · Cast-iron pump housing and cover
- Corrosion-resistant epoxy coating
- Built-in protection for thermal overload and over-current conditions
- Short motor shaft for reduced deflection
- Tight cutting clearances
- 414,000 cuts per minute
- · CSA and UL listed
- Three-year warranty from date of manufacture

Product Code

 PFSWG — PFSWG series submersible sewage grinder pump; 2 hp (1.49 kW); 60 Hz; single phase; 230 VAC; 1¼-inch NPT discharge end



PFSWG Sewage Grinder Pump



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Discharge Assemblies and Accessories

Orenco® Discharge Assemblies are used to transport effluent from a pump to a location or component downstream in the treatment train. Models are available for high-head and low-head applications, with or without a drainback feature. Cold weather kits and external flex extensions are available for all Orenco Discharge Assemblies.

Discharge Assemblies and Accessories

Discharge Assemblies (HV)

Orenco® Discharge Assemblies are used to transport effluent from a pump to a location or component that is downstream in the treatment train. High-head and low head configurations are available, as well as a drainback feature that can be included with high-head or low head discharge assemblies.

- · Corrosion-resistant
- Solvent-welded or threaded and sealed connections
- Simple to install and maintain
- Optional cam-style quick-disconnect fittings
- Flexible hose to dampen pump vibrations and simplify installation and maintenance
- Drainback feature for shallowly buried tanks and transport lines in cold climates
- 1-inch, 1¼-inch, 1½-inch, and 2-inch nominal diameter piping available (25-mm, 32-mm, 40-mm, and 50-mm DN)
- High-pressure
- Cold-weather kits available

- HV100Q-DB discharge assembly; 1-inch nominal diameter (25-mm DN); quick-disconnect fitting; drainback
- HV125 discharge assembly; 1¼-inch nominal diameter (32-mm); field-cut to length
- HV150XQ discharge assembly; 1½-inch nominal diameter (40-mm DN); external flex hose; quick-disconnect fitting
- HV200ASQ discharge assembly; 2-inch nominal diameter (50-mm DN); anti-siphon; quick-disconnect fitting



Orenco Discharge Assembly

^{*} For the full range of available product options, contact your local Orenco Distributor or Orenco.

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Discharge Assemblies and Accessories

Flex Extensions (HVX)

Orenco® Flex Extensions are recommended for installations where tank settling may occur, to avoid line breakage during settling.

- PVC flex hose extension
- 1-inch, 1½-inch, 1½-inch, and 2-inch nominal diameters for discharge available (25-mm, 32-mm, 40-mm, and 50-mm DN)

Sample Product Codes*

- HVX100 flex extension; 1-inch discharge diameter, nominal (25-mm DN); 1-inch (25-mm) discharge connection
- HVX125-200 flex extension; 1¼-inch discharge diameter, nominal (32-mm DN); 2-inch (50-mm) discharge connection





Cold Weather Kits (HVCW)

Orenco® Cold Weather Kits for discharge assemblies are coupled with a high-head discharge assembly for use with deeply buried tank and transport lines in cold weather.

- Designed for use with Orenco high-head discharge assemblies
- 1-inch, 1¼-inch, 1½-inch, and 2-inch nominal diameter kits available (25-mm, 32-mm, 40-mm, and 50-mm DN)
- Models with 1/8-inch drain hole or no drain hole available

- HVCW100-KIT cold weather kit; 1-inch nominal diameter (25-mm DN); 1/8-inch drain hole
- HVCW125-KIT-NDH cold weather kit; 1¼-inch nominal diameter (32-mm); no drain hole

^{*} For the full range of available product options, contact your local Orenco Distributor or Orenco.



Orenco Cold Weather Kit

Distributing Valves

Orenco® Distributing Valve Assemblies are used to dose filtered effluent to multiple-zone pressure distribution systems including drainfields, textile filters, and sand filters.

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Distributing Valve Assemblies

Distributing Valve Assemblies (V4, V6)

Orenco® Distributing Valve Assemblies are used to dose filtered effluent to multiple-zone pressure distribution systems including drainfields, textile filters, and sand filters. They are automatically operated by mechanical means — with a combination of pressure and flow — to sequentially redirect the pump's flow to multiple zones or cells.

- · Automatic, mechanical operation
- · Multiple flow ranges available
- Allows use of smaller horsepower pumps on large drainfields and sand filters
- Schedule 40 PVC fittings, unions, ball valves, and pipe
- · ABS polymer and stainless steel distribution valves
- 2-4 outlet units and 5-6 outlet units available
- 1-1/4 inch or 1-1/2 inch NPS (32 or 40 mm DN) inlet and outlet sizes
- 170-foot or 345-foot (52-m or 105-m) maximum head pressures available
- · Custom-built enclosures available

Each Distributing Valve Assembly is built to the specific needs of a particular drainfield or system. For information on ordering a Distributing Valve Assembly for your project, call Orenco. Custom-built enclosures are available for Orenco Distributing Valve Assemblies. Call Orenco for details.



Model Series	Inlet Size in. (mm)	Outlet Size in. (mm)	Flow Range gpm (L/sec)	Recommended Enclosure
V4400	1.25 (32)	1.25 (32)	10-40 (0.63-2.52)	RR24XX
V4600	1.25 (32)	1.25 (32)	10-25 (0.63-1.58)	RR24XX
V6400	1.50 (40)	1.50 (40)	15-100 (0.95-6.31)	RR24XX
V6600	1.50 (40)	1.50 (40)	15-100 (0.95-6.31)	RR30XX

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.



Orenco Distributing Valve Assembly

Pump System Control Panels

Simplex and Duplex control panels by Orenco Controls® are electromechanical or digital panels used to provide control, alarm, and other functions for one or two motors in timed- and demand-dose wastewater systems. Orenco Controls' 60-Hz simplex and duplex control panels are UL-listed and UL-C listed. 50-Hz control panels are available. Custom motor controls for other applications are available through Orenco Controls' custom panel shop.

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Pump System Control Panels

S Series Simplex Control Panels

S Series simplex panels are electro-mechanical panels used to control single pumps and alarm functions in onsite septic systems and Effluent Sewers (aka STEP sewers or Septic Tank Effluent Pumping Systems). They are also used to provide pump control with alarm functions into gravity sewer systems. S Series panels include a motor contactor, which increases system life by reducing the load requirements on the float switches. Options such as analog timers and event counters are available.

Pump motors used with these panels require internal overload protection.

- 120-VAC controls circuit breaker
- 120- or 120/240-VAC pump circuit breaker
- · Motor-start contactor for pump circuit
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-in (22-mm) red visible alarm
- 95 dB audible alarm
- · Automatic alarm silence reset
- Type 4X (IP 66) rated enclosure

Popular S Series Models Include ...

- S1 (demand-dose simplex panel)
- S1PT (timed-dose simplex panel)
- S1R0 ETMCT (demand-dose simplex panel, elapsed time meter, event counter)





Pump System Control Panels

MVP Series Simplex Control Panels

MVP Series simplex panels are digital, programmable panels used to control single pumps and provide alarm functions in onsite septic systems and effluent pumping systems. They include easy-to-use, programmable logic units that incorporate multiple built-in timing and logic functions, including multiple timer intervals to adjust for changing flow conditions. MVP panels offer several functions as standard, including elapsed time meters, counters, digital indication of float switch status, different alarm/light signals for varying alarm conditions, and the ability to use one type of float switch for all functions.

- 120-VAC controls circuit breaker
- 120- or 120/240-VAC pump circuit breaker
- Motor-start contactor for pump circuit
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-in (22-mm) red visible alarm
- 95 dB audible alarm
- · Automatic alarm silence reset
- · Built-in elapsed time meter
- · Built-in event counter
- Type 4X (IP 66) rated enclosure

Popular MVP Simplex Models Include ...

- MVP-S1DM
- MVP-S2DM



MVP-S1DM

^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

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Pump System Control Panels

DAX Series Duplex Control Panels

DAX Series duplex panels are electro-mechanical panels used to control two alternating pumps and provide alarm functions in onsite septic systems, drainfields, Effluent Sewers (aka STEP sewers or Septic Tank Effluent Pumping Systems), and pressure sewers that require the use of two alternating pumps. A built-in alternating relay switches the "lead" and "lag" positions each pump cycle, and allows one pump to be manually selected and locked in for lead operation. DAX Series panels include motor contactors, which increase system life by reducing the load requirements on the float switches.

- 120-VAC controls circuit breaker
- 120- or 120/240-VAC pump circuit breakers
- Motor-start contactors for pump circuits
- · Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-in (22-mm) red visible alarm
- 95 dB audible alarm
- · Automatic alarm silence reset
- Type 4X (IP 66) rated enclosure

Popular DAX Series Models Include ...

- DAX1 (demand-dose panel)
- DAX1R0 (demand-dose panel, redundant off)
- DAX1PTR0 ETMCT (timed-dose panel, programmable timer, redundant off, elapsed time meter, event counter)



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Pump System Control Panels

MVP Series Duplex Control Panels

MVP Series duplex panels are digital, programmable panels used to control two alternating pumps and provide alarm functions in onsite septic systems, drainfields, Effluent Sewers (aka STEP sewers or Septic Tank Effluent Pumping Systems), and pressure sewers that require the use of two alternating pumps. Built-in alternating logic switches the "lead" and "lag" positions each pump cycle, and allows one pump to be manually selected and locked in for lead operation. MVP duplex panels offer several functions as standard, including elapsed time meters, counters, digital indication of float switch status, different alarm/light signals for varying alarm conditions, and the ability to use one type of float switch for all functions.

- 120-VAC controls circuit breaker
- 120- or 120/240-VAC pump circuit breakers
- Motor-start contactors for pump circuits
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-in (22-mm) red visible alarm
- 95 dB audible alarm
- · Automatic alarm silence reset
- Built-in elapsed time meter
- · Built-in event counter
- Type 4X (IP 66) rated enclosure

Popular MVP Duplex Models Include ...

- MVP-DAX1DM
- MVP-DAX2DM



^{*} For the full range of standard options, see the "Product Ordering Information" section in this catalog.

Miscellaneous Products

In addition to the wastewater pumping products in this section, Orenco offers a wide assortment of miscellaneous products in our catalog for General Onsite Wastewater Products.

Miscellaneous Products

Explosion-Proof Splice Boxes (SBX)

Orenco® Explosion-Proof Splice Boxes are designed to be used in localities where the explosion-proof feature is required by code. They are installed inside of access risers to house spliced wire connections between an electrical control panel and equipment, such as effluent pumps and float switches. All components used in Orenco's explosion-proof splice boxes are UL listed.

- Suitable for two-wire pumps only
- Conforms to NEC Class I Groups C&D; Class II Group G; Class III
- Corrosion-resistant enclosure
- Copper-free aluminum construction
- 1 cord port for incoming control panel wiring
- Up to 3 cord ports for pump wiring
- NEMA 7CD, 9G cord connectors
- Ground screw hub on enclosure
- Seal fitting is sealed with Chico® "A" sealing compound

Product Codes

- SBX-S Explosion-proof splice box, for simplex pumps
- SBX-D Explosion-proof splice box, for duplex pumps
- SBX-T Explosion-proof splice box, for triplex pumps



SBX-D Explosion-Proof Splice Box

Miscellaneous Products

Flow Meters (FM)

Orenco® Flow Meters are used to measure cumulative flow through a transport line. They are typically used in applications where permits require exact measurement of flows, such as to a drainfield.

- 5/8-inch, 3/4-inch, 1-inch, 1½-inch, and 2-inch (16-mm, 19-mm, 25-mm, 38-mm, 50-mm) models available
- Male threaded connection standard for 5/8-inch, ¾-inch, and 1-inch (16-mm, 19-mm, and 25-mm) models
- Unions and slip connections available on 5/8-inch, 3/4-inch, and 1-inch (16-mm, 19-mm, and 25-mm) models
- Female threaded connection for 1½-inch and 2-inch (38-mm, 50-mm) models
- · Telemetry-equipped flow meters available by special order

Sample Product Codes*

- FM100U 1-inch (25-mm) flow meter with PVC unions
- FM150 1½-inch (38-mm) flow meter with bronze flanges
- FM200 2-inch (50-mm) flow meter with bronze flanges



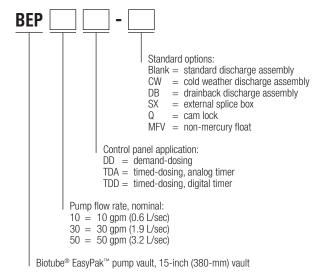
Flow Meter

Product Ordering Information

EasyPak® Series Pump Packages

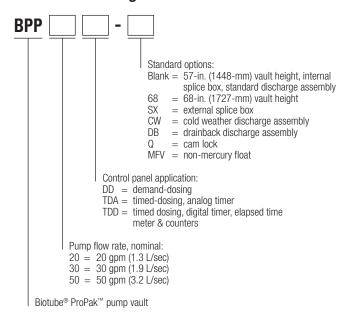
A product code diagram that describes standard options available for Orenco's EasyPak® Series Pump Packages is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

Product Code Diagram



ProPak® Series Pump Packages

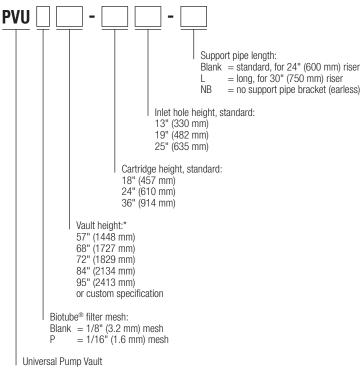
A product code diagram that describes standard options available for ProPak® Series Pump Packages is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



Universal Pump Vaults

A product code diagram that describes standard options available for Universal Pump Vaults is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

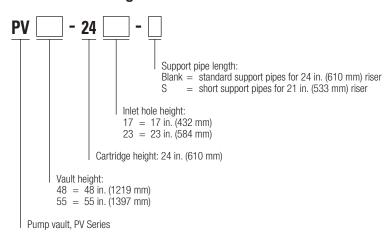
Product Code Diagram



^{*} Custom heights from 42" to 135" available

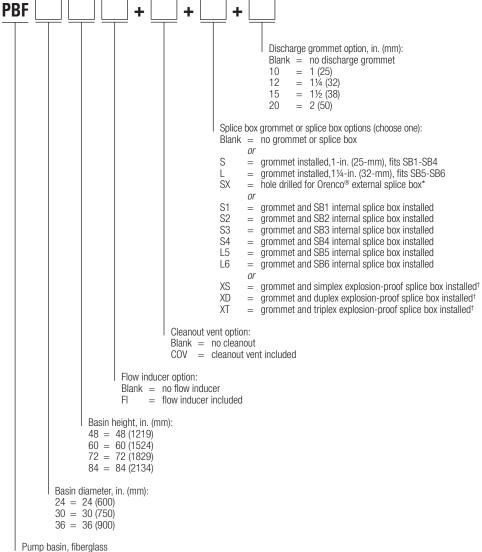
PV Series Pump Vaults

A product code diagram that describes standard options available for PV Series Pump Vaults is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



Fiberglass Pump Basins

A product code diagram that describes standard options available for Fiberglass Pump Basins is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

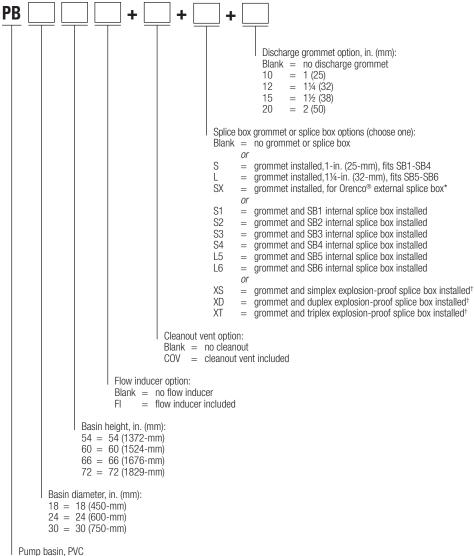


^{*} Requires minimum 18-in. (457-mm) basin height

[†] For Class I Division I environments

PVC Pump Basins

A product code diagram that describes standard options available for PVC Pump Basins is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

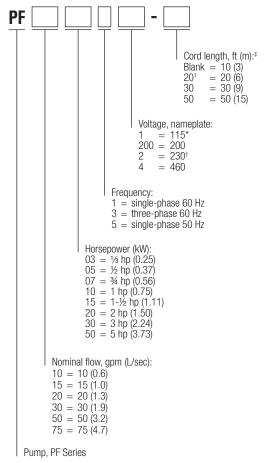


^{*} Requires minimum 18-in. (457-mm) riser height

[†] For Class I Division I environments

PF Series Submersible Effluent Pumps

A product code diagram that describes standard options available for PF Series submersible effluent pumps is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



^{*} ½-hp (0.37kW) only

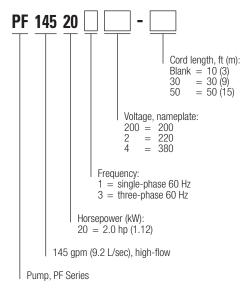
^{†220} volts for 50 Hz pumps

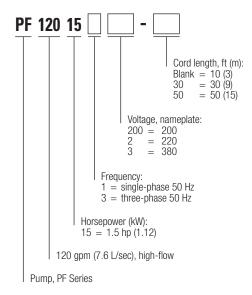
^{*}Note: 20-foot cords are available only for single-phase pumps through 1-1/2 hp

PF High-Flow Submersible Effluent Pumps

A product code diagram that describes standard options available for PF high-flow submersible effluent pumps is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

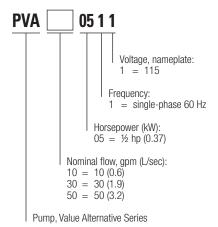
Product Code Diagrams





PVA Series Submersible Effluent Pumps

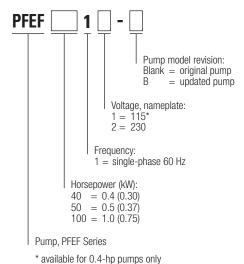
A product code diagram that describes standard options available for PF Series submersible effluent pumps is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



PFEF Submersible Effluent Pumps

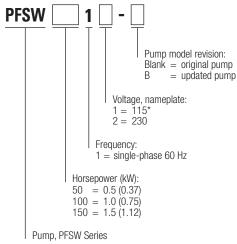
A product code diagram that describes standard options available for PFEF submersible effluent pumps is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.

Product Code Diagram



PFSW Submersible Sewage Pumps

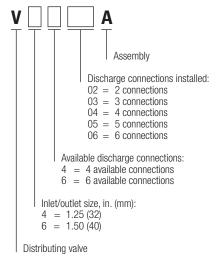
A product code diagram that describes standard options available for PFSW Series submersible sewage pumps is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



^{*} available for 0.5-hp pump only

Distributing Valve Assemblies

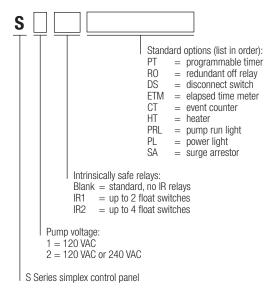
A product code diagram that describes standard options available for distributing valve assemblies is provided below. When selecting options for the product code, please use the ranking order provided in the diagram.



S Series Simplex Control Panels

A product code diagram and a complete list that describes standard options available for S Series simplex control panels are provided below. When selecting options for the product code, please use the ranking order provided in the diagram and in the options list.

Product Code Diagram



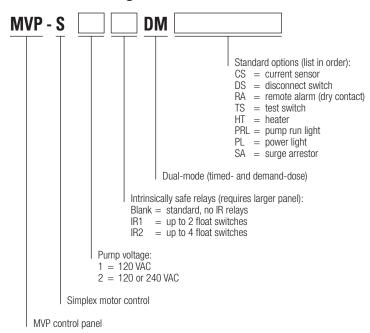
Product Code Options, S Series Simplex Control Panels

Code	Name	Specifications (all voltages are 120 VAC unless otherwise noted)
IR	Intrinsically safe control relays	Listed per UL 698A, for Class 1 Div. 1, groups A, B, C, D hazardous locations (requires larger enclosure)
PT	Programmable timer	Repeat cycle from 0.05 seconds to 30 hours; separate variable controls for OFF & ON time periods
RO	Redundant off relay	DIN rail mount; provides a secondary off; sounds alarm upon low level condition
ETM	Elapsed time meter	7-digit, non-resettable; limit of 99,999 hours; accurate to 0.01 hours
CT	Event counter	6-digit, non-resettable
HT	Heater	Anti-condensation heater; self-adjusting: radiates additional wattage as temperature drops
PRL	Pump run light	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light
PL	Power light	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light
SA	Surge arrestor	Status light on unit; protects incoming power supply from electrical surges
TS	Test Switch	Momentary switch for alarm testing

MVP Simplex Control Panels

A product code diagram and a complete list that describes standard options available for MVP simplex control panels are provided below. When selecting options for the product code, please use the ranking order provided in the diagram and in the options list.

Product Code Diagram



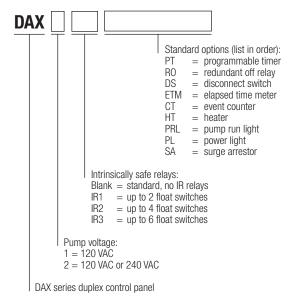
Product Code Options, MVP Simplex Control Panels

Code	Name	Specifications (all voltages are 120 VAC unless otherwise noted)	
IR	Intrinsically safe control relays	Listed per UL 698A, for Class 1 Div. 1, groups A, B, C, D hazardous locations (requires larger enclosure)	
HT	Heater	Anti-condensation heater; self-adjusting: radiates additional wattage as temperature drops	
SA	Surge Arrestor	Status light on unit; protects incoming power supply from electrical surges	
PRL	Pump Run Lights	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light	
PL	Power Light	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light	

DAX Series Duplex Control Panels

A product code diagram and a complete list that describes standard options available for DAX Series duplex control panels are provided below. When selecting options for the product code, please use the ranking order provided in the diagram and in the options list.

Product Code Diagram



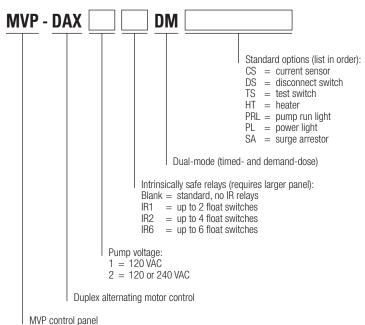
Product Code Options, DAX Series Duplex Control Panels

Code	Name	Specifications (all voltages are 120 VAC unless otherwise noted)
IR	Intrinsically safe control relays	Listed per UL 698A, for Class 1 Div. 1, groups A, B, C, D hazardous locations (requires larger enclosure)
PT	Programmable timer	Repeat cycle; separate variable controls for OFF & ON time periods
RO	Redundant off	Provides a secondary off; sounds alarm upon low-level condition
ETM	Elapsed time meter	7-digit, non-resettable; limit of 99,999 hours; accurate to 0.01 hours
CT	Event counter	6-digit, non-resettable
HT	Heater	Anti-condensation heater; self-adjusting: radiates additional wattage as temperature drops
SA	Surge arrestor	Status light on unit; protects incoming power supply from electrical surges
PRL	Pump run light	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light
PL	Power light	%-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light

MVP Duplex Control Panels

A product code diagram and a complete list that describes standard options available for MVP duplex control panels are provided below. When selecting options for the product code, please use the ranking order provided in the diagram and in the options list.

Product Code Diagram



Product Code Options, MVP Duplex Control Panels

Code	Name	Specifications (all voltages are 120 VAC unless otherwise noted)	
IR	Intrinsically safe control relays	Listed per UL 698A, for Class 1 Div. 1, groups A, B, C, D hazardous locations (requires larger enclosure)	
HT	Heater	Anti-condensation heater; self-adjusting: radiates additional wattage as temperature drops	
SA	Surge Arrestor	Status light on unit; protects incoming power supply from electrical surges	
PRL	Pump Run Lights	7/6-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light	
PL	Power Light	7/8-in. (22-mm) diameter green lens; UL Type 4X (IP66), 1 W LED light	

Orenco Systems®, Inc. Terms and Conditions

1. Agreement; Acceptance

This document contains all of the terms and conditions with respect to the sale and purchase of the merchandise ordered by Purchaser and sold by Orenco Systems,[®] Inc. ("Orenco"), unless a separate written agreement executed by duly authorized representatives of Purchaser and Orenco explicitly supersedes these Terms and Conditions.

Acceptance of this offer by Purchaser is expressly limited to the exact terms contained herein, and any attempt by Purchaser to alter or omit any such terms shall be deemed a rejection and a counteroffer. Purchaser's acknowledgment, acceptance, or purchase order form that stipulates different conditions shall not effect a modification of these Terms and Conditions. Unless Purchaser notifies Orenco in writing to the contrary prior to its receipt of the merchandise, or a separate written agreement explicitly supersedes these Terms and Conditions, Purchaser's acceptance of the merchandise shall conclusively evidence Purchaser's acceptance of these Terms and Conditions.

2. Custom Products

Merchandise not listed in Orenco's catalogs or standard price lists, or that must be custom built to the specifications of Purchaser, shall be considered "Custom Products" within this document. Custom Products do not include standard merchandise that requires minor modifications, such as being cut to a specified length. If Purchaser orders a Custom Product, and Orenco is agreeable to manufacturing and/or selling it, Purchaser agrees to defend Orenco at its cost and expense, and shall indemnify and hold Orenco harmless from and against any United States or foreign patent infringement suit related to the Custom Product brought upon Orenco by third parties. In addition, Purchaser assumes all responsibility for the compatibility of the Custom Product for its intended use, and for the adequacy of the engineering, design or specifications furnished by Purchaser to Orenco.

Prior to releasing an order for a Custom Product for manufacturing, Orenco shall submit its drawings, schematics, and/or other documentation of the critical elements of the Custom Product to the designer for review, to ensure that it will be manufactured to meet the designer's functional requirements and/or specifications. Orenco will only manufacture the Custom Product once it has received confirmation that the designer has reviewed and approved any such submittal documents.

3. Delivery

Orenco agrees to deliver all merchandise ordered by Purchaser for shipping within 30 days of the date Orenco receives and accepts a written purchase order, unless Orenco notifies Purchaser prior to the expiration of the 30-day period of any reasonable, foreseeable delays.

Merchandise shall be delivered when it is staged for shipping from Orenco's facilities (FOB Origin [Shipping]), and Purchaser shall assume the risk of loss for the merchandise at that time

In the event Purchaser requests expedited delivery of merchandise, and Orenco is agreeable to the request, Purchaser shall be charged an Expedite Fee equal to the greater of \$50.00 or 10% of the merchandise price.

4. Shipping

Purchaser is responsible for shipping its merchandise from Orenco's facilities. Purchaser may transport the merchandise itself, arrange for transportation of the merchandise with carriers of its choosing, or have Orenco arrange transportation of the merchandise on its behalf. If Purchaser fails to clearly identify which party it chooses to make the arrangements on a purchase order, Orenco will arrange the transportation of the merchandise associated with the order on Purchaser's behalf

Purchaser shall be responsible for all costs associated with transporting the merchandise from Orenco's facilities, including all freight and insurance costs, as follows:

(a) Will-Call; Collect. If Purchaser transports the merchandise itself or arranges transportation of the merchandise with a third-party carrier, Purchaser shall pay Orenco a commercially-reasonable fee for each pallet, crate, container, or other packaging provided by Orenco. In addition, if Purchaser arranges transportation with a third-party carrier, Purchaser will arrange to pay for the service directly.

Prepaid and Add. If Purchaser elects to have Orenco arrange transportation of the merchandise on its behalf. Orenco shall pay for the service directly. Purchaser shall pay Orenco for both Shipping and Handling, as itemized on a quotation or invoice, as follows: (i) "Shipping" shall consist of reimbursement of all freight and insurance costs paid by Orenco, including all accessorial charges from the carrier for items such as residential or construction site deliveries or use of lift gates, as well as any other fees, duties, tariffs, or taxes that may be applied on the merchandise by third parties after they are delivered, including storage fees and import, export, and transportation fees, duties, tariffs, and taxes. (ii) "Handling" shall consist of a fee equal to 5% of the Shipping costs paid by Orenco as identified above, and a commercially-reasonable fee for each pallet, crate, container, or other packaging provided by Orenco.

Large or special merchandise may require cranes or special equipment for unloading after transport. In instances where Orenco arranges for the transportation of this type of merchandise on Purchaser's behalf, Orenco shall immediately notify Purchaser of any delay in the scheduled delivery of the merchandise for shipping, or of any information it receives from a carrier indicating a delay in the scheduled arrival of the transport, and Purchaser agrees to ensure that the equipment necessary to unload the merchandise is present at the carrier's destination, and shall reimburse and indemnify Orenco against any back charges or other fees charged by the carrier for delivery delays caused by failing to have the necessary equipment present at the agreed-upon destination and delivery time.

5. Taxes

Purchaser shall be responsible for the payment of all federal, state, provincial, county, local, or government taxes, including but not limited to, sales tax, use tax, value-added tax, goods and services tax, or other excise tax that may be applied on the merchandise ("Taxes"), and shall indemnify and hold Orenco harmless from those Taxes. Orenco shall be responsible for any tax based solely upon its net income. Purchaser may supply Orenco with a valid Resale Certificate or other form certifying an exemption from the payment of Taxes from the taxing authority having proper jurisdiction over the order.

6. Payment Terms

Purchaser shall promptly pay Orenco for merchandise, and any Taxes, Shipping, Handling, or other costs associated with the merchandise, in accordance with the terms below:

- Prepayment. Purchaser may pay Orenco prior to delivery for merchandise, Taxes, estimated Shipping and Handling, and other costs associated with the purchase order. However, Purchaser must pay Orenco prior to delivery in the following circumstances: (i) If Purchaser does not have a credit account with Orenco, Purchaser must pay 100% of the full price of the merchandise, plus estimated Shipping and Handling, and other associated costs, before Orenco will accept a purchase order and release it for manufacturing. (ii) If Purchaser does not have available credit remaining on its credit account with Orenco, it must pay all amounts in excess of its available credit up to 100% of the full price of the merchandise, Taxes, estimated Shipping and Handling, and other associated costs, before Orenco will accept a purchase order and release it for manufacturing
- On Account. If Purchaser has a credit account with Orenco, has available credit on its account, and has not prepaid, Orenco shall invoice Purchaser for amounts owed for delivered merchandise, Taxes, Shipping, Handling, and other associated costs. Purchaser shall pay each invoice in full within 30 days from the date of the invoice ("Net 30"). Past due invoices shall bear a finance charge of 1.5% per month. Daily accrual of the finance charge shall begin on the 31st day from the date of the invoice. If Orenco employs a collection agency to collect any amount not paid by Purchaser under these terms, Purchaser shall pay all of Orenco's reasonable collection expenses. If any suit, action, or proceeding is instituted by Orenco to collect any amount not paid by Purchaser in accordance with these terms, Purchaser shall pay all of Orenco's investigation and litigation costs, including reasonable attorneys' fees, whether incurred before, during, or after trial or appeal.

7. Limited Warranty

Subject to the exclusions, limitations, and conditions contained herein, Orenco warrants that all merchandise will be free from defects in materials and workmanship for a period of 1 year after delivery of such merchandise to Purchaser, except as may be otherwise provided in a separate written warranty instrument between Orenco and Purchaser or from another manufacturer. If a separate written warranty instrument exists, the terms and conditions of said instrument control.

Exclusive Remedy. The exclusive remedy for any claim under this Limited Warranty shall be the obligation of Orence to repair or replace, at its discretion, any defective merchandise. Labor is not covered under this Limited Warranty.

In the event Orenco determines that returned merchandise is defective in materials or workmanship and covered by this Limited Warranty, Orenco will credit or reimburse Purchaser for all reasonable transportation charges incurred in returning the merchandise, and will be responsible for all transportation charges to return repaired or replacement merchandise to Purchaser. Such repaired or replacement merchandise shall continue to be warranted under the Limited Warranty of the original purchase. In the event Orenco determines that returned merchandise is not defective in materials or workmanship, or is not covered by this Limited Warranty, Orenco shall charge Purchaser a testing fee and all reasonable transportation charges required to return the merchandise to the Purchaser.

ORENCO SHALL NOT BE LIABLE FOR ANY LOSS, INJURY, OR DAMAGES TO PERSONS OR PROPERTY RESULTING FROM FAILURE OF, OR ANY DEFECT IN, THE MERCHANDISE. NOR SHALL ORENCO BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES OF ANY KIND. IN NO EVENT SHALL THE LIABILITY OF ORENCO UNDER THIS LIMITED WARRANTY EXCEED THE TOTAL INVOICED PRICE OF THE MERCHANDISE.

Disclaimer. EXCEPT AS SPECIFIED IN THIS LIMITED WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, ACCURACY OF INFORMATIONAL CONTENT, OR THOSE ARISING FROM A COURSE OF DEALINGS, LAW, USAGE, OR TRADE PRACTICE, MAY ONLY BE CLAIMED DURING THE WARRANTY PERIOD, AND THEREAFTER ARE HEREBY EXPRESSLY DISCLAIMED AND EXCLUDED TO THE EXTENT ALLOWED BY LAW.

8. Return of Merchandise

Purchaser may not return merchandise without the prior approval of Orenco. Merchandise must be securely packed to reach Orenco without damage. Merchandise accepted for return is subject to a restocking fee and all transportation charges. Orenco, in good faith, will determine the restocking fee and the amount that will be credited or refunded to Purchaser for the returned merchandise.

9. Waiver

The failure of either Party on any occasion to exercise a right granted hereunder shall not operate as a waiver of such right as to subsequent occasions, and shall not effect a modification of these Terms and Conditions.

10. Governing Law

The laws of the state of Oregon shall govern these Terms and Conditions, together with all rights, obligations, and disputes arising out of or related thereto. The Parties hereby expressly disclaim any and all rights, obligations, or procedural or jurisdictional requirements granted or imposed by the United Nations Convention on Contracts for the International Sale of Goods ("CISG"). Any dispute or legal action arising out of or relating to these Terms and Conditions shall be brought in and decided by State Courts of Oregon. In any such dispute or action, Purchaser consents to the jurisdiction and venue of the Circuit Court of the State of Oregon for Douglas County.

Orenco® Wastewater Systems

Limited Warranty for General Onsite Wastewater Products

LIMITED WARRANTY

Commitment to Quality

Since 1981, Orenco Systems®, Incorporated ("Orenco"), has been a company that researches, designs, manufactures, and sells high-quality products. We see ourselves as more than a "business." We see ourselves as a company that makes the planet a cleaner, healthier place, a company that is *Changing the Way the World Does Wastewater.*®

Any wastewater system can be affected by improper design, installation, lack of maintenance, or system abuse. Although our products are carefully designed and constructed, it's still important to pay strict attention to system design and installation instructions and to follow through with intelligent usage and regular maintenance.

Limited Warranty Coverage

Subject to the exclusions, limitations, and conditions contained herein, Orenco warrants that all of its products designed for use in wastewater applications, which are not components in an Orenco collection or treatment system covered by a separate written warranty or individual products covered by a separate written warranty, will be free from defects in materials and workmanship for a period of time corresponding to the type of product (the "Warranty Period"), as follows:

- (a) If the product is a Biotube® Effluent Filter used in a single-family residential wastewater system: for the life of the wastewater system.
- (b) If the product is a 500-, 1,000-, 1,500-, or 2,000gallon (1900-, 3785-, 5678-, or 7570-L) Orenco fiberglass reinforced polyester ("FRP") tank: for five years after the tank has been delivered to the end-user.
- (c) If the product is an Orenco PVA-series, multiple-stage, high-head, submersible turbine effluent pump: for 18 months from the date of manufacture on the liquid end of said pump.
- (d) If the product is an Orenco PF-series, multiplestage, high-head, submersible turbine effluent pump: for five years from the date of manufacture on the liquid end of said pump.
- (e) For all other products not specifically listed above: for one year after the product has been delivered to the end-user, except as may be otherwise provided in a separate written warranty instrument between Orenco and



the end-user or from another manufacturer. If a separate warranty instrument exists, the terms and conditions of said instrument control.

Obtaining Warranty Service

To make a claim under this Limited Warranty, contact your Orenco Dealer, Supplier, or Distributor ("Orenco's Representative"), who will process your claim. If for some reason Orenco's Representative is unavailable, or if you purchased the product directly from Orenco, contact Orenco by phone (800-348-9843 or +1-541-459-4449) to make your claim.

Any warranty claim must be received no later than the expiration of the Warranty Period listed above.

If requested by Orenco, potentially defective products must be returned to Orenco's Sutherlin, Oregon facility through Orenco's Representative, if applicable, transportation prepaid.

Exclusive Remedy

The exclusive remedy for any claim under this Limited Warranty shall be the obligation of Orenco to repair or replace, at its discretion, any defective products. Labor is not covered under this Limited Warranty. Defects in materials or workmanship will be determined in good faith by Orenco upon receipt and inspection of a returned product. Products shall not be deemed to be defective if the failure, malfunction, or damage was caused by, or resulted from:

- the product not being installed, operated, or maintained in accordance with any applicable instructions provided;
- (b) abuse, misuse, accident, or negligence;

- (c) a lightning strike or other catastrophic event beyond the control of Orenco; or
- (d) modification of the product.

In the event Orenco determines that a returned product is defective in materials or workmanship and covered by this Limited Warranty, Orenco will credit or reimburse you for all reasonable transportation charges incurred in returning the product, and will be responsible for all reasonable transportation charges to return the repaired or replacement product to you. Such repaired or replacement product shall continue to be warranted under the Limited Warranty of the original purchase. In the event Orenco determines that a returned product is not defective in materials or workmanship, or is not covered by this Limited Warranty, Orenco may charge you a testing fee and all reasonable transportation charges required to return the product to you.

ORENCO SHALL NOT BE LIABLE FOR ANY LOSS, INJURY, OR DAMAGES TO PERSONS OR PROPERTY RESULTING FROM FAILURE OF, OR ANY DEFECT IN, THE PRODUCT, OR FOR ANY TECHNICAL ASSISTANCE OR INFORMATION THAT ORENCO MAY HAVE PROVIDED TO YOU. NOR SHALL ORENCO BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, PLANT DOWNTIME, FINES OR PENALTIES, OR LAWSUITS BY THIRD PARTIES. IN NO EVENT SHALL THE LIABILITY OF ORENCO UNDER THIS LIMITED WARRANTY EXCEED THE TOTAL INVOICED PRICE, EXCLUDING INSTALLATION AND/OR STARTUP COSTS, OF THE PRODUCT.

Disclaimer

EXCEPT AS SPECIFIED IN THIS LIMITED WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANT-ABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, ACCURACY OF INFORMATIONAL CONTENT, OR THOSE ARISING FROM A COURSE OF DEALINGS, LAW, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW, AND ARE EXPRESSLY DISCLAIMED BY OFFICE.

Orenco® Wastewater Systems

Limited Warranty for Biotube® Pump Packages

LIMITED WARRANTY

Commitment to Quality

Since 1981, Orenco Systems®, Incorporated ("Orenco"), has been a company that researches, designs, manufactures, and sells high-quality products. We see ourselves as more than a "business." We see ourselves as a company that makes the planet a cleaner, healthier place, a company that is *Changing the Way the World Does Wastewater.*®

Any wastewater system can be affected by improper design, installation, lack of maintenance, or system abuse. Although our products are carefully designed and constructed, it's still important to pay strict attention to system design and installation instructions and to follow through with intelligent usage and regular maintenance.

Limited Warranty Coverage

Subject to the exclusions, limitations, and conditions contained herein, Orenco warrants that all of its component products comprising a Biotube® EasyPak™ Pump Package, or a Biotube® ProPak™ Pump Package, will be free from defects in materials and workmanship for a period of five years after the package has been delivered to the end-user (the "Warranty Period").

Obtaining Warranty Service

To make a claim under this Limited Warranty, contact your Orenco Dealer, Supplier, or Distributor ("Orenco's Representative"), who will process your claim. If for some reason Orenco's Representative is unavailable, or if you purchased the product directly from Orenco, contact Orenco by phone (800-348-9843 or +1-541-459-4449) to make your claim.

Any warranty claim must be received no later than the expiration of the Warranty Period listed above.

If requested by Orenco, potentially defective products must be returned to Orenco's Sutherlin, Oregon facility through Orenco's Representative, if applicable, transportation prepaid.

Exclusive Remedy

The exclusive remedy for any claim under this Limited Warranty shall be the obligation of Orenco to repair or replace, at its discretion, any defective



products. Labor is not covered under this Limited Warranty. Defects in materials or workmanship will be determined in good faith by Orenco upon receipt and inspection of a returned product. Products shall not be deemed to be defective if the failure, malfunction, or damage was caused by, or resulted from:

- (a) the product not being installed, operated, or maintained in accordance with any applicable instructions provided;
- (b) abuse, misuse, accident, or negligence;
- c) a lightning strike or other catastrophic event beyond the control of Orenco; or
- (d) modification of the product.

In the event Orenco determines that a returned product is defective in materials or workmanship and covered by this Limited Warranty, Orenco will credit or reimburse you for all reasonable transportation charges incurred in returning the product, and will be responsible for all reasonable transportation charges to return the repaired or replacement product to you. Such repaired or replacement product shall continue to be warranted under the Limited Warranty of the original purchase. In the event Orenco determines that a returned product is not defective in materials or workmanship, or is not covered by this Limited Warranty, Orenco may charge you a testing fee and all reasonable transportation charges required to return the product to you.

ORENCO SHALL NOT BE LIABLE FOR ANY LOSS, INJURY, OR DAMAGES TO PERSONS OR PROPERTY RESULTING FROM FAILURE OF, OR ANY DEFECT IN, THE PRODUCT, OR FOR ANY TECHNICAL ASSISTANCE OR INFORMATION THAT ORENCO MAY HAVE PROVIDED TO YOU. NOR SHALL ORENCO BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, PLANT DOWNTIME, FINES OR PENALTIES, OR LAWSUITS BY THIRD PARTIES. IN NO EVENT SHALL THE LIABILITY OF ORENCO UNDER THIS LIMITED WARRANTY EXCEED THE TOTAL INVOICED PRICE, EXCLUDING INSTALLATION AND/OR STARTUP COSTS, OF THE PRODUCT.

Disclaimer

EXCEPT AS SPECIFIED IN THIS LIMITED WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANT-ABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, ACCURACY OF INFORMATIONAL CONTENT, OR THOSE ARISING FROM A COURSE OF DEALINGS, LAW, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW, AND ARE EXPRESSLY DISCLAIMED BY OFENCO.

Orenco® Controls

Limited Warranty for Electrical Control Panels

LIMITED WARRANTY

Commitment to Quality

For over 30 years, Orenco® Controls (a division of Orenco Systems®, Incorporated – "Orenco") has been known as a company that designs, manufactures, and sells high-quality standard and custom electrical control panels. We provide custom solutions for every application – from simple alarm panels with a single custom component to highly sophisticated panels that are totally customized with programmable logic, variable frequency drives, reduce voltage starters, or remote telemetry. Our assembly facility is equipped to build virtually any electrical control panel to your specifications, whether you need one unit or thousands.

Limited Warranty Coverage

Subject to the exclusions, limitations, and conditions contained herein, Orenco warrants that all of its standard and custom electrical control panels, which are not covered by a separate written warranty, will be free from defects in materials and workmanship for a period of three years after the panel has been delivered to the end-user (the "Warranty Period"), except as follows:

- (a) The Warranty Period for Variable Frequency Drive (VFD) components in an electrical control panel shall be one year from the date of the component's manufacture.
- (b) The Warranty Period for Reduced Voltage Soft Start (RVSS) components in an electrical control panel shall be one year from the date of the component's manufacture.

Exclusions

The following components in an electrical control panel are not covered by this Limited Warranty, though any warranties offered by the components' manufacturer may still apply:

- (a) Customer-supplied components, or
- (b) Customer-specified components that are not approved by Orenco.

Obtaining Warranty Service

To make a claim under this Limited Warranty contact your Orenco Dealer, Supplier, or Distributor ("Orenco's Representative"), who will process your claim. Please provide them with the control panel's unique UL® Number, typically located on the inside of the enclosure door, to aid in processing the claim.

If for some reason Orenco's Representative is unavailable, or if you purchased the product directly



from Orenco, contact Orenco by phone (800-348-9843 or +1-541-459-4449) or by e-mail (electrical returns@ orenco.com) to make your claim.

Warranty claims must be made no later than the expiration of the Warranty Period listed above.

If requested by Orenco, potentially defective products must be returned to Orenco's Sutherlin, Oregon facility through Orenco's Representative, if applicable, transportation prepaid.

Exclusive Remedy

The exclusive remedy for any claim under this Limited Warranty shall be the obligation of Orenco to repair or replace, at its discretion, any defective products. Labor is not covered under this Limited Warranty. Defects in materials or workmanship will be determined in good faith by Orenco upon receipt and inspection of a returned product. Products shall not be deemed to be defective if the failure, malfunction, or damage was caused by, or resulted from:

- (a) the product not being installed, operated, or maintained in accordance with any applicable instructions provided;
- (b) abuse, misuse, accident, or negligence;
- (c) a lightning strike or other catastrophic event beyond the control of Orenco; or
- (d) modification of the product.

In the event Orenco determines that a returned product is defective in materials or workmanship and is covered by this Limited Warranty, Orenco will credit or reimburse you for all reasonable transportation charges incurred in returning the product, and will be responsible for all transportation charges to return the repaired or replacement product to you. Such repaired or replacement product shall continue to be warranted under the Limited Warranty of the original purchase. In the event Orenco determines that a returned product is not defective in materials or workmanship, or is not covered by this Limited Warranty, Orenco may charge you a testing fee and all reasonable transportation charges required to return the product to you.

ORENCO SHALL NOT BE LIABLE FOR ANY LOSS, INJURY, OR DAMAGES TO PERSONS OR PROPERTY RESULTING FROM FAILURE OF, OR ANY DEFECT IN, THE PRODUCT, OR FOR ANY TECHNICAL ASSISTANCE OR INFORMATION THAT ORENCO MAY HAVE PROVIDED TO YOU. NOR SHALL ORENCO BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES OF ANY KIND, INCLUDING, BUT NOT LIMITED TO, LOSS OF PROFITS, PLANT DOWNTIME, FINES OR PENALTIES, OR LAWSUITS BY THIRD PARTIES. IN NO EVENT SHALL THE LIABILITY OF ORENCO UNDER THIS LIMITED WARRANTY EXCEED THE TOTAL INVOICED PRICE, EXCLUDING INSTALLATION AND/OR STARTUP COSTS, OF THE PRODUCT.

Disclaimer

EXCEPT AS SPECIFIED IN THIS LIMITED WARRANTY, ALL EXPRESS OR IMPLIED CONDITIONS, REPRESENTATIONS, AND WARRANTIES INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTY OR CONDITION OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, SATISFACTORY QUALITY, ACCURACY OF INFORMATIONAL CONTENT, OR THOSE ARISING FROM A COURSE OF DEALINGS, LAW, USAGE, OR TRADE PRACTICE, ARE HEREBY EXCLUDED TO THE EXTENT ALLOWED BY APPLICABLE LAW, AND ARE EXPRESSLY DISCLAIMED BY OFENCO.

Orenco° | Wastewater Pumping Products Catalog

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