



Orenco[®]
W A T E R

GENERAL ONSITE WASTEWATER PRODUCTS
CATALOG



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For the most current product information and product codes, visit orengo.com/products.



Go to the Orenco® [Distributor Locator](#) tool.



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To view Technical Data Sheets, locate this icon at each product listing.

Limited Warranty

Limited warranties are available for:

- General Onsite Wastewater Products
- Biotube® Pump Packages
- Electric Control Panels

**For more information, call 1 (800) 348.9843,
or +1 (541) 459.4449**



Access Risers, Lids, and Accessories

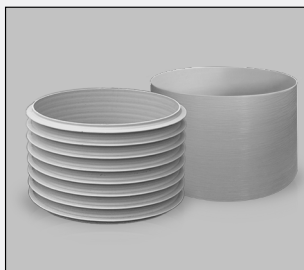
Orengo® PVC and FRP (fiber-reinforced polymer or “fiberglass”) access risers allow access to water and wastewater tanks and components. They can be installed on a wide range of tanks and come with various accessories, including safety barriers, grade rings, and tools for cutting grommet holes.

Orengo DuraFiber® Access Lids and FL-Series FRP Lids provide strong, secure covers for risers and tanks, featuring gaskets for watertight seals. Additional accessories include tools for drilling bolt holes and mounting hardware.

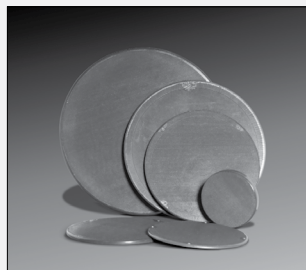
Section Details

PRODUCTS INCLUDE:

- Ultra-Rib-Style Access Risers
- FRP Access Risers
- Infiltrator™ Tank Adapters
- Riser Tank Adapters
- Riser Lid Adapters
- Tank Shield®
- Riser Safety Grates
- Insulation Plugs
- Grade Rings and Inserts
- FiberLast® Access Lids
- DuraFiber Access Lids
- Custom FRP Logo Lids
- FRP Access Lids
- FRP and ASA Access Caps
- Pipe Grommets
- Tank Adapter Bolt-Down Kits
- Rib-Cutting Hole Saws
- Riser-Cutting Saw Guide
- Riser-Cutting Stations
- Lid Bolts, Screws, and Lid Screw Kits
- Adhesives and Dispensers



Risers are available in multiple makes, diameters, and lengths.



Lids are available in many sizes.



Secondary safety barriers fit securely inside access risers.



Riser lid adapters reinforce riser edges.

Ultra-Rib-Style Access Risers

Orenco® Ultra-Rib-Style Access Risers (RR, RU, RPU) are used to provide access to tanks and enclose valves in water and wastewater systems. Bulk quantities are available.

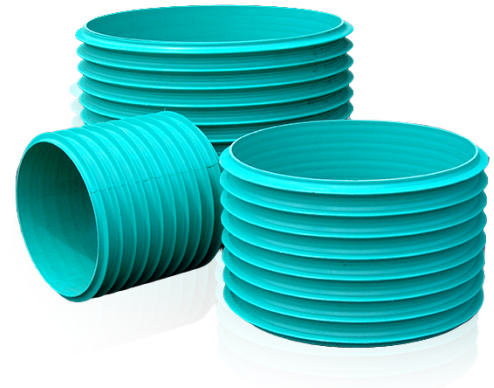
 [View Technical Data Sheet](#)

STANDARD MODELS:

RR12XX, RU18XX, RR24XX

FEATURES AND SPECIFICATIONS:

- PVC construction
- Concentric rib design
- Available in 12-, 18-, and 24-inch (300-, 450-, and 600-mm) nominal diameters
- Heights available in 3-inch (76-mm) increments
- Bulk pipe available in 13-foot (3.96-m) sections for 18-inch (450-mm) nominal diameter pipe and in 14-foot (4.27-m) sections for 24-inch (600-mm) nominal diameter pipe



ULTRA-RIB-STYLE ACCESS RISERS



For the most current product info and product codes, visit orenco.com.

HOW TO SELECT

STEP 1: Determine the diameter of the riser needed for your application:

- **Simplex pump systems** typically require a minimum 24-inch diameter access riser.
- **Duplex pump systems** typically require a minimum 30-inch diameter access riser.
- **Residential effluent filters** typically require a minimum 18-inch diameter access riser.

Note: We recommend a 30-inch diameter riser for burial depths greater than 3 feet.

STEP 2: Verify that the riser diameter is compatible with the riser tank adapter and tank hole size.

STEP 3: Determine the height of the riser. The top of the riser should extend a minimum of 3 inches above the finished grade level.

Note: For new installations, this includes 2 inches for settling. For existing installations, only 1 inch above grade is necessary.

STEP 4: Determine the splice box and grommet requirements. For grommets used with internal splice boxes, determine the nipple size being used, either 1-inch or 1 1/4-inch. Internal splice box models SB1 through SB4 require a 1-inch grommet. SB5 and SB6 require a 1 1/4-inch grommet. External splice boxes require a 4-inch grommet.

FRP Access Risers

Orenco® FRP Access Risers (RF) are designed to provide access to septic tank openings, as well as watertight connections between the tank, riser, and lid. They can be installed on a concrete tank equipped with Orenco tank adapters or bonded to an FRP or dicyclopentadiene (DCPD) tank. They can also be used as valve enclosures.

 [View Technical Data Sheet](#)

STANDARD MODELS:

RF24XX, RF30XX

FEATURES AND SPECIFICATIONS:

- FRP construction
- Corrosion resistant
- Provides watertight access to septic tanks
- 24- and 30-inch (600- and 750-mm) nominal diameters
- Heights available in 3-inch (76-mm) increments
- RLA24-2 riser-lid adapters are standard on 24-inch (600-mm) risers
- Four nylon bolt catches secure 30-inch (750-mm) riser lids
- Stainless steel hardware



FRP ACCESS RISERS

Infiltrator™ Tank Adapters

Orenco's Infiltrator Tank Adapters (OR-SNAPPAR-2400) provide a structural, watertight method of installing a 24-inch (600-mm) nominal diameter, ultra-rib-style or Orenco FRP riser over a tank opening on Infiltrator tanks.

 [View Technical Data Sheet](#)

STANDARD MODELS:

OR-SNAPPAR-2400, SSS-1410HEX HARDWARE KIT

FEATURES:

- Specifically designed for Infiltrator tanks
- Horizontal flange for hanging Orenco pump vaults
- Durable ABS design
- Watertight connection between tank, adapter, and riser
- Screw-down kit and adhesive ordered separately



OR-SNAPPAR-2400 TANK ADAPTER



For the most current product info and product codes, visit orenco.com.

Riser Tank Adapters

Orengo® Riser Tank Adapters (PRTA, FRTA, RRFTA) provide a structural, watertight method of installing an access riser over a tank opening. Depending on the adapter model, it can be cast into the top of a concrete tank, bonded to a tank with adhesive, or mechanically fastened to a tank with an adapter bolt-down kit.

FEATURES:

- Watertight installation
- Durable, corrosion-resistant materials
- Bolt-down kits available for applicable models

HOW TO SELECT

- STEP 1:** Determine the tank access riser diameter.
- STEP 2:** Determine the tank access type and shape: either round, square, or grooved.
- STEP 3:** Refer to the Tank Adapter Sizing Chart below to match the tank access diameter and shape.

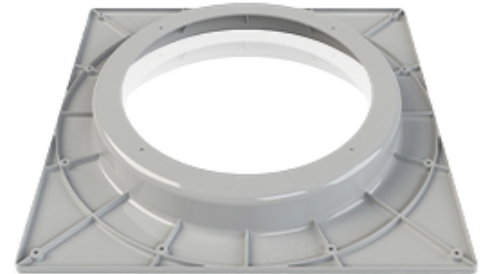
Note: Adapters fit standard commercially available PVC ribbed pipe and Orengo FRP pipe.



PRTA24-2 TANK ADAPTER/GRADE RING INSERT








PRTA TANK ADAPTER



RRFTA24 TANK ADAPTER

Tank Adapter Sizing Chart

ADAPTER TYPE	ATTACHMENT METHOD	MAXIMUM TANK OPENING	RISER DIAMETER, NOMINAL
PRTA24  View Technical Data Sheet	Bolted down or cast into a concrete tank	24 inches (610 mm) round; 17 inches (432 mm) square	24 inches (600 mm)
PRTA24-2  View Technical Data Sheet	Cast into a concrete tank	24 inches (610 mm) round; 17 inches (432 mm) square	24 inches (600 mm)
PRTA30  View Technical Data Sheet	Bolted down or cast into a concrete tank	30 inches (762 mm) round; 21 inches (533 mm) square	30 inches (750 mm)
RRFTA24  View Technical Data Sheet	Bolted down into concrete tank	24 inches (610 mm) round; 24 inches (610 mm) square	24 inches (600 mm)
RRFTA30  View Technical Data Sheet	Bolted down into concrete tank	30 inches (762 mm) round; 30 inches (762 mm) square	30 inches (750 mm)

Riser Lid Adapters

Orenco® Riser Lid Adapters (RLA24-2) provide a simple, secure, watertight method of attaching an Orenco FRP access lid and Tank Shield® to a ribbed PVC or FRP access riser. RLAs are especially useful when the top of the riser is uneven or has a damaged edge.

 [View Technical Data Sheet](#)

STANDARD MODELS:

RLA24-2, RLA24-2-RTS

FEATURES AND SPECIFICATIONS:

- ABS construction
- Fits 24-inch (600-mm) nominal diameter ribbed riser pipe
- Fits 24-inch (600-mm) Orenco FRP access lids
- Ideal for uneven risers or damaged riser edges
- Bolt holes predrilled in RLA24
- Built-in Tank Shield brackets

Tank Shield

Orenco Tank Shield (RTS) provides a secondary safety barrier that's secure, durable, and easy to install. It is designed to prevent unintended entry and accidental falls into access risers, pump basins, and access ports. It can be installed in new or existing tank access risers and pump basins.

 [View Technical Data Sheet](#)

STANDARD MODELS:

RTS24-KIT, RTS30-KIT

FEATURES AND SPECIFICATIONS:

- Molded copolymer construction for exceptional durability
- Compatible with Orenco FRP and ultra-rib-style risers
- Individual mounting bracket kits available
- Optional insulation for cold weather applications
- Can be installed in new or existing access risers with nominal I.D. of 23 1/2 or 29-1/2 inches (597 or 749 mm)
- Capable of supporting a load of up to 250 lbs (113 kg)
- 24- and 30-inch (600- and 750-mm) nominal diameters available



RISER LID ADAPTER



TANK SHIELD



TANK SHIELD INSTALLED ON RLA24-2

Riser Safety Grates

Orenco® Riser Safety Grates (RG) rest on the flange at the bottom of an access riser to help prevent people or tools from falling into a tank. They're also used to prevent soil buildup in the bottoms of valve boxes. Orenco riser safety grates are sized to fit ultra-rib-style, spiral-seam PVC pipe, dual-wall corrugated PVC pipe, and equivalent risers. For the best protection, Orenco strongly recommends installing a Tank Shield® secondary safety barrier.



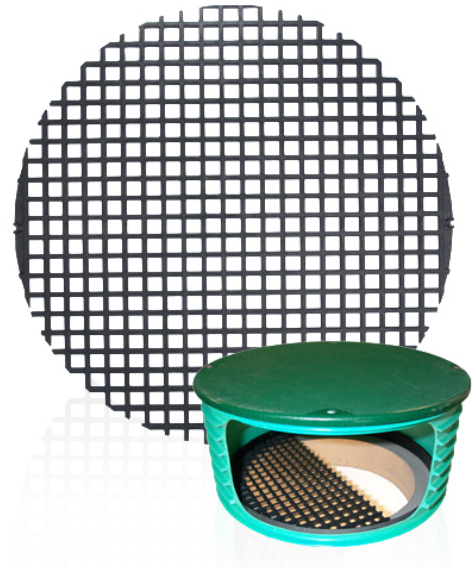
[View Technical Data Sheet](#)

STANDARD MODELS:

RG18, RG24, RG30

FEATURES AND SPECIFICATIONS:

- Polypropylene construction
- Corrosion resistant
- Easy to install
- Sizes available for 18-, 24-, and 30-inch (450-, 600-, and 750-mm) nominal diameter risers
- Fits most brands of ribbed riser pipe



RISER SAFETY GRATE

Insulation Plugs

Orenco Insulation Plugs (INS) protect septic system components in the riser from freezing. The 6-inch (152-mm) plug is encased in a watertight shell for durability.



[View Technical Data Sheet](#)

STANDARD MODELS:

INS246, INS306

FEATURES AND SPECIFICATIONS:

- 6-inch (152-mm) insulation plug
- R-30 (RSI-5.3) insulation value
- Stackable for greater insulation
- Sized to fit inside of a 24- or 30-inch (600- or 750-mm) nominal diameter access riser
- Watertight shell
- Polyethylene strap for easy removal



INSULATION PLUGS



For the most current product info and product codes, visit orenco.com.

Tank Adapter Bolt-Down Kits

Orenco Tank Adapter Bolt-Down Kits (PRTA, RRFTA) provide everything necessary for a secure, watertight connection between a concrete tank and a bolt-down tank adapter for an access riser.

STANDARD MODELS:

PRTA24BDKIT: for attaching a PRTA24 riser tank adapter

PRTA30BDKIT: for attaching a PRTA30 or RRFTA30 riser tank adapter

RRFTABDKIT: for attaching an RRFTA riser tank adapter

RUBDKIT: for attaching an ultra-rib-style access riser; two kits are required for each 24-inch (600-mm) nominal diameter access riser



TANK ADAPTER BOLT-DOWN KIT

Grade Rings and Inserts

Orenco® Grade Rings (GR, GRI) are used to provide a watertight extension to the height of an existing access riser or pump basin. The rings consist of an Orenco Grade Ring Insert and a section of riser pipe. Grade ring inserts can also be purchased separately. The PRTA24-2 Tank Adapter can function as a grade ring insert when used with self-leveling adhesive.



[View Technical Data Sheet](#)

STANDARD MODELS:

GRI18, GRI24, GRI24RLA, GRI30

SPECIFICATIONS:

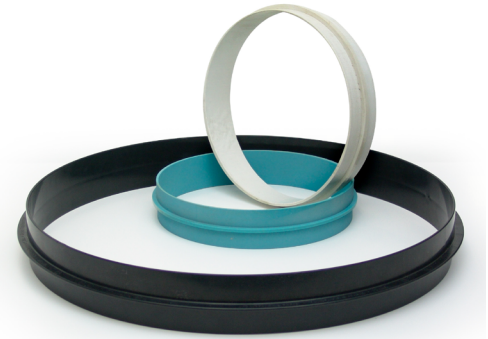
- ABS construction on inserts for 18-, 24-, and 30-inch (450-, 600-, and 750-mm) nominal diameter riser pipe

HOW TO SELECT

- STEP 1:** Determine the diameter of the riser.
- STEP 2:** Determine the height of the riser. The top of the riser should extend a minimum of 3 inches (76mm) above the finished grade level.

Note: For new installations, this includes 2 inches for settling. For existing installations, only 1 inch above grade is necessary.

- STEP 3:** Determine the lid fastening method: either bolt catches or RLA adapter.



GRADE RING INSERTS



GRADE RINGS



For the most current product info and product codes, visit orenco.com.

FiberLast® Access Lids

Orenco® FiberLast Access Lids (FLL) provide a secure, durable, and watertight covering for ribbed PVC, HDPE, and Orenco FRP risers, pump basins, and access ports. They are not rated for vehicular traffic.

 [View Technical Data Sheet](#)

STANDARD MODELS:

FLL24G+BK01, FLL24G+BK04, FLL24G+BK06

FEATURES AND SPECIFICATIONS:

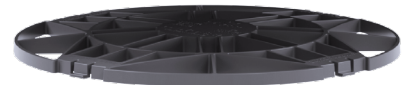
- Waterproof, corrosion resistant, and UV resistant
- Standard with EPDM lid gasket
- Nonskid surface and molded-in caution statement
- Flat-style flanges that provide easy access and clean, low-profile installation
- 24-inch nominal diameter
- Standard green color
- Solid FRP construction
- Rated for non-traffic loads up to 2500 lbs (1134 kg)
- Standard with four stainless steel hex-head screws or optional socket cap screws with hex key wrench



FIBERLAST ACCESS LIDS



FIBERLAST ACCESS LID



TANK SHIELD®



RLA24-2 ADAPTER



ULTRA-RIB-STYLE ACCESS RISER



For the most current product info and product codes, visit orenco.com.

DuraFiber® Access Lids

Orenco® DuraFiber Access Lids (FLD) provide secure, damage-resistant coverings for risers, pump basins, and access ports made of ribbed PVC, HDPE, and Orenco FRP. They are not rated for vehicular traffic.

 [View Technical Data Sheet](#)

STANDARD MODELS:

FLD18G, FLD24G, FLD24G-ATX, FLD24G-W, FLD30G, FLD30G-PRELOS, FLD30G-W

FEATURES AND SPECIFICATIONS:

- 18-, 24-, and 30-inch (450-, 600-, and 750-mm) nominal diameter lids available
- Solid FRP construction
- Rated for non-traffic loads up to 2500 lbs (1134 kg)
- Available with or without EPDM lid gasket
- Includes stainless steel mounting hardware
- Available with carbon filtration

Custom DuraFiber Logo Lids

Orenco offers imprinting of custom logos with customer-supplied images on quantity orders of 24- and 30-inch (600- and 750-mm) nominal diameter DuraFiber lids. They are not rated for vehicular traffic.

FEATURES:

- 24- and 30-inch (600- and 750-mm) nominal diameter lids available
- Solid FRP construction
- Rated for non-traffic loads up to 2500 lbs (1134 kg)
- Available with or without EPDM lid gasket
- Includes stainless steel mounting hardware



DURAFIBER ACCESS LIDS



CUSTOM DURAFIBER LOGO LIDS



For the most current product info and product codes, visit orenco.com.

FRP Access Lids

Orengo® FBL-Series FRP Access Lids (FBL) provide a strong, secure solution for covering 36- and 48-inch (900- and 1200-mm) nominal diameter Orengo-brand FRP access risers and FRP basins. FBL-series lids aren't intended for use with PVC access risers or basins and are not rated for vehicular traffic.



[View Technical Data Sheet](#)

STANDARD MODELS

FBL36G, FBL36G-GREEN, FBL48G, FBL48G-GREEN

FEATURES AND SPECIFICATIONS:

- FRP construction over structural foam core
- Fits 36- or 48-inch (900- or 1200-mm) nominal diameter Orengo FRP risers and basins
- Lightweight, nondegradable core
- R-6 (RSI-1.1) insulation value
- Textured, nonskid surface
- EPDM gasket, standard
- Available in green or tan
- Includes stainless steel mounting hardware
- Rated for non-traffic loads up to 2500 lbs (1134 kg)

FRP and ASA Access Caps

Orengo FRP and ASA Access Caps (FL) are used as strong, uniform access covers for valve boxes and tank hatches. They are not rated for vehicular traffic



[View Technical Data Sheet](#)

STANDARD MODELS

FL8G, FL12G, FL12GTU

FEATURES AND SPECIFICATIONS:

- FRP or acrylic styrene acrylonitrile (ASA) construction
- Caps available for 8- and 12-inch (200-mm and 300-mm) nominal diameter risers
- Nonskid surface



FBL-SERIES FRP ACCESS LIDS



ACCESS CAPS



For the most current product info and product codes, visit orengo.com.

Pipe Grommets

Orenco® Pipe Grommets (G) provide a watertight seal at piping penetrations. Orenco ADH200 Adhesive/Sealant is recommended to ensure a watertight seal between the pipe grommet and access riser.

 [View Technical Data Sheet](#)

STANDARD MODELS:

G05L, G07L, G1L, G125L, G150L, G2L, G3L, G4L, G6L

SPECIFICATIONS:

- Grommets conform to standard IPS pipe sizes
- 1/2-inch through 6-inch (13-mm through 150-mm) diameters

Note: Grommet Hole Sizing Guide See pg2 of Orenco Fiberglass Riser - Installation Instructions (NIN-RLA-RF-1

HOW TO SELECT

Splice box grommets: Models SB1-SB4 require a 1-inch (25-mm) grommet; SB5-SB6 require a 1 1/4-inch (32-mm) grommet; SBEX requires a 4-inch (100-mm) grommet, included with the SBEX.

Discharge grommets: Select discharge grommets based on the discharge assembly diameter.



PIPE GROMMETS

Grommet Hole Sizing Guide

GROMMET SIZE, NOMINAL, IN	HOLE SAW SIZE, IN
1/2	1
3/4	1 1/4
1	1 9/16
1 1/4	1 3/4
1 1/2	2 1/8
2	2 3/4
3	3 7/8
4	5



For the most current product info and product codes, visit orencocom.

Rib-Cutting Hole Saws

Orenco® Rib-Cutting Hole Saws (RKHS) cut holes in PVC riser pipe and pockets in the pipe ribs at the same time. They eliminate the task of prepping the hole before installing a grommet.

FEATURES AND SPECIFICATIONS:

- Saves time cutting and prepping
- Requires an arbor and a 1/4-inch drill bit (RK-ARBOR, RK-DRILL BIT), which is sold separately
- 3/4-, 1-, 1 1/4-, 1 1/2-, and 2-inch (19-, 25-, 32-, 38-, and 51-mm) diameters available.



RIB-CUTTING HOLE SAWS

Riser-Cutting Saw Guide

The Orenco Riser-Cutting Saw Guide (RUSJ) allows a Skilsaw® Model 77 circular saw to make square cuts between ribs on riser pipe with concentric rings.



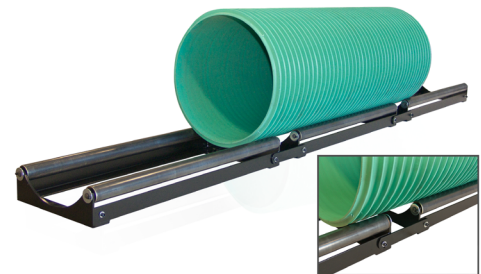
RISER-CUTTING SAW GUIDE

Riser-Cutting Stations

Orenco Riser-Cutting Stations (RR-CUTTING) make it easy to cut riser pipe. For storage, the cutting station breaks down into three pieces.

FEATURES AND SPECIFICATIONS:

- For 18- to 36-inch (450- to 900-mm) nominal diameter riser pipe
- Saw guide sold separately



RISER-CUTTING STATION

Lid Bolts, Screws, and Lid Screw Kits

Orenco Lid Bolts, Screws, and Lid Screw Kits effectively secure FRP lids to PVC and FRP risers, with options designed for enhanced security and ease of use. Hex-drive screws need a hex key or bit for removal, and complete kits are available in both hex-head and button-head styles.



LID BOLTS

Adhesives and Dispensers

Orenco® Adhesives and Dispensers (ADH, MA) are used to create durable, watertight bonds between tanks, risers, and adapters, as well as between grommets and risers. Check the technical data sheet to find the correct adhesive for your application.

 [View Technical Data Sheet](#)



ADHESIVES



DISPENSING GUNS

MA-MANUAL GUN-600ML AND MA-BATT GUN-600ML

Types of Adhesives

MA8120 and **SA510** are two-component methacrylate structural adhesives. They are used to bond ABS, DCPD, FRP, and PVC for strong, watertight joints. They will not bond to concrete. Clean, dry bonding surfaces are required for proper adhesion. Both have a 1:1 mix ratio.

- **MA8120** is intended for applications requiring a long working time or for thicker adhesive bead lines; it will sag slightly in warm temperatures.
- **SA510** is intended for applications requiring a short working time or for thinner adhesive bead lines.

MA320 is a two-component methacrylate adhesive. It is used to bond ABS, FRP, and PVC for strong, watertight joints. It will not bond to concrete. Clean, dry bonding surfaces are required for proper adhesion. MA320 requires hand mixing.

IPS 810 is a self-leveling, two-component methacrylate adhesive, used to bond ABS, FRP, PVC, and concrete for strong, watertight joints. Clean, dry bonding surfaces are required for proper adhesion. IPS 810 requires hand mixing. Pint (product code ADHP10) or quart (product code ADHPQ10) quantities are available.

Sealant/Adhesive

ADH200 is a moisture-curing, single-component sealant/adhesive used for sealing pipe grommets and for joining PVC or FRP risers to ABS or FRP tank adapters where joints are in shear. It is designed for applications in damp, dry, or cold climates. It is solvent free and contains no isocyanates. ADH200 will not shrink upon curing and will not discolor when exposed to UV light. Clean, dry bonding surfaces are required for proper adhesion. It is not intended for structural joints that are primarily in tension, in peel, or in bending.

Approximate Quantities of Adhesive Needed for Various Products

	MA8120	SA510	MA320	IPS 810	ADH200
FRTA24-RVF ADAPTER, 24 INCH (600 MM)	½ cartridge*	½ cartridge*	1-2 packets	n/a	1 tube
PRTA24 ADAPTER, 24 INCH (600 MM)	½ cartridge*	½ cartridge*	1-2 packets	n/a	1 tube
PRTA24-2 ADAPTER, 24 INCH (600 MM)	> ½ cartridge*	> ½ cartridge*	n/a	< 1 pt	n/a
PRTA30 ADAPTER, 30 INCH (750 MM)	< 1 cartridge*	< 1 cartridge*	2 packets	n/a	< 2 tubes
RLA24-2 ADAPTER, 24 INCH (600 MM)	½ cartridge*	½ cartridge*	1-2 packets	n/a	1 tube
RRFTA ADAPTER, 24 INCH (600 MM)	< 1 cartridge*	n/a	n/a	1 pt	n/a
RRFTA30 ADAPTER, 30 INCH (750 MM)	1 cartridge*	n/a	n/a	1 qt	n/a
GR24XX GRADE RING, 24 INCH (600 MM)	½ cartridge*	½ cartridge*	1-2 packets	n/a	1 tube
GR30XX GRADE RING, 30 INCH (750 MM)	< 1 cartridge*	< 1 cartridge*	2 packets	n/a	< 2 tubes
GROMMETS	n/a	n/a	n/a	n/a	various quantities

* Preferred adhesive for this application



For the most current product info and product codes, visit orencocom.com.



Biotube[®] Pump Vaults and Packages

Biotube pumping packages manufactured by Orenco[®] filter effluent that is being pumped from septic tanks or separate dosing tanks in onsite wastewater systems and effluent sewers. They remove up to two thirds of suspended solids from wastewater effluent, on average. Orenco's patented Biotube pump vault technology filters out solids so that only liquid from the tank or basin's "clear zone" between the scum and sludge layers is pumped. This reduces biological loading and clogging of downstream components, which saves money on O&M and helps extend the life of a drainfield and other downstream components.

Section Details

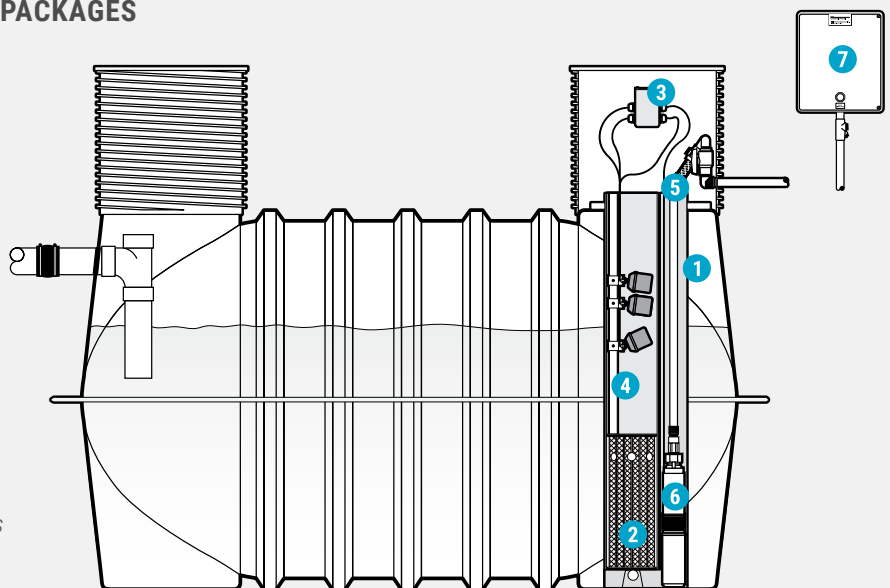
PRODUCTS INCLUDE:

- ProPak™ Pump Packages
- EasyPak™ Pump Packages
- Low-Head Vault Packages
- Universal Pump Vaults
- PVP- & PVPM-Series Pump Vaults
- PV-Series Pump Vaults
- Low-Head Pump Vaults

BASIC COMPONENTS OF PUMP PACKAGES

- 1 Biotube pump vault
- 2 Biotube effluent filter
- 3 Splice box
- 4 Float switch assembly
- 5 Discharge plumbing assembly
- 6 Effluent pump
- 7 Control panel

Note: Tank, risers, lids, and tank accessories must be ordered separately.



ProPak™ Pump Packages

Orenco® Biotube ProPak Pump Packages (BPP) are complete, integrated pump packages for filtering and pumping effluent from septic tanks or pump tanks to either gravity or pressurized discharge points. Their patented pump vault technology eliminates the need for separate dosing tanks.

 [View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Three series of corrosion-resistant, stainless steel, 4-inch (100-mm) effluent pumps available
- Polyethylene and PVC pump vault construction
- Polyethylene and PVC filter construction
- Float switch assembly and float switches available
- ClickTight™ connection system, external splice box, or internal splice box available
- Demand-dose, analog timed-dose, or digital timed-dose control panel available
- Total filter surface area: 14.5 square feet (1.35 square meters) to 30 square feet (2.79 square meters)
- Maximum flow rate: 140 gallons per minute (8.8 L/sec)
- 60-Hz or 50-Hz operation
- 10-, 30-, and 50-gpm (0.6-, 1.9-, and 3.2-L/sec) versions available
- 1/8-inch or 1/16-inch (3-mm or 1.5-mm) filter mesh available
- Five-year warranty



PROPAK PUMP PACKAGE



ProPak™ Simplex Effluent Pumping Packages

The first two columns list the components of a standard, programmable timed-dose pumping package (risers, lids, and adhesives sold separately). The next columns give drainback/cold-weather and demand-dose variations. Refer to the individual component sections in the catalog for assistance in selecting the specific models suitable for your application.

COMPONENT	PRODUCT CODE			
	TIMED DOSE	DRAINBACK	COLD WEATHER	DEMAND DOSE
RISER	RR2418+CLK+20	RR2418+CLK+20		RR2418+CLK+20
LID	FLD24G	FLD24G		FLD24G
ADHESIVES	ADH200 / MA320	ADH200 / MA320		ADH200 / MA320
SPLICE BOX	CLK3-60	CLK3-60		CLK4-60
BIOTUBE® PUMP VAULT	PVU68-1819-L	PVU68-1819-L		PVU68-1819-L
FLOAT SWITCH ASSEMBLY	MF3P-39V-CLK	MF3P-39V-CLK		MF4P-39V-CLK
DISCHARGE PLUMBING ASSEMBLY	HV200BCX	HV200BX-DB	HV200B	HV200BCX
			HVCW200KIT	
EFFLUENT PUMP	PF500511-CLK	PF500511-CLK		PF500511-CLK
CONTROL PANEL	MVP-S1DM	MVP-S1DMHT		MVP-S1DM

ProPak™ Duplex Effluent Pumping Packages

The first two columns list the components of a standard, programmable, timed-dose, alternating duplex pumping package (risers, lids, and adhesives sold separately). The next columns give drainback/cold-weather and demand-dose variations. All of these packages use two alternating pumps. Refer to the individual component sections in the catalog for assistance in selecting the specific models suitable for your application.

COMPONENT	PRODUCT CODE			
	TIMED DOSE	DRAINBACK	COLD WEATHER	DEMAND DOSE
RISER	RR3018+(2) SX+(2)12	RR3018+(2)SX+(2)12		RR3018+(2) SX+(2)12
LID	FLD30G	FLD30G		FLD30G
ADHESIVES (two each required)	ADH200/MA320	ADH200/MA320		ADH200/MA320
SPLICE BOX (two required)	SBEX1-4	SBEX1-4		SBEX1-4
BIOTUBE® PUMP VAULT	PVU68-1819-L	PVU68-1819-L		PVU68-1819-L
FLOAT SWITCH ASSEMBLY	MF4P-39V	MF4P-39V		MF4P-39V
DISCHARGE PLUMBING ASSEMBLY (two required)	HV125BCX	HV125BCX-DB	HV125B	HV125BCX
			HVCW125-KIT	
EFFLUENT PUMPS (two required)	PF300511	PF300511		PF300511
CONTROL PANEL	MVP-DAX1DM	MVP-DAX1DMHT		MVP-DAX1DM

EasyPak™ Pump Packages

Orenco® Biotube EasyPak Pump Packages (BEP) are designed to filter and pump effluent from pump tanks to gravity or pressurized dispersal systems. They're the first complete pump packages intended specifically for filtering and pumping effluent from pump tanks.



[View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Corrosion-resistant, stainless steel 4-inch (100-mm) effluent pump
- Polyethylene and PVC pump vault construction
- Polyethylene and PVC filter construction
- Float switch assembly and float switches included
- 10-, 20-, 30-, and 50-gpm (0.6-, 1.3-, 1.9-, and 3.2-L/sec) packages available
- ClickTight™ connection system, external splice box, or internal splice box available
- Demand-dose, analog timed-dose, or digital timed-dose control panel
- Standard, drainback, or cold weather discharge assembly
- 60-Hz or 50-Hz operation
- 1/8-inch (3-mm) filter mesh
- 10.53 square feet (0.98 square meters) total filter surface area
- Five-year warranty



EASYPAK PUMP PACKAGE



Low-Head Vault Packages

Orenco® Biotube Low-Head Vault Packages (BLHP) make it easy to select and install the correct pump vault and accessories. They are available with a variety of components designed to work together, reducing installation time and errors. The patent-pending Biotube vault is passively self-cleaning, which can extend periods between cleanings. The vault allows removal of the effluent filter for cleaning without removing the pump vault, to simplify service and maintenance work.



[View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Durable, one-piece polyethylene vault construction
- 46- and 60-inch (1168- and 1524-mm) vault heights (46-inch recommended for Infiltrator™ tanks)
- 17.88-inch (455-mm) vault diameter supports up to 14.1-inch (358-mm) diameter pumps
- Biotube filtration in passively self-cleaning configuration
- 1/8- or 1/16-inch (3.2- or 1.6-mm) filter mesh
- 12.5 square feet (1.16 square meters) total filter surface area
- 3.8 square feet (0.35 square meters) filter flow area
- 1/3- or 1/2-hp (0.25- and 0.37-kW) pumps
- Removable float switch assembly
- Alarm panel or control panel options
- Three-year warranty



LOW-HEAD VAULT PACKAGE



Universal Pump Vaults

Orenco® Biotube Universal Pump Vaults (PVU) can house one or two 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 liquid-only sewers 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.

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.

 [View Technical Data Sheet](#)

STANDARD MODELS

PVU48-1818, PVU57-1819, PVU68-2419, PVU84-2419, PVU95-3625

FEATURES AND SPECIFICATIONS:

- 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-, 68-, 72-, 84-, and 95-inch (1448-, 1727-, 1829-, 2134-, and 2413-mm) standard vault heights
- 42- to 188-inch (1067- to 4775-mm) custom vault heights available
- Vault width at widest point: 17.3 inches (439 mm)
- 13-, 19-, or 25-inch (330-, 483-, or 635-mm) standard inlet hole height
- 18-, 24-, or 36-inch (457-, 610-, or 914-mm) standard cartridge height
- 16-3/4-inch (425-mm) support pipe length for 24-inch (600-mm) riser
- 24-3/4-inch (629-mm) optional support pipe length for 30-inch (750-mm) risers
- 1/8- or 1/16-inch (3.2- or 1.6-mm) filter mesh



UNIVERSAL PUMP VAULT



For the most current product info and product codes, visit orenco.com.

PVP- & PVPM-Series Pump Vaults

Orenco® Biotube PVP- and PVPM-Series Pump Vaults (PVP, PVPM) feature a patent-pending, passively self-cleaning vault designed to extend cleaning intervals, along with a Biotube effluent filter cartridge that's removable for maintenance and cleaning without removing the pump(s). Both types of pump vaults (PVP for standard tanks and PVPM for Orenco's M-Series tanks) incorporate a molded-in flow inducer that houses one or two high-head effluent pumps. Effluent from a septic tank or dosing tank enters through the inlet port and flows through the Biotube filter cartridge before reaching the vault's flow inducer. The filter cartridge removes up to two-thirds of suspended solids from wastewater effluent in liquid-only sewers and onsite wastewater systems.



[View PVP Technical Data Sheet](#)



[View PVPM Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Unique, passively self-cleaning vault design
- Durable, one-piece molded polyethylene vault construction
- Easily removable effluent filter cartridge
- Integral ball valve for easy vault draining and removal
- Accepts one or two 4-inch (100-mm) high-head effluent pumps
- 14 square feet (1.3 square meters) total filter surface area
- PVP fits 22-inch (559-mm) minimum diameter tank openings and nominal 24-inch (600-mm) minimum diameter risers
- 60-inch (1524-mm) PVP height
- PVPM available in 52- and 65-inch (1320- and 1651-mm) heights for Orenco M1000 and M1500 tanks



PVP-SERIES PUMP VAULT



For the most current product info and product codes, visit orenco.com.

PV-Series Pump Vaults

Orenco® Biotube PV-Series Pump Vaults (PV) have a smaller diameter that's designed to fit in tanks with narrow access openings. They incorporate a molded-in flow inducer that houses one 4-inch (100-mm) effluent pump. PV55 vaults are used to filter up to two thirds of suspended solids from wastewater effluent flowing from septic tanks or separate dosing tanks in liquid-only sewers 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.



[View Technical Data Sheet](#)

STANDARD MODELS

PV55-1817, PV55-2417

FEATURES AND SPECIFICATIONS:

- Durable, one-piece molded polyethylene vault
- Schedule 80 PVC support pipes
- Narrow diameter
- Ball valve for easy draining and vault removal
- Removable effluent filter cartridge
- Capable of accepting one pump
- PV55 fits 16-inch (406-mm) minimum diameter tank openings and nominal 24-inch (600-mm) minimum riser diameter
- 55-inch (1397-mm) vault height
- 13 1/2-inch (343-mm) diameter
- 17-inch (432-mm) inlet hole height
- 18- or 24-inch (457- or 610-mm) cartridge height
- 16 3/4-inch (425-mm) support pipe length for 24-inch (600-mm) riser
- Shorter support pipes available for 21-inch (533-mm) risers



PV-SERIES PUMP VAULT



For the most current product info and product codes, visit orenco.com.

Low-Head Pump Vaults

Orenco® Biotube Low-Head Pump Vaults (LHV) use patented Biotube filtration to screen effluent for low-head effluent pumps. They can be used in two-compartment septic tanks and dose tanks. The passively self-cleaning design minimizes filter buildup. The float switch assembly and filter cartridge can be removed for maintenance without removing the pump vault.



[View Technical Data Sheet](#)

STANDARD MODELS

LHV46, LHV60, LHVP46, LHVP60

FEATURES AND SPECIFICATIONS:

- Durable, one-piece polyethylene vault construction
- Biotube filtration in passively self-cleaning configuration
- Ball valve for easy draining and vault removal
- Removable float switch assembly (sold separately)
- 17.88-inch (455-mm) vault diameter supports up to 14.1-inch (358-mm) diameter pumps
- 46- and 60-inch (1168- and 1524-mm) vault heights (46-inch recommended for Infiltrator™ tanks)
- 12.5 square feet (1.16 square meters) total filter surface area
- 3.8 square feet (0.35 square meters) filter flow area
- 1/8- or 1/16-inch (3.2- or 1.6-mm) filter mesh



LOW-HEAD PUMP VAULTS



For the most current product info and product codes, visit orenco.com.



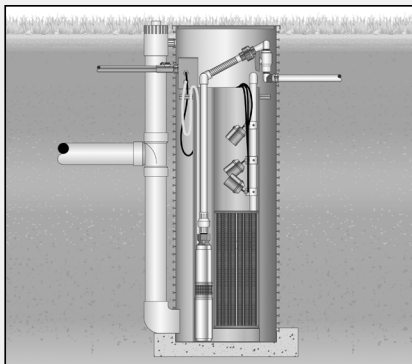
Basins

Orenco® offers several types of basins for residential and commercial use. Filter Basins are used to house filters in residential and commercial wastewater systems. FRP and PVC Basins hold pumps and related equipment. Stormwater Catch Basins are specifically designed to catch and filter stormwater runoff.

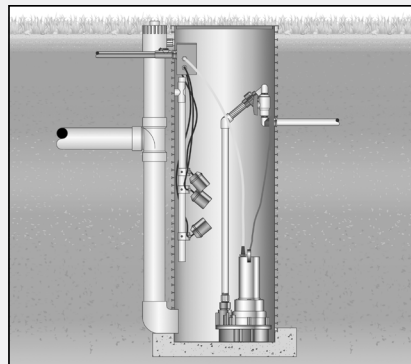
Section Details

PRODUCTS INCLUDE:

- PVC Pump Basins
- FRP Basins
- External Filter Basins
- Stormwater Catch Basins



Pump basin housing a pumping package.



Pump basin housing an effluent pump and float switches.



Interior of a finished pump basin.

PVC Pump Basins

Orengo® PVC Pump Basins (PB) are designed to house effluent pumps, sewage pumps, or grinder pumps in wastewater pumping applications and to house Orengo UV disinfection units. They're constructed of PVC pipe with an FRP base that's attached with epoxy for durability and watertightness. Options include splice boxes, float switch stem holders, flow inducers, and cleanout/vent assemblies.



[View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Durable, watertight PVC construction
- FRP access lids ordered separately
- 18- and 24-inch (450- and 600-mm) nominal diameters standard; other diameters available
- 48- to 144-inch (1219- to 3658-mm) height in 3-inch (76-mm) increments
- 4-inch (100-mm) nominal diameter inlet elbow included
- Float switch assembly bracket included

FRP Pump Basins

Orengo FRP Pump Basins (PBF) have an extremely high strength-to-weight ratio. They're designed to house high-head or low-head effluent pumps, sewage pumps, or grinder pumps in wastewater pumping applications, including onsite septic systems, effluent sewers, and grinder sewers. They're also used to house Orengo UV disinfection units. FRP basins are constructed of filament-wound, fiber-reinforced polymer with an FRP base that's attached with epoxy for durability and watertightness. Options include splice boxes, float switch holders, flow inducers, and cleanout/vent assemblies.



[View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- High strength-to-weight ratio
- Lightweight and durable
- Filament-wound and watertight
- Integral antifoatation base
- 24- and 30-inch nominal diameters (600- and 750-mm) available
- 144-inch (3658-mm) maximum height
- FRP access lids ordered separately



PVC PUMP BASIN



FRP PUMP BASIN

External Filter Basins

Orenco® External Filter Basins (FTB) are used to retrofit an existing residential septic system with an effluent filter. They eliminate the need for costly and sometimes hazardous modifications to an existing septic tank with restrictive access openings or to unusable outlet baffles or tees. External filter basins include a basin, an 8-inch (203-mm) Orenco effluent filter, and a grade ring for attaching a section of riser pipe to the basin.



[View Technical Data Sheet](#)

FEATURES AND SPECIFICATIONS:

- Ribbed PVC body
- FRP base
- Extendable filter handle for easy removal
- 18-inch (450-mm) nominal diameter basin
- 12-inch (305-mm) basin height
- 8-inch (203-mm) diameter Biotube effluent filter
- 4-inch (100-mm) nominal diameter inlet and outlet openings
- Orenco Biotube® effluent filter included
- Grade ring for 18-inch nominal diameter (450-mm) riser pipe included
- Additional riser for bringing basin to grade ordered separately
- 18-inch (450-mm) FRP access lid ordered separately



EXTERNAL FILTER BASIN

HOW TO SELECT

- STEP 1:** Determine the pump basin diameter.
- STEP 2:** Determine the pump basin height. Basin height must accommodate the pump height, the float switch settings, and the elevation between the invert of the inlet pipe and a point at least 1 inch above the finished grade level. The alarm level should be positioned at or below the invert of the inlet pipe.
- STEP 3:** Select the flow inducer option if required.
- STEP 4:** Select the cleanout vent option if required.
- STEP 5:** Determine if splice box and discharge grommet options are required.



For the most current product info and product codes, visit orengo.com.

Stormwater Catch Basins

Orenco® Stormwater Catch Basins (SCB) provide a cost-effective alternative to concrete or steel catch basins. Their lightweight, durable construction makes them quick to install, and their easy-to-remove filter screens make them simple to service and maintain.



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FEATURES AND SPECIFICATIONS:

- Easy-to-remove filter
- Screens materials to 1/8-inch (3-mm) diameter
- Nominal open area of filter is 50%
- 6-inch (150-mm) nominal diameter inlet and outlet pipe couplings for SCB1236-6L model
- 4-inch (100-mm) nominal diameter inlet and outlet couplings for all other models
- Durable ASA cap included



SCB1236-6L STORMWATER CATCH BASIN



SCB1236 STORMWATER CATCH BASIN



For the most current product info and product codes, visit [orencocom.com](https://www.orencocom.com).



Effluent Pumps

Orenco® High-Head Effluent Pumps are designed for pumping screened effluent with low total suspended solids (TSS) levels in onsite wastewater systems. They transfer effluent from septic or dosing tanks to AdvanTex® filters, packed-bed filters, aerobic units, mounds, sewage lines, drip irrigation systems, lagoons, and drainfields.

Orenco Low-Head Pumps are used primarily for moving effluent to low-pressure (gravity) areas, transporting sewage from pump basins to primary tanks, or grinding and pumping sewage to pressure sewer lines.

Section Details

PRODUCTS INCLUDE:

- PF-Series Submersible Effluent Pumps
- P-Series Submersible Effluent Pumps
- PVA-Series Submersible Effluent Pumps
- High-Flow Submersible Effluent Pumps
- Submersible Effluent Pumps
- Submersible Sewage Pumps
- Submersible Sewage Grinder Pump



PF-Series Submersible Effluent Pumps

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



PF-Series 50-Hz Effluent Pumps
[View Technical Data Sheet](#)



PF-Series 60-Hz, 1-Phase Effluent Pumps
[View Technical Data Sheet](#)



PF-Series 60-Hz, 3-Phase Effluent Pumps
[View Technical Data Sheet](#)



PF-SERIES SUBMERSIBLE EFFLUENT PUMP



POWERED BY
Franklin Electric

FEATURES AND SPECIFICATIONS:

- Lightweight, corrosion-resistant stainless steel and engineered plastic construction
- For use with a Biotube® Pump Vault or after secondary wastewater treatment
- Minimum 24-hour run-dry capability (liquid end) with no deterioration in pump life or performance, excluding 5-hp (3.3-kW) models
- Super Stainless motor by Franklin Electric; rated for continuous use
- Rated for frequent cycling
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- Type SOOW 600-V motor cable; suitable for Class I, Division 1 and Class I, Division 2 applications
- Franklin Electric's TRI-SEAL™ floating impeller design on 10-, 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
- Repairable liquid end (repair kits available)
- 60-Hz and 50-Hz models available
- CSA certified to US and Canadian safety standards (60-Hz only)
- Manufactured exclusively for Orenco
- Five-year warranty on pump or retrofit liquid end from date of manufacture against defects in materials or workmanship



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids

P-Series Submersible Effluent Pumps

Orenco® P-Series 4-Inch (100-mm) Submersible Effluent Pumps (P) are used to transport filtered effluent with low TSS counts. They're designed to be used in a variety of Orenco pumping packages, typically in a Biotube® ProPak™ pumping package. P-Series Pumps are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics.



[View Technical Data Sheet](#)

STANDARD MODELS

P100511, P200511, P300511

FEATURES AND SPECIFICATIONS:

- Lightweight, corrosion-resistant stainless steel and engineered plastic construction
- Run-dry capability (liquid end)
- Pentair's Pentek™ XE series motor with built-in thermal overload protection
- 1/2-hp (0.37-kW), 115-V, single-phase, 60 Hz
- 10-, 20-, and 30-gpm (0.6-, 1.3-, and 1.9-L/sec) models available
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- 16 AWG, 3-conductor Type SOOW 600-V motor cable (suitable for Class I, Division 1 and Division 2 applications)
- 36-month warranty from date of manufacture on liquid end against defects in materials or workmanship



P-SERIES SUBMERSIBLE EFFLUENT PUMP



POWERED BY
Franklin Electric



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids

PVA-Series Submersible Effluent Pumps

Orenco® PVA-Series 4-inch (100-mm) Submersible Effluent Pumps (PVA) are used to transport filtered effluent with low counts of Total Suspended Solids (TSS). They're 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.



[View Technical Data Sheet](#)

STANDARD MODELS

PVA100511, PVA300511, PVA500511

FEATURES AND SPECIFICATIONS:

- Lightweight, corrosion-resistant stainless steel and engineered plastic construction
- Run-dry capability (liquid end)
- Composite Franklin Electric motor
- Built-in thermal overload protection
- 1/2 HP (.37 kW), 115-V
- 10-, 30-, and 50-gpm (0.6-, 1.9-, and 3.2-L/sec) models available
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- 16 AWG, 3-conductor Type SOOW 600-V motor cable (suitable for Class I, Division 1 and Division 2 applications)
- Manufactured exclusively for Orenco
- Five-year warranty from date of manufacture on liquid end against defects in materials or workmanship



PVA100511, PVA300511, AND PVA500511 PUMPS



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids

High-Flow Submersible Effluent Pumps

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

 [View Technical Data Sheet](#)

STANDARD MODELS

PFG1802012, PFG1802032, PFG180203200, PFG1802034,
PFG1803012, PFG1803032, PFG180303200, PFG1803034

FEATURES AND SPECIFICATIONS:

- Corrosion-resistant stainless steel construction
- Grundfos 6-inch (150-mm) liquid end
- Super Stainless motor by Franklin Electric; rated for continuous use
- Motor rated for frequent cycling
- Requires 7-inch (200-mm) flow inducer
- 180 gpm (11.4 L/sec) capability
- 2-hp and 3-hp (1.5-kW and 2.2-kW) models available
- Type 14/4 SOOW 600-V motor cable suitable for Class I, Division 1 and Class I, Division 2 applications
- CSA certified to US and Canadian safety standards
- Five-year warranty on pump or liquid end from date of manufacture against defects in materials or workmanship



PFG-SERIES 60-HZ, HIGH-FLOW EFFLUENT PUMP



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids

Submersible Effluent Pumps

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



[View Technical Data Sheet](#)

STANDARD MODELS

PFEF4011-B, PFEF4012, PFEF5011-B, PFEF5012-B, PFEF10012-B

FEATURES AND SPECIFICATIONS:

- 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



PFEF4012 SUBMERSIBLE EFFLUENT PUMP



PFEF5011-B SUBMERSIBLE EFFLUENT PUMP



PFEF4011-B SUBMERSIBLE EFFLUENT PUMP



POWERED BY
Franklin Electric



For the most current product info and product codes, visit orenco.com.

Submersible Sewage Pumps

Orenco® Submersible Sewage Pumps (PFSW) are typically used to transport sewage – including solids up to 2 inches (51 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. All PFSW units are manufactured by Franklin Electric.



[View Technical Data Sheet](#)

STANDARD MODELS

PFSW5011-B, PFSW5012-B, PFSW10012-B, PFSW15012

FEATURES AND SPECIFICATIONS:

- Handles up to 2-inch (51-mm) diameter solids
- 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



PFSW SUBMERSIBLE SEWAGE PUMP



POWERED BY
Franklin Electric



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids

Submersible Sewage Grinder Pumps

Orenco® Submersible Sewage Grinder Pumps (PFSWG) are typically used to transport sewage – including solids up to 2 inches (51 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. All PFSWG units are manufactured by Franklin Electric.



[View Technical Data Sheet](#)

STANDARD MODEL

PFSWG200

FEATURES AND SPECIFICATIONS:

- Handles up to 2-inch (51-mm) diameter solids
- Cast-iron pump housing and cover
- Corrosion-resistant epoxy coating
- Short motor shaft for reduced deflection
- Built-in protection for thermal overload and over-current conditions
- Tight cutting clearances
- 414,000 cuts per minute
- CSA and UL listed
- Three-year warranty from date of manufacture



SUBMERSIBLE SEWAGE GRINDER PUMP



POWERED BY
Franklin Electric



PUMPSELECT™ PROGRAM

Our PumpSelect program takes the guesswork out of sizing pumps and configuring carrier lines.

PumpSelect provides fast, error-free hydraulic calculations and generates system curves that you can use to select Orenco® pumps for your system.

For the most current version, visit: orenco.com/design-aids



Biotube[®] Effluent Filters

Oreco[®] Biotube Effluent Filters help prevent large solids from being discharged from septic tanks, enhancing effluent quality and extending drainfield life. Effluent flows from the septic tank's "clear zone" into the filter, where large suspended solids are retained for further breakdown.

These filters have 5-10 times more flow area than competing options, resulting in lower maintenance costs and less frequent need for cleaning. Oreco offers a variety of effluent filters for both residential and commercial wastewater applications.

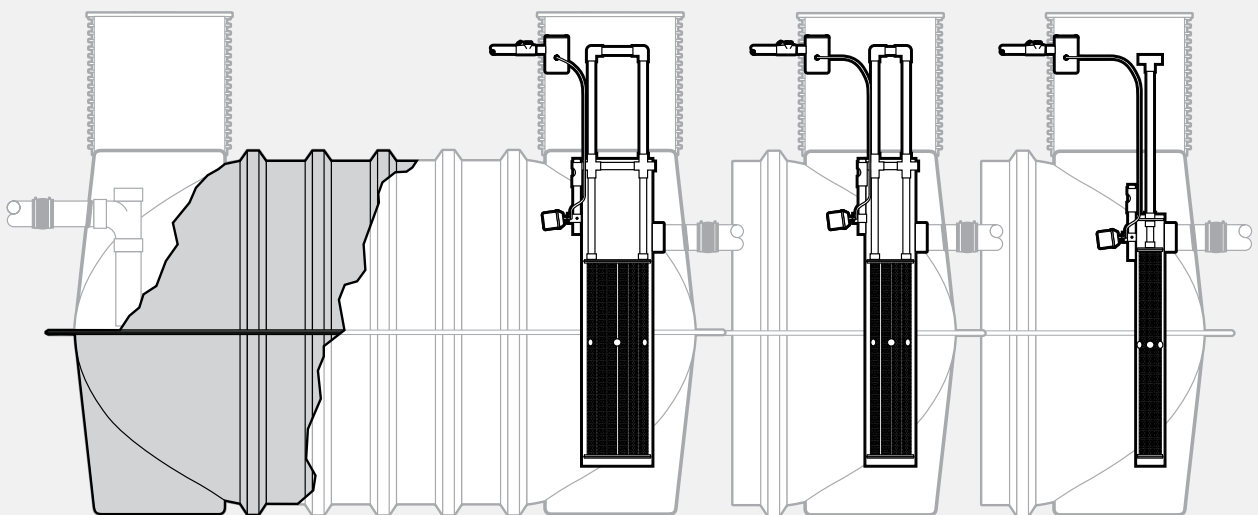
Section Details

PRODUCTS INCLUDE:

- PSC-Series Effluent Filters
- FT-Series Residential Effluent Filters
- FT-Series Commercial Effluent Filters
- Junior Effluent Filters
- Effluent Filter Inserts

 [Effluent Filter Facts](#)

 [Effluent Filter Sizing](#)



PSC-Series Effluent Filters

Orenco® patent-pending PSC-Series Biotube Effluent Filters (PSC) remove about two-thirds of suspended solids from effluent, helping extend drainfield life. They're used in onsite dispersal systems and to help downstream treatment in liquid-only sewers. These filters install on Schedule 40 or Type 3034 outlet pipe in the septic tank.



[View Technical Data Sheet](#)

STANDARD MODELS

PSCS0621-18, PSCW0621-18, PSCPS0621-18, PSCPW0621-18

FEATURES AND SPECIFICATIONS:

- Corrosion-proof construction
- Passively self-cleaning design allows for longer time between cleanings
- 22.7-inch (577-mm) overall height, standard
- 3/4-inch (19-mm) diameter extendable tee handle included
- 6-inch (150-mm) nominal filter diameter
- 1/8- or 1/16-inch (3- or 1.5-mm) filter mesh available
- Easy to clean
- Optional float switch bracket for high-level alarm assembly (high-level alarm assembly ordered separately)
- NSF 46 certified
- Lifetime warranty



PSC-SERIES BIOTUBE EFFLUENT FILTERS



For the most current product info and product codes, visit [orengo.com](https://www.orengo.com).

FT-Series Residential Effluent Filters

Orenco® FT-Series Biotube Residential Effluent Filters (FT) remove about two-thirds of suspended solids from effluent, helping extend drainfield life. They're used in new or existing tanks for residential and light commercial applications. These filters install on Schedule 40 or type 3034 outlet pipe in the septic tank.



[View Technical Data Sheet](#)

STANDARD MODELS

FTS0444-36, FTS0444-36M, FTW0436-28, FTW0444-36, FTW0444-36M

FEATURES AND SPECIFICATIONS:

- Corrosion-proof construction
- 4-inch (100-mm) nominal filter diameter
- Extendable handle
- 1/8-inch (3-mm) or 1/16-inch (1.5-mm) filter mesh available
- Easy to clean
- Optional flow modulation plate available
- Optional float switch bracket for high-level alarm assembly (high-level alarm assembly ordered separately)
- Lifetime warranty



BIOTUBE RESIDENTIAL EFFLUENT FILTERS



For the most current product info and product codes, visit orenco.com.

FT-Series Commercial Effluent Filters

Orenco® Biotube Commercial Effluent Filters (FT) remove about two thirds of suspended solids from effluent, helping extend drainfield life. They're used in new or existing tanks for commercial or heavy residential applications. These filters come with a filter cartridge, PVC housing, and an extendable PVC handle. A slide rail is available as an option for large filters to make it easier to install and service, and it's required on filters for tanks that have only one access location.



[View Technical Data Sheet](#)

STANDARD MODELS

FT0854-36, FT1254-36, FT1554-36, FT1254-36AR

FEATURES AND SPECIFICATIONS:

- Corrosion-proof construction
- 8-, 12-, or 15-inch (200-, 300-, or 375-mm) nominal filter diameters
- Extendable handle
- 1/8- or 1/16-inch (3.2- or 1.5-mm) filter mesh available
- Easy to clean
- Support bracket included with 12- and 15-inch (300- and 375-mm) models
- Optional slide rail for easy installation and tank access for servicing (required for use in tanks with only one access)
- Optional float switch bracket available for high-level alarm assembly
- High-level alarm assembly ordered separately
- Limited warranty



BIOTUBE COMMERCIAL EFFLUENT FILTERS



For the most current product info and product codes, visit orenco.com.

Junior Effluent Filters

Orenco® Biotube Junior Effluent Filters (FTJ) remove about two-thirds of suspended solids from effluent, helping extend drainfield life. They're designed for small flows or for septic tanks that aren't tall enough to fit a full-size Biotube® effluent filter. These filters install on Schedule 40 or Type 3034 outlet pipe in a septic tank. They come with a filter cartridge, PVC housing, and an extendable PVC handle.

FEATURES AND SPECIFICATIONS:

- Corrosion-proof construction
- 18-inch (457-mm) filter height
- 4-inch (100-mm) nominal filter diameter
- Extendable handle
- 1/8- or 1/16-inch (3- or 1.5-mm) filter mesh available
- Easy to clean
- Lifetime warranty

Effluent Filter Inserts

Orenco Biotube Effluent Filter Inserts (FTI) remove about two thirds of suspended solids from effluent, helping extend drainfield life. They're ideal for fast, economical retrofit applications in residential septic tanks. They install in minutes within typical Schedule 40 or type 3034 outlet tees found in most septic tanks.

FEATURES AND SPECIFICATIONS:

- Corrosion-proof construction
- 18-inch (457-mm) filter height
- 1/8-inch (3-mm) filter mesh
- Installs in minutes inside existing tanks
- Easy to clean



BIOTUBE JUNIOR EFFLUENT FILTER



BIOTUBE EFFLUENT FILTER INSERT



For the most current product info and product codes, visit orenco.com.



Float Switches, Discharge Assemblies, and Accessories

Orenco® Float Switches signal liquid levels for alarm and pump control. Housings are made of impact resistant, noncorrosive PVC; cords are made of flexible SJOW with neoprene coating. Float switch assemblies mount in pump vaults, basins, or risers. All float switch models are UL listed and CSA certified for water or sewage.

Orenco Discharge Assemblies transport effluent from pumps to downstream components. High-head and low-head options are available, with optional drainback feature.

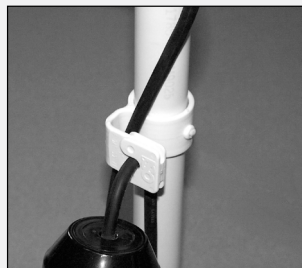
Section Details

PRODUCTS INCLUDE:

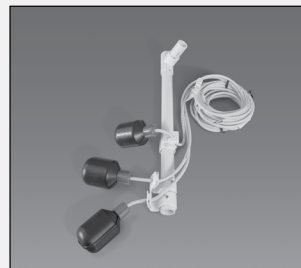
- Float Switches and Assemblies
- HDA-Series Discharge Assemblies
- HV-Series Discharge Assemblies
- Float Switch Collars
- Float Switch Brackets



Float switches are used to signal liquid-level positions.



Float switches easily attach using float switch collars.



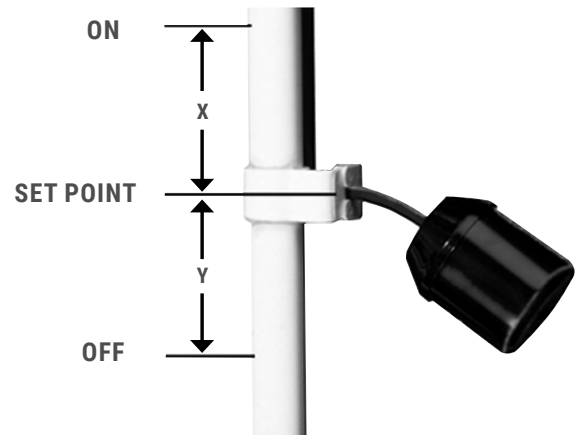
Float switch assemblies are mounted on float switch stems.



HDAs are mounted to keep a pump suspended in the vault.

How a Float Switch Works

A float switch is a liquid-level sensor. Float switches come in many shapes and sizes, but they all operate in a similar manner. They often have two wires attached to a contact inside the float switch. This contact behaves like a light switch. In one position, the switch is closed and allows current to flow through; in the other position, the current is cut off. As a float switch is lifted by the liquid, a mechanism changes the state of the contact to either open or closed.



FLOAT SWITCH DRAWDOWN

Float Switch Terminology

The operation of the control panel is closely tied to the float switches that are attached to it. Different panels support different numbers and types of float switches. The terminology descriptions below will help you understand the differences between the various Orenco float switch models and help simplify your float switch selection.

NORMALLY OPEN OR NORMALLY CLOSED

All float switches have an internal contact. When the contact is closed, it completes a circuit and sends a signal. The “normal” state for float switches is when they are hanging in the down position. “Normally open” switches do not send a signal in the down position; “normally closed” switches do send a signal in the down position.

Different panel functions require different types of float switches. Most applications require float switches that are normally open. One notable exception is the redundant off and low-level alarm function that requires a normally closed float switch, except with MVP and VCOM panels.

SIGNAL RATED OR MOTOR RATED

Every float switch has a maximum amount of current it can handle. Exceeding these limits may cause premature failure. Signal-rated or “control” switches are used to activate pump control panels and alarms. Only low amperage signals pass through these float switches,

hence the switch is “signal rated.” All Orenco panels that use motor contactors can use signal-rated float switches. In some systems, a float switch is used to directly start and stop a pump. In this application, the current that is running the pump passes through the switch as well, and the float switch must be “motor rated.” In most instances, a motor-rated float switch can be used as a signal float switch.

DRAWDOWN

Drawdown (in inches or millimeters) refers to the difference in liquid level between a float switch’s activation and deactivation points. Drawdown can be altered by adjusting the tether length of the float switch cord. When selecting float switches, keep in mind that any float switch that can directly start and stop a pump should have a drawdown capability, to avoid rapid cycling of the pump.

TYPE

Float switches have mechanical or mercury contactor types. The important distinction between these is that mercury float switches are not rated for potable water.

IR (INTRINSICALLY SAFE RELAY)

These float switches are approved for use with intrinsically safe, Class I, Division 1 applications, where reliable float switch operation with very low current is required.

Float Switches and Assemblies

Orengo® Signal-Rated, Mechanical (Non-Mercury) Float Switches (MF) are used with pump control panels and alarms in areas where components containing mercury are prohibited. They're intended for low-amperage signals and aren't capable of carrying the current necessary to start or operate a pump. They have a "drawdown" value, which is the difference in liquid level between the switch's activation and deactivation points.

 [View Technical Data Sheet](#)

STANDARD MODELS

B, C, G, J, N, P

FEATURES:

- Normally open (contact open when down) and normally closed (contact closed when down) switches available
- Approved for intrinsically safe relays (very low amperage)
- Available in a 2-inch (51-mm) nominal drawdown

Orengo Motor-Rated, Mechanical (Non-Mercury) Float Switches (MF) are used with pump control panels and alarms in areas where components containing mercury are prohibited. They're intended to carry starting and operating current for a pump. They have a "drawdown" value, which is the difference in liquid level between a float switch's activation and deactivation points.

FEATURES:

- Normally open (contact open when down) and normally closed (contact closed when down) switches available
- Approved for intrinsically safe relays (very low amperage)
- 4- to 9-inch (101- to 241-mm) drawdown options available
- Supports a wide range of motors (see technical data sheet for details)

Orengo Float Switch Assemblies (MF) are preassembled with one or more float switches secured by float switch collars mounted on a 1-inch (25-mm) nominal diameter PVC float switch stem.

FEATURES:

- Preassembled
- Easy to adjust in the field with no special tools
- Quick-release clips



SIGNAL- AND MOTOR-RATED FLOAT SWITCHES



FLOAT SWITCH ASSEMBLY

HDA-Series Discharge Assemblies

Orenco® HDA-Series Hanging Discharge Assemblies (HDA) are designed to provide simple, durable, watertight installation and clear access to tank and basin components. The assembly combines an ABS mounting plate, quick disconnect fittings, flexible high-pressure hose, and stainless steel fittings. Hanging discharge assemblies are ideally suited for sites with deep burial needs or cold weather conditions.



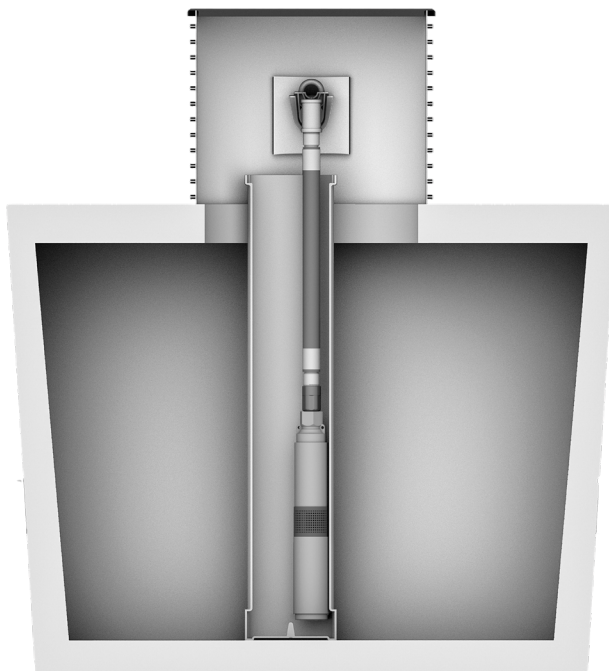
[View Technical Data Sheet](#)

STANDARD MODELS

HDAS24125CFCASLC-XX, HDAD24125CFCASLC-XX

FEATURES AND SPECIFICATIONS:

- Corrosion resistant
- Mounted to keep the pump suspended in the pump vault
- Flexible hose dampens pump vibrations
- Quick-disconnect makes pump removal and maintenance easy
- Hose lengths come in 1/4-inch (6-mm) increments
- Supports Orenco 10-, 20-, and 30-gpm (0.6-, 1.3-, and 1.9-L/sec) pumps
- Check valve and anti-siphon options available
- Simplex or duplex pump arrangements available



HDA-SERIES HANGING DISCHARGE ASSEMBLY



HDA-SERIES HANGING DISCHARGE ASSEMBLY
ATTACHED TO EFFLUENT PUMP

HV-Series Discharge Assemblies

Orenco® HV-Series Discharge Assemblies (HV, HVCW, HVX) are used to transport effluent from a pump to a location or component that's 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.



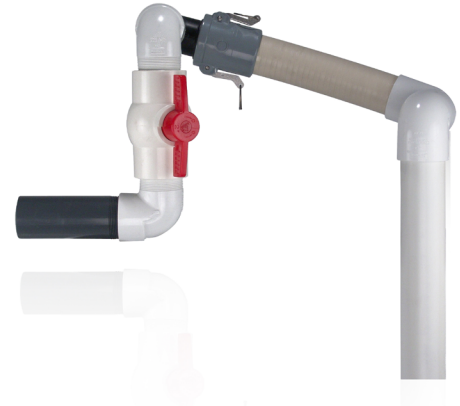
[View Technical Data Sheet](#)

STANDARD MODELS

HV100BCX, HV125BCX, HV150BCX, HV200BCX

FEATURES AND SPECIFICATIONS:

- Corrosion resistant
- Solvent-welded or threaded and sealed connections
- Flexible hose dampens pump vibrations and simplifies installation and maintenance
- Drainback feature for shallowly buried tanks and transport lines in cold climates
- 1-, 1 1/4-, 1 1/2-, and 2-inch (25-, 32-, 40-, and 50-mm) nominal diameter assemblies available
- External flex extensions available for installations where tank settling may occur
- Cold-weather kits available
- High-pressure, flexible hose available
- Cam-style, quick-disconnect fittings available



HV-SERIES HANGING DISCHARGE ASSEMBLY



COLD WEATHER KIT



For the most current product info and product codes, visit orenco.com.

Float Switch Collars

Orenco® Float Switch Collars (MFCOLLAR) are the simplest, most reliable way to attach a float switch to a Schedule 40 PVC float switch stem.

FEATURES AND SPECIFICATIONS:

- Secure, non-slip attachment for float switches
- For use with a 1-inch (25-mm) Schedule 40 PVC float switch stem
- Durable ABS construction
- No special tools required for mounting or adjusting
- Quick-release clip
- Works with 18/2 and 16/2 AWG cords (MFCOLLAR1) or 16/3 AWG cords (MFCOLLAR1L)



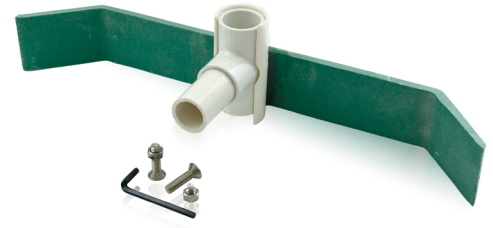
FLOAT SWITCH COLLAR

Float Switch Brackets

Orenco Float Switch Brackets (PBFB, RRFB) are installed on the inside of a PVC access riser for mounting a float switch stem and float switches. Two models are available.

FEATURES AND SPECIFICATIONS:

- PBFB model mounts with adhesive close to the riser wall
- RRFB model bolts into a riser wall for an offset mount (stem aligns to tank opening)
- Accepts 1-inch (25-mm) nominal diameter float switch stems
- Ideal for system upgrades and repairs
- Adhesive ordered separately



FLOAT SWITCH BRACKET



For the most current product info and product codes, visit orencocom.com.



Connection Systems and Splice Boxes

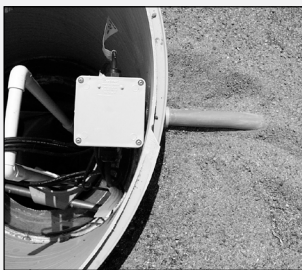
Wiring is a whole lot easier with the Orenco® ClickTight™ Wiring Connection System. Quickly and securely connect a control panel, a pump, and up to four float switches, with no need for splice boxes or watertight wire nuts.

Orenco Splice Boxes are used to house spliced wire connections between an electrical control panel and equipment like effluent pumps and float switches. Internal and external splice boxes are available. Accessories like cord grips and waterproof wire nuts provide watertight clamping of float switch cords and positive electrical connections in splices.

Section Details

PRODUCTS INCLUDE:

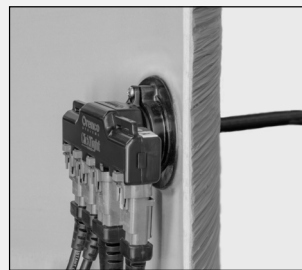
- ClickTight Wiring Connection Systems
- External Splice Boxes
- Internal Splice Boxes
- Explosion-Proof Splice Boxes
- Conduit Seal Kits
- Cord Grips
- Waterproof Wire Nuts



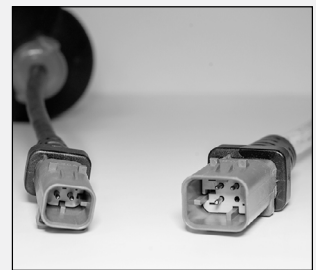
Internal splice box installed inside riser.



External splice box installed on riser.



ClickTight installed tight to riser wall.



ClickTight connectors click into place quickly and easily.

ClickTight™ Wiring Connection Systems

Orenco® ClickTight Wiring Connection Systems (CLK) greatly reduce the risk of electrical failures in onsite wastewater systems. They provide secure, water-resistant cable connections between a control panel, up to four ClickTight-compatible float switches, and a pump. They eliminate the need for splice boxes, field-spliced wires, wire nuts, and conduit seals. The units are available in cable lengths of 60 feet or 90 feet.

ClickTight installs easily in an access riser, where it fits close to the riser wall to provide clearance for O&M activities. The ClickTight is fully potted and sealed to prevent moisture and corrosive gas from reaching the control panel.



[View Technical Data Sheet](#)

STANDARD MODELS

CLK2-60, CLK3-60, CLK4-60, CLK2-95, CLK3-95

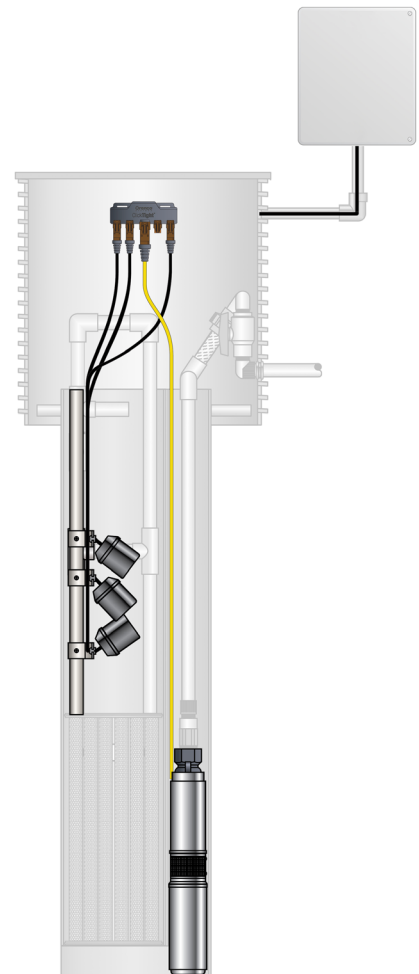
FEATURES

- Replaces field splicing with molded waterproof* connector system
- Protects against effects of moisture and corrosion
- Reduces common wiring errors
- Makes reliable wiring connections
- Decreases installation time
- Allows troubleshooting of pump and float switch issues in minutes
- Allows for replacement of float switches and pumps in one click

**Per connector manufacturer's specification.*



CLICKTIGHT WIRING CONNECTION SYSTEMS



For the most current product info and product codes, visit orencocom.

External Splice Boxes

Orenco® External Splice Boxes (SBEX) are installed outside of access risers to house spliced wire connections between an electrical control panel and equipment like effluent pumps and float switches. Separate conduit hubs, a large volume, and optional dividers make SBEX external splice boxes useful for maintaining isolation of high- and low-voltage wires where needed. Each external splice box is provided with a hole-cutting template to simplify installation and a riser adapter designed to provide a watertight connection between the splice box and riser.



[View Technical Data Sheet](#)

STANDARD MODELS

SBEX1-4, SBEX1-4-P

FEATURES AND SPECIFICATIONS:

- Type 6X-rated for prolonged submergence
- Constructed of UL-rated PVC alloy
- Buna rubber sealing ring
- Four type 6X-rated, 1/2-inch (15-mm) cord grips included, standard
- Three EPDM rubber cord grip plugs included, standard
- 100-inch³ (1639 cm³) volume for easy wiring access
- Bottom entry to maintain minimum burial depth (two hubs)
- Easy to inspect without removing the riser lid
- Waterproof wire nuts included

HOW TO SELECT

- STEP 1:** Determine the number of float switch cords.
- STEP 2:** Determine the number of pump cords.
- STEP 3:** Add the number of float switch cords and pump cords together. This number indicates how many cord grips are required.
- STEP 4:** Determine whether a divider plate is needed to separate Class 1 and Class 2 or 3 wiring.



EXTERNAL SPLICE BOX



EXTERNAL SPLICE BOX ON RISER CUTAWAY



For the most current product info and product codes, visit orencocom.com.

Internal Splice Boxes

Orenco® Internal Splice Boxes (SB) are installed inside of access risers to house spliced wire connections between an electrical control panel and equipment like effluent pumps and float switches. Orenco internal splice boxes come standard with 1-6 watertight cord grips. Waterproof wire nuts, a neoprene sealing gasket, and four stainless steel lid screws are included.



[View Technical Data Sheet](#)

STANDARD MODELS

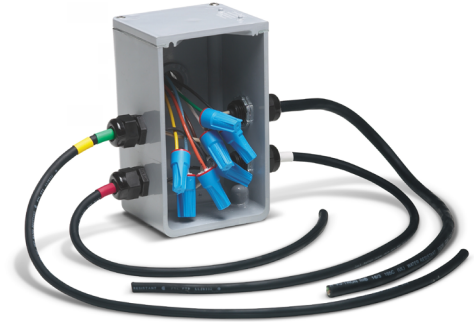
SB1, SB2, SB3, SB4, SB5, SB6

FEATURES AND SPECIFICATIONS:

- Conforms to UL 514C, CSA C22.2 No. 85 1968
- Type 4X (IP66) rated
- Neoprene sealing gasket included
- Stainless steel lid screws included
- Waterproof wire nuts included
- One to six 1/2-inch (13-mm) cord grips, standard
- Cord grips available for 3/4-inch (19-mm) AWG cord and CE-rated 1.5 × 3 flat cable
- Standard conduit coupling length of 1 5/8-inch (41-mm) for PVC risers
- Conduit coupling length of 3 1/4-inch (82-mm) for concrete risers

HOW TO SELECT

- STEP 1:** Determine the number of float switch cords.
- STEP 2:** Determine the number of pump cords.
- STEP 3:** Add the number of float switch cords and pump cords together. This number indicates how many cord grips are required.



INTERNAL SPLICE BOX



For the most current product info and product codes, visit orenco.com.

Explosion-Proof Splice Boxes

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



[View Technical Data Sheet](#)

STANDARD MODELS

SBX-S, SBX-D, SBX-T

FEATURES AND SPECIFICATIONS:

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



EXPLOSION-PROOF SPLICE BOX



For the most current product info and product codes, visit orenco.com.

Conduit Seal Kits

Orenco® Conduit Seal Kits (SBCS) create a watertight, gastight seal between a conduit and a splice box, preventing the passage of liquids, vapors, and flames. The kits include a seal fitting, fiber batting, and pipe cement.



[View Technical Data Sheet](#)

STANDARD MODELS

SBCS075, SBCS100

SPECIFICATIONS:

- UL listed
- 3/4- and 1-inch (19- and 25-mm) conduit sizes
- Aluminum seal fitting



CONDUIT SEAL KIT

Cord Grips

Orenco Cord Grips (SBCG) provide watertight strain relief for float switch cables, pump cables, and other wiring that goes into Orenco external or internal splice boxes. Cord grips are also available to accommodate single- and three-phase CE-rated 1.5 × 3 flat cords.

SPECIFICATIONS:

- Type 4X (IP66) or Type 6X ratings available
- 1/2-inch (15-mm) NPT threads on standard cord grips
- 3/4-inch (20-mm) NPT threads on large cord grips
- 212° F (100° C) maximum temperature rating



CORD GRIPS

Waterproof Wire Nuts

Orenco Waterproof Wire Nuts (SBAB) provide waterproof connections between wires in splice boxes. Two sizes are available, small and large. These nuts are not reusable.

SPECIFICATIONS:

- 600 V
- Rated for outdoor connections



WATERPROOF WIRE NUTS



For the most current product info and product codes, visit orenco.com.



Control Panels and Alarms

Orenco Controls™ specializes in designing and manufacturing control and monitoring systems for the water and wastewater industries. Products range from simple stand-alone alarms to MVP digital programmable control panels, web-based remote telemetry systems, and fully custom telemetry solutions – delivering exceptional performance and the best overall value.

Our controls are carefully engineered, built with name-brand components, and competitively priced. They're assembled in a UL-certified 508A/698A shop and comply with CE standards for European markets. All Orenco control panels are warranted for three full years.

Section Details

PRODUCTS INCLUDE:

- A-Series Simplex Alarm Panels
- Liquid-Level Alarm Panels
- 9 VDC Liquid-Level Alarm Panels
- ClickTight™ Controls Packages
- MVP Simplex Control Panels
- MVP Duplex Control Panels
- S-Series Simplex Control Panels
- DAX-Series Duplex Control Panels
- VeriComm® Simplex Control Panels
- Standard TCOM™ Control Panels



S-Series panels control single pumps and alarms.



MVP control panels are used to control single pumps and provide alarm functions in on-site pumping systems.



VCOM telemetry-enabled control panels provide remote supervision of on-site systems.

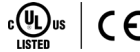
A-Series Simplex Alarm Panels

Orenco Controls™ A-Series Simplex Alarm Panels (A) are used to control pump motors and alarm functions in simplex pumping systems. These panels are a low-cost option for pump controls in gravity or pressurized drainfields where cost is the critical factor.

 [View Technical Data Sheet](#)

STANDARD MODELS

A1, A2



FEATURES AND SPECIFICATIONS:

- Low cost
- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breaker
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Automatic alarm silence reset
- Type 4X (IP 66) rated enclosure
- Motor-rated pump on/off float switch ordered separately
- Limited optional features available



A-SERIES SIMPLEX ALARM PANEL



For the most current product info and product codes, visit orenco.com.

Liquid-Level Alarm Panels

Orenco Controls™ Liquid-Level Alarm Panels (AMAHW, AMLAHW) are 120 VAC, stand-alone panels. The AMAHW has an automatic alarm reset function, where the AMLAHW has a manual reset function. They have a watertight enclosure rated for indoor or outdoor use. The AMAHW and AMLAHW can be used as a remote alarm panel when supplied with a 120 VAC signal from a primary control panel.



[View Technical Data Sheet](#)

STANDARD MODELS

AMAHW, AMLAHW



FEATURES AND SPECIFICATIONS:

- 120 VAC required
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Type 4X (IP 66) rated enclosure
- Rated for indoor or outdoor use
- Signal-rated float switch ordered separately



AMAHW ALARM PANEL



AMLAHW ALARM PANEL



For the most current product info and product codes, visit orenco.com.

9 VDC Liquid-Level Alarm Panels

Orenco Controls™ Sentinel Series of 9 VDC Alarm Panels (AMSENTI) is designed to provide liquid-level alarm functions in remote locations without 120 VAC power or indoor/outdoor applications where only 120 VAC outlet power is available.

 [View Technical Data Sheet](#)

STANDARD MODELS

AMSENTI, AMSENTII, AMSENTII-W



9 VDC LIQUID-LEVEL ALARM PANEL

FEATURES:

- 9 VDC with battery included (AMSENTII and AMSENTII-W)
- AC adapter (AMSENTI only)
- Red LED alarm light
- 85 dB audible alarm (AMSENTI and AMSENTII)
- 80 dB audible alarm (AMSENTII-W)
- Test/Silence/Auto toggle switch
- Indoor use only (AMSENTI and AMSENTII)
- Type 4X (IP 66) rated enclosure for indoor or outdoor use (AMSENTII-W only)
- Signal-rated float switch ordered separately



For the most current product info and product codes, visit orencocom.

ClickTight™ Controls Packages

Orenco Controls™ ClickTight Controls Packages (CLKP) are complete, integrated packages for making fast and easy wiring connections. They greatly reduce the risk of electrical failures due to moisture, faulty splices, improperly installed waterproof wire nuts, or corrosion.

Connect a control panel, a pump, and up to four float switches with the ClickTight Controls Package – no need for splice boxes, field-spliced wires, wire nuts, and conduit seals.

The ClickTight controls package includes:

- ClickTight connector
- ClickTight-compatible control panel
- ClickTight-compatible float switches
- Optional ClickTight pump adapter plug

 [View Technical Data Sheet](#)



CLICKTIGHT CONTROLS PACKAGE

FEATURES:

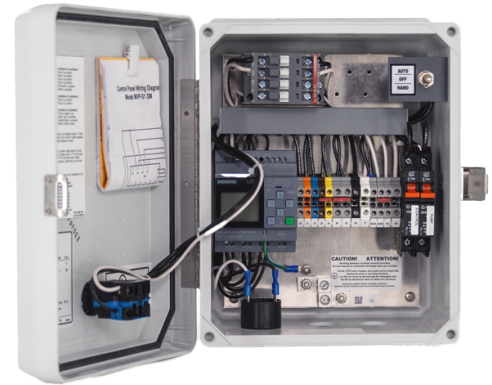
- Quick and secure connections
- Reduces common wiring errors with the use of color-coded wires and terminals
- Allows for troubleshooting of pump and float switch issues in minutes
- Greatly reduces the risk of electrical failures due to moisture, faulty splices, or corrosion



For the most current product info and product codes, visit orenco.com.

MVP Simplex Control Panels

Orenco Controls™ MVP Simplex Control Panels (MVP-S) are digital, programmable panels used to control single pumps and provide alarm functions in onsite pumping systems. They include easy-to-use, programmable logic units that incorporate multiple built-in timing and logic functions, such as multiple timer intervals to adjust for changing flow conditions. MVP panels offer several standard functions, including dual mode capability (on demand or timed dosed), 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.



MVP SIMPLEX CONTROL PANEL



[View Technical Data Sheet](#)

STANDARD MODELS

MVP-S1DM, MVP-S2DM



FEATURES AND SPECIFICATIONS:

- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breaker
- Motor-start contactor for pump circuit
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Automatic alarm silence reset
- Built-in elapsed-time meter
- Built-in event counter
- Type 4X (IP 66) rated enclosure
- Dual mode capability (on demand or timed dosed)
- Float switches ordered separately (control and float switch packages available for some models)



For the most current product info and product codes, visit orencocom.

MVP Duplex Control Panels

Orenco Controls™ MVP Duplex Control Panels (MVP-D) are digital, programmable panels used to control two alternating pumps and provide alarm functions in onsite septic systems and liquid-only sewers that require the use of two alternating pumps. Built-in logic alternates the “lead” and “lag” positions in each pump cycle, allowing one pump to be manually selected and locked in for lead operation.

MVP Duplex Control Panels offer several functions as standard, including dual-mode capability (on demand or timed dosed), 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.



MVP DUPLEX CONTROL PANEL

 [View Technical Data Sheet](#)

STANDARD MODELS

MVP-DAX1DM, MVP-DAX2DM



FEATURES AND SPECIFICATIONS:

- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breakers
- Motor-start contactors for pump circuits
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Automatic alarm silence reset
- Built-in elapsed-time meter
- Built-in event counter
- Type 4X (IP 66) rated enclosure
- Optional current sensors available for monitoring pump failure
- Dual-mode capability (on demand or timed dosed)
- Float switches ordered separately



For the most current product info and product codes, visit orenco.com.

S-Series Simplex Control Panels

Orenco Controls™ S-Series Simplex Control Panels (S) are electromechanical panels used to control single pumps and alarm functions in onsite septic systems and liquid-only sewers. S-Series panels include a motor contactor, which increases system life by reducing the load requirements on the float switches. Options like analog timers and event counters are also available. Pump motors used with these panels require internal overload protection.



[View Technical Data Sheet](#)

STANDARD MODELS

S1, S2



FEATURES AND SPECIFICATIONS:

- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breaker
- Motor-start contactor for pump circuit
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Automatic alarm silence reset
- Type 4X (IP 66) rated enclosure
- Timer option available
- Float switches ordered separately (control and float switch packages available for some models)



S-SERIES SIMPLEX CONTROL PANEL



For the most current product info and product codes, visit orenco.com.

DAX-Series Duplex Control Panels

Orenco Controls™ DAX-Series Duplex Control Panels (DAX) are electro-mechanical panels used to control two alternating pumps and provide alarm functions in onsite septic and liquid-only sewers that require the use of two alternating pumps. A built-in alternating relay switches the “lead” and “lag” positions in each pump cycle, allowing 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.



[View Technical Data Sheet](#)

STANDARD MODELS

DAX1, DAX2



FEATURES AND SPECIFICATIONS:

- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breakers
- Motor-start contactors for pump circuits
- Automatic/Off/Manual (Auto/Off/Man) toggle switch
- 7/8-inch (22-mm) red visible alarm
- 95 dB audible alarm
- Automatic alarm silence reset
- Type 4X (IP 66) rated enclosure
- Timer option available
- Optional current sensors available for monitoring pump failure
- Float switches ordered separately



DAX-SERIES DUPLEX CONTROL PANEL



For the most current product info and product codes, visit orengo.com.

VeriComm® Simplex Control Panels

Orenco Controls™ VeriComm Simplex Control Panels (VCOM-S) are digital, programmable, remote telemetry panels used to control single pumps in residential systems and decentralized wastewater collection. All VCOM simplex control panels are compatible with the VeriComm monitoring system, a web-based remote monitoring system available with a monthly subscription (vericomm.net). The VeriComm Monitoring System gives wastewater system operators and service providers the ability to remotely monitor and control the performance of an individual site via the internet, saving money on operation and maintenance while remaining virtually invisible to the homeowner.



[View Technical Data Sheet](#)



[View VCOM Monitoring System Technical Data Sheet](#)



VERICOMM SIMPLEX CONTROL PANEL

FEATURES AND SPECIFICATIONS:

- 120 VAC controls circuit breaker
- 120 VAC or 120/240 VAC pump circuit breaker
- Motor-start contactor for pump circuit
- Automatic/Manual (Auto/Man) spring-loaded toggle switch
- 7/8-inch (22-mm) red alarm light
- 95 dB audible alarm
- Automatic alarm silence reset
- Communication and alarm management
- Start-Up, Test, and Normal operating modes
- Data collection and logs
- Troubleshooting and diagnostic logic
- Remote telemetry
- Advanced control logic for normal operation in the event of float switch failure
- Type 4X (IP 66) rated enclosure
- Timer option available
- Float switches ordered separately
- IP connection kit for connecting to high-speed internet available



For the most current product info and product codes, visit orencocom.com.



Additional Onsite Products

Orenco® supplies a wide range of products to the onsite industry, including specialized valves, unions, and carbon filters designed to reduce the odor of sewer gases.

Section Details

PRODUCTS INCLUDE:

- Unions
- Quick-Disconnect Unions
- Low-Pressure Gate Valves
- High-Pressure Gate Valves
- Ball Valves
- True Union Ball Valves
- Check Valves
- UV Disinfection Units
- Flow Meters
- Carbon Filters
- Carbo Filter Recharge Packages
- Valve Boxes



Unions

PVC Unions (U) are used as a disconnection point in piping assemblies. These unions are made of Schedule 80 PVC, with ethylene propylene diene monomer (EPDM) O-rings.

 [View Technical Data Sheet](#)



PVC UNIONS

Quick-Disconnect Unions

PVC Quick-Disconnect Unions (Q) are used as a fast, non-binding disconnection point in piping assemblies.

 [View Technical Data Sheet](#)



PVC UNIONS

Low-Pressure Gate Valves

PVC Low-Pressure Gate Valves (V) are used as an inexpensive valve for quick shutoff. They are constructed of a PVC body per ASTM D-1784, with a stainless steel paddle and shaft and thermoplastic elastomer seals.

 [View Technical Data Sheet](#)



PVC LOW-PRESSURE GATE VALVES

High-Pressure Gate Valves

PVC High-Pressure Gate Valves (VG) have a non-rising stem and a screw-in, faucet-type handle. They are approved for use for controlling flows and for throttling capabilities. These valves are constructed of Schedule 40 Hi-Impact PVC Type I per ASTM D-1784, with polypropylene paddles.

 [View Technical Data Sheet](#)



PVC HIGH-PRESSURE GATE VALVES

Ball Valves

PVC Ball Valves (VLT) are used for shutting off flow to a distribution line. They are constructed of Schedule 40 PVC Type I per ASTM D-1784, with EPDM O-rings. The stem seal is preloaded for long life.

 [View Technical Data Sheet](#)



PVC BALL VALVES

True Union Ball Valves

True Union Ball Valves (VTU) combine the features of a PVC union and ball valve into one component. They are constructed of Schedule 80 PVC Type I per ASTM D-1784, with EPDM O-rings.

 [View Technical Data Sheet](#)



TRUE UNION BALL VALVES

Check Valves

PVC Check Valves (KSC) prevent backflow in a system, providing minimal resistance to normal flow but only requiring 0.5 psi (3.45 kPa) back pressure for complete closure. Check valves are made from Schedule 40 Type I PVC per ASTM D-1784, with an EPDM swing gate.

 [View Technical Data Sheet](#)



CHECK VALVES



For the most current product info and product codes, visit orenco.com.

UV Disinfection Units

Orenco® UV Disinfection Units (UV) are designed for residential and small-flow applications after advanced secondary treatment (10 mg/L cBOD₅ and TSS) when disinfection is required before dispersal. They require installation inside a pump basin, a gravity discharge basin, or a separate tank following an advanced secondary treatment system. The power ballast, current sensor, and controls are housed externally to protect electronic components from environmental damage.

 [View Technical Data Sheet](#)

STANDARD MODELS:

UV-125/31-UVIB, UV-125/31-UVIBSUB

FEATURES AND SPECIFICATIONS:

- UL recognized for US and Canada
- Reduces bacteria by 99.999% (5 logs)
- Flow path maximizes effluent-to-lamp contact time
- Fluorinated ethylene propylene sleeve protects the UV lamp from buildup and maximizes service intervals
- Quick-disconnect fitting for easy inspection and cleaning
- Ballast has an end-of-life-feature to protect the UV lamp and cord
- Type 4X, UV-resistant enclosure houses the ballast and lamp current sensor outside of the wet well to minimize failures due to environmental exposure



UV DISINFECTION UNIT

Flow Meters

Orenco Flow Meters (FM) 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.

 [View Technical Data Sheet](#)

STANDARD MODELS:

FM062U, FM100, FM100U, FM150, FM200

FEATURES AND SPECIFICATIONS:

- 5/8-, 1-, 1 1/2-, and 2-inch (16-, 25-, 38-, and 50-mm) models available
- Telemetry-equipped flow meters available by special order
- Optional union connections available for the 5/8-inch and 1-inch models



FLOW METER



For the most current product info and product codes, visit orenco.com.

Carbon Filters

Orenco® Carbon Filters (CF) are passive ventilation filters used to reduce the odor of sewage gases in systems that ventilate using passive airflow. They are easy to attach to a vent pipe. Carbon filters use activated impregnated carbon in replaceable packages. The cap is removable to allow replacement of the carbon package.



[View Technical Data Sheet](#)

STANDARD MODELS

CF3, CF4, CF6

FEATURES AND SPECIFICATIONS:

- 3-, 4-, and 6-inch NPS (80-, 100-, and 150-mm DN) models available
- Slip fit and UV resistant
- ABS and PVC construction (CF3 and CF4)
- FRP and PVC construction (CF6)
- Polyethylene screen plate
- Replaceable carbon recharge packages

Carbon Filter Recharge Packages

Orenco Carbon Filter Recharge Packages (CFR) provide a clean, simple way to replace the carbon material in an Orenco Carbon Filter or Orenco FRP Access Lid equipped with carbon filtration.

FEATURES:

- Activated, impregnated carbon material
- Pre-sized for Orenco carbon filters

Valve Boxes

Orenco Valve Boxes are used to provide access to flushing assemblies and distributing valve assemblies in onsite wastewater systems.

FEATURES AND SPECIFICATIONS:

- Durable polyethylene construction
- Round 7-inch (178-mm) and 12 × 17-inch (305 × 432-mm) options available



CF6 CARBON FILTER



CF4 CARBON FILTER



VALVE BOX

Hydrosplitters

Orenco® Hydrosplitters (HSA) are used to provide equal or proportioned doses of screened effluent to multiple laterals or zones in gravity drainfields, regardless of the length of the laterals used in the drainfield. A dose pump is used to transport effluent to the hydrosplitter, which then doses all of the drainfield laterals by gravity. Each hydrosplitter is built to the specific needs of a particular drainfield.



[View Technical Data Sheet](#)

STANDARD MODELS

HSA100-04-10, HSA125-06-10

FEATURES AND SPECIFICATIONS:

- Requires pump discharge to hydrosplitter
- Standard models have 2-8 outlets
- Schedule 40 PVC construction
- Multiple sizes available for fittings, unions, and flow controllers
- Multiple sizes available for flexible outlet hose
- Flow control disc orifices sized in 1/64-inch (0.396-mm) increments

Air Release Assemblies

Orenco Air Release Assemblies (ARA, ARV) are highly reliable and easy to maintain. They can be quickly converted to automatic air/vacuum operation without the need to replace piping by using an add-on ARV21 or ARV40 valve. This allows greater system flexibility because systems can be designed to use ARA assemblies with manual valves, and more costly automatic valves can be installed later in locations where they're necessary. The valves and pressure gauge port can be isolated for the installation or removal of components.



[View Technical Data Sheet](#)

STANDARD MODELS:

ARA (ASSEMBLY); ARV21, ARV40 (VALVES)



HYDROSPLITTER



ARA AIR RELEASE ASSEMBLY



ARV21 VALVE

Distributing Valve Assemblies

Orenco® Distributing Valve Assemblies (V4, V6) are used to dose filtered effluent to multiple-zone pressure distribution systems, including drainfields, textile filters, and sand filters. They're automatically operated by mechanical means, with a combination of pressure and flow, to sequentially redirect the pump's flow to multiple zones or cells.



[View Technical Data Sheet](#)

STANDARD MODELS

V4402A, V4403A, V4404A, V4605A, V4606A, V6402A, V6403A, V6404A, V6605A, V6606A

FEATURES AND SPECIFICATIONS:

- 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 to 1 1/2-inch (32 to 40-mm) nominal inlet and outlet sizes
- 170- or 345-foot (52- or 105-m) maximum head pressures available
- Custom-built enclosures available

Orifice Shields

Orenco Orifice Shields (OS) are used in a pressurized distribution system to protect the orifices from backfill debris that might cause orifice blockage.



[View Technical Data Sheet](#)

STANDARD MODELS:

OS075, OS100, OS125, OS150, OS200

FEATURES AND SPECIFICATIONS:

- Snap-fit on top of or beneath a lateral, depending on the location of the orifice
- 3/4-, 1-, 1-1/4-, 1-1/2-, and 2-inch (19-, 25-, 32-, 38-, and 50-mm) NPS size available
- No moving parts



DISTRIBUTING VALVE ASSEMBLY



ORIFICE SHIELDS

Reimagining Onsite Water Management



Tanks



Chambers



Advanced Treatment

Complete Wastewater Solutions

Infiltrator manufactures a full line of innovative products for decentralized wastewater treatment. Our eco-friendly products include alternatives to traditional stone and pipe leachfields. We also offer concrete septic system parts. Additionally, we provide innovative wastewater treatment units and combined treatment and dispersal solutions.



**Innovation
Since 1987**



**Drainfield and Tank
Products are Manufactured
with Recycled Material**



Product Approvals



Orenco Systems® Terms and Conditions

1. Offer and Acceptance

This document (the “Terms and Conditions”) contains all of the terms and conditions of purchasing merchandise offered for sale by Orenco Systems, Inc. (“Orenco”). Unless a separate written agreement has been previously executed by duly authorized representatives of both Orenco and Purchaser that explicitly supersedes these Terms and Conditions (a “Prior Written Agreement”), Orenco’s offer of sale is expressly limited to, and expressly made conditional on, the exclusive use of the terms and conditions herein.

Absent such a Prior Written Agreement, Purchaser’s order of merchandise constitutes an acceptance of Orenco’s offer to sell under these Terms and Conditions, regardless of Purchaser’s order form or other documentation associated with the order that stipulates different or additional terms or conditions. Orenco deems any such different or additional terms as material alterations to these Terms and Conditions, and hereby objects to and rejects them.

Upon receipt of an order for merchandise from Purchaser, Orenco will verify the accuracy of the order before releasing it for manufacturing. After the order is released for manufacturing, Orenco will send Purchaser an Order Confirmation, which reiterates these Terms and Conditions.

Once Orenco releases an order for manufacturing, Purchaser shall pay a Change Fee to Orenco if Purchaser changes or cancels the order, or any part thereof, prior to delivery. Orenco, in good faith, will determine the fee in an amount approximating the costs it actually expends on the changed or cancelled order, not to exceed the full price of the merchandise.

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 or its technical representative, will 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. Unless a Prior Written Agreement controls, if Purchaser orders a Custom Product, and Orenco agrees to manufacture and/or sell it: (a) these Terms and Conditions will exclusively govern the purchase; (b) Purchaser will defend Orenco at its cost and expense, and will 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; and (c) Purchaser will defend Orenco at its cost and expense, indemnify and hold Orenco harmless, and assume all responsibility for ensuring: (i) the components it provides Orenco for use in the Custom Product meet Purchaser and/or its technical representative’s functional requirements and/or specifications; (ii) the compatibility of the Custom Product for its intended use; and (iii) the adequacy of the engineering, design or specifications furnished by Purchaser and/or its technical representative to Orenco.

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

3. Manufacturing Cost Surcharge

Orenco reserves the right to assess a Manufacturing Cost Surcharge at any time after accepting and confirming an order, but prior to shipping, to reflect any unanticipated increase in Orenco’s manufacturing cost during the period between order confirmation and shipping, including, but not limited to, increases in materials, labor, energy, or freight costs. Orenco warrants that it will avoid such increased manufacturing costs to the extent reasonably possible. Orenco will provide the Purchaser with notice of any such Manufacturing Cost Surcharge as early as reasonably possible prior to shipping, and in no case less than 30 days before the surcharge attaches to the order. Orenco will provide Purchaser with a statement explaining the basis and need for the Manufacturing Cost Surcharge and presenting facts justifying the surcharge.

4. Delivery

Orenco agrees to deliver all merchandise ordered by Purchaser for shipping by the ship date specified on the Order Confirmation, unless Orenco notifies Purchaser prior to the ship date, and as soon as reasonably possible, of any delays that were not reasonably foreseeable earlier.

In the event Purchaser requests expedited delivery of merchandise, and Orenco agrees to the request, Purchaser shall pay an Expedite Fee to Orenco in an amount agreed upon between the parties, relative to the price of the merchandise and the difficulty in meeting the expedited delivery schedule, but not less than \$50.00.

Merchandise will be delivered FOB Shipping Point (Origin), and Purchaser will assume the risk of loss for the merchandise, when Purchaser, a carrier arranged by Purchaser, or a carrier Orenco arranged on behalf of Purchaser takes possession and/or control of the merchandise to load it for shipping or to transport it from Orenco’s facilities, whichever is sooner.

5. 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 an order, Orenco will arrange the transportation of the merchandise associated with the order by selecting the method, carrier, and routing of the shipment directly or through a broker on behalf of the Purchaser.

Purchaser will 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 arranges transportation with a third-party carrier, Purchaser will arrange to pay the third party for the service directly. Purchaser shall pay a Storage Fee to Orenco if Purchaser or a carrier it arranges fails to take delivery of the merchandise on or within 5 business days of the ship date. Orenco, in good faith, will determine the fee in an amount relative to the price and physical size of the merchandise, the length of time between the ship date and when Purchaser or its carrier takes delivery, and the risk for damages.
- (b) **Prepaid and Add.** If Purchaser has Orenco arrange transportation of the merchandise on its behalf, Orenco will pay the third party for the service directly or through a broker. Purchaser agrees to pay Orenco for both Shipping and Handling, as itemized on a quotation, Order Confirmation, or invoice, as follows: (i) “Shipping” consists of reimbursement of all actual freight and insurance costs paid by Orenco, including all accessorials charges from the carrier for items such as residential or construction site deliveries, unloading delays, 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” consists of a fee for arranging transportation in an amount equal to 5% of the Shipping costs paid by Orenco.

In instances where Orenco arranges for the transportation of merchandise on Purchaser’s behalf, Orenco will promptly notify Purchaser of any information it receives from its broker or a carrier indicating a delay in the scheduled arrival of the transport at the agreed-upon destination, and Purchaser agrees to ensure that the equipment necessary to unload the merchandise is present at the carrier’s destination at the time of the scheduled arrival. Unless Orenco fails to notify Purchaser of a delay in the scheduled delivery of the merchandise for shipping or withholds information it receives regarding a delayed arrival at the destination, Purchaser will hold Orenco harmless from and against any and all charges, costs, and other consequential damages caused by a delay in the arrival of the merchandise at the agreed-upon destination at the scheduled time.

TERMS AND CONDITIONS

6. Taxes

Purchaser will 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 will indemnify and hold Orenco harmless from those Taxes. Orenco will 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 sale.

7. Payment Terms

Purchaser agrees to promptly pay Orenco for merchandise, and any Change Fees, Expedite Fees, Storage Fees, Taxes, Shipping, Handling, or other costs associated with the merchandise, in accordance with the terms below:

- (a) **Prepayment.** Purchaser may pay Orenco prior to delivery for merchandise, Change Fees, Expedite Fees, Taxes, estimated Shipping and Handling, and other costs associated with the order. However, Purchaser must prepay 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 Change Fees, Expedite Fees, estimated Shipping and Handling, and other associated costs, before Orenco will release an order for manufacturing. (ii) If Purchaser does not have available credit remaining on its account with Orenco, it must pay all amounts in excess of its available credit, up to 100% of the full price of the merchandise, Change Fees, Expedite Fees, Taxes, estimated Shipping and Handling, and other associated costs, before Orenco will release an order for manufacturing.
- (b) **On Account.** If Purchaser has been approved for a discretionary credit account with Orenco, has available credit on its account, and has not prepaid in full, Orenco will invoice Purchaser for amounts owed for delivered merchandise, Change Fees, Expedite Fees, Storage Fees, Taxes, Shipping, Handling, and other associated costs. Unless otherwise agreed upon by the Parties in writing for a particular order, Purchaser must pay each invoice in full within 30 days from the date of the invoice ("Net 30"). If Purchaser fails to pay an invoice in full within the term of the invoice: (i) the delinquent amount will bear a finance charge of 1.5% per month, accruing daily from the day after it is due; (ii) Purchaser must pay all of Orenco's reasonable collection expenses incurred in collecting delinquent invoices or finance charges; (iii) Purchaser must pay all of Orenco's investigation and litigation costs incurred before, during, or after trial or appeal, including reasonable attorneys' fees, if Orenco must institute a suit, action, or proceeding to collect delinquent invoices, finance charges, or collection costs; and (iv) Orenco may refuse to honor any subsequent order from Purchaser until all delinquent invoices, finance charges, and collection costs are paid in full.

8. Return of Merchandise

Purchaser may not return merchandise without the prior approval of Orenco. Merchandise approved for return must be securely packed to reach Orenco without damage. Except when covered by a Limited Warranty, merchandise accepted for return is subject to a Restocking Fee and all transportation charges. Orenco, in good faith, will determine the amount that will be credited or refunded to Purchaser for the returned merchandise by subtracting the Restocking Fee and any transportation charges paid by Orenco from the purchase price of the merchandise.

9. Limited Warranty

Subject to the exclusions, limitations, and conditions contained herein, Orenco warrants to Purchaser and subsequent owners, for a period of one year after delivery, that all merchandise will be free from defects in materials and workmanship that cause the merchandise to lose structural integrity, or to electrically or mechanically operate improperly. Neither merchandise consumed in the regular course of use, damage caused by abuse, misuse, accident, negligence, or catastrophic event beyond the control of Orenco, nor the loss of structural integrity or improper electrical or mechanical operation that results from a failure to follow any installation, operation, or maintenance instructions provided by Orenco, constitute a defect in the merchandise. If a separate written warranty instrument exists between Orenco or another manufacturer and Purchaser, the terms and conditions of said instrument control.

Exclusive Remedy. The exclusive remedy under this Limited Warranty will be the obligation of Orenco to repair or exchange, at its discretion, any defective merchandise. Defects in materials or workmanship will be determined in good faith upon inspection by Orenco. When practicable, Purchaser should return merchandise for inspection. Labor is not covered under this Limited Warranty.

In the event Orenco determines that 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, if applicable, and will be responsible for all charges to transport repaired or exchanged merchandise to Purchaser. The warranty period for such repaired or exchanged merchandise will continue to toll from the delivery date of the original purchase. In the event Orenco determines that merchandise is not defective in materials or workmanship, or is not covered by this Limited Warranty, Orenco will charge Purchaser for all inspection costs incurred by Orenco, including reasonable travel costs, testing fees, and all reasonable transportation charges required to return the merchandise to the purchaser, as applicable.

IN EXCHANGE FOR THIS WARRANTY COVERAGE, PURCHASER AGREES THAT ORENCO WILL NOT BE LIABLE FOR ANY LOSS, INJURY, OR DAMAGES TO PERSONS OR PROPERTY RESULTING FROM FAILURE OF, OR ANY DEFECT IN, THE MERCHANDISE, NOR WILL ORENCO BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, SPECIAL, OR INDIRECT DAMAGES OF ANY KIND. IN NO EVENT MAY THE LIABILITY OF ORENCO UNDER THIS LIMITED WARRANTY EXCEED THE 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.

10. Waiver

The failure of either Party on any occasion to exercise any right granted hereunder will not operate as a waiver of the right as to subsequent occasions and will not act to modify these Terms and Conditions.

11. Force Majeure

Orenco will not be deemed to have defaulted or failed to perform under these Terms and Conditions if its inability to perform or default has been caused by an event or events beyond its reasonable control and without its fault or negligence, including, without limitation, acts of God, government, or public enemy; pandemic or other governmentally recognized public health crisis; vandalism, fire, flood, labor disputes, civil riots or commotions; or embargoes or the inability to procure necessary raw materials, supplies or equipment or to procure them at commercially reasonable prices. Orenco must give Purchaser prompt written notice, with full details, following the occurrence relied upon. Dates by which performance obligations are scheduled will be extended for a period of time equal to the time lost because of the event.

12. Governing Law

The laws of the State of Oregon will 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 must 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.

