SEPTIC TANK

Lift Station
1,500 Gallon

Submittal

Anchorage Tank

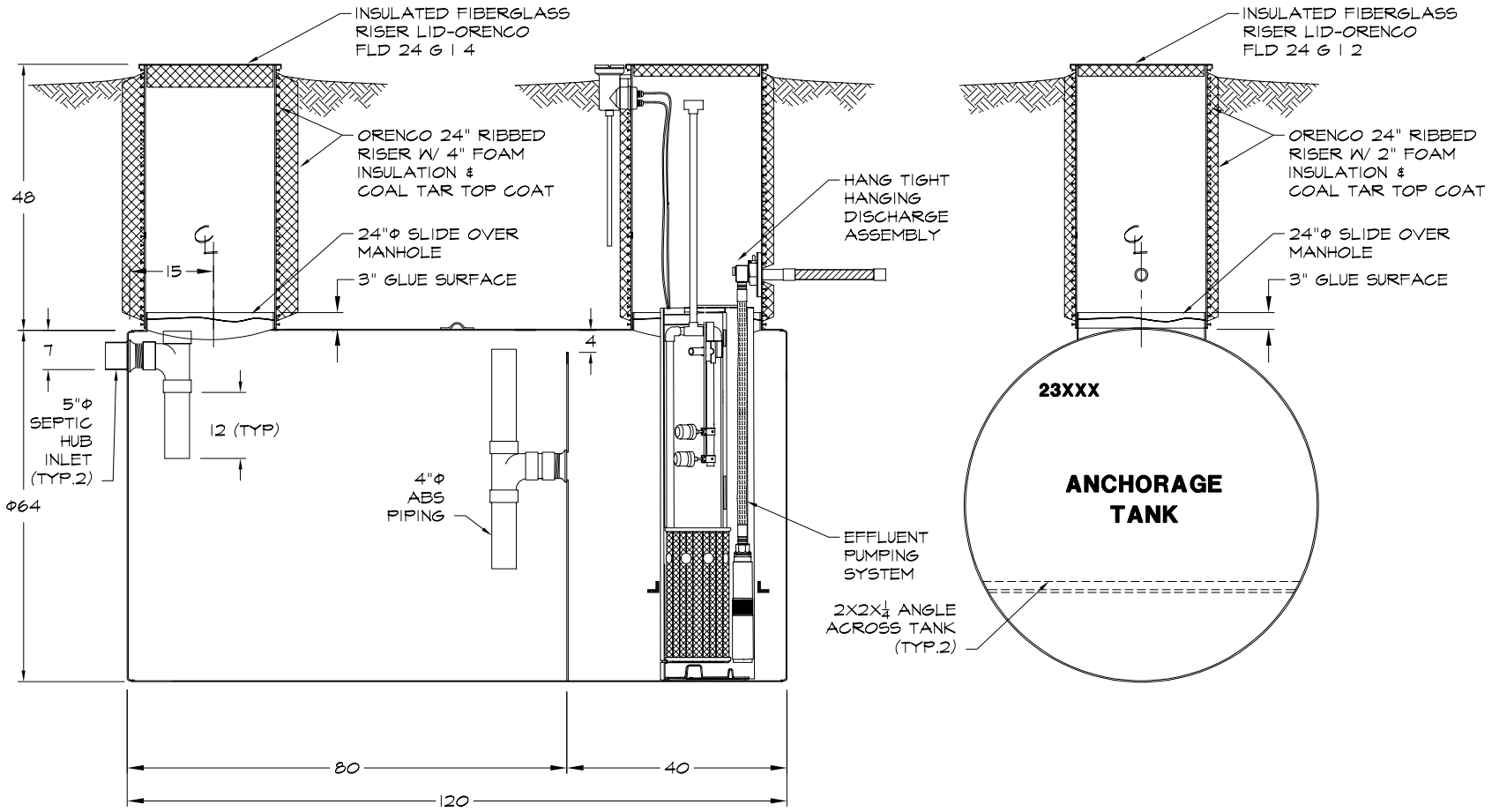
FABRICATE FROM 10 GA

SANDBLAST & COAT W/
DEVOE BAR-RUST 235 OR 236
PER THEIR DIRECTIONS

SEAL WELD ALL INTERIOR SEAMS

COMPLETE QC CHECKLIST FOR THE BATCH

WELD SERIAL NUMBER TO TANK HEAD



EFFLUENT LIFSTATION TANK FOR UP TO 4 BEDROOMS

ANCHORAGE TANK
2723 RAMPART Dr.
ANCHORAGE, ALASKA
(907) 272-3543

1500 GALLON STEEL TANK FOR EFFLUENT PUMPING WITHIN THE MUNICIPALITY OF ANCHORAGE

DRAWN:	TOM
DATE:	05/08/19
REVISED:	05/10/19
FILE NAME:	MOAMULTI
JOB NO:	STANDARD
SCALE:	NTS
SHEET No. OF	1 1

BAR-RUST™ 236

Multi-Purpose Epoxy Coating

Cat. # 236KXXXX

PRODUCT DESCRIPTION

Generic: Advanced Technology Epoxy

General Description: A high performance, multi-purpose, surface tolerant, two-component chemically-cured epoxy semi-gloss coating.

Typical Uses: BAR-RUST 236 is a true universal coating. Excellent for use on water tanks and any other water containment structures offering cargo, chemical, fuel, and solvent resistance. See the Tank Lining Chemical Resistance Table for specific information. Also used on structural steel, equipment, piping, and masonry at pulp and paper mills, chemical and fertilizer plants, sewage treatment plants, tank farms, and on bridges.

Special Qualifications: Performance alternate for Federal Specifications Mil-P-23236B(SH)-Type I & IV, Type I & IV, and Class 2.

FEATURES

Advantages:

- Low VOC
- Outstanding corrosion protection
- Suitable for salt & fresh water immersion
- Suitable for corrosive environments
- Resistant to many solvents and chemicals
- Resistant to cathodic disbondment
- Lowers cost of surface preparation
- Surface tolerant
- Good adhesion to damp surfaces and tight rust
- Low temperature cure to 0°F (-18°C)
- Fast dry-to-recoat
- Self-priming for steel & masonry substrates

Limitations of Use: Exterior exposure will cause a color change, early dulling, and loss of gloss, but this does not affect protective properties. Epoxy coatings may yellow during application and cure if exposed to the combustion by-products of improperly vented fossil fuel burning heaters. Commonly finished with ICI Devoe Coatings DEVTHANE™ Urethane Enamel for maximum exterior color & gloss retention.

SPECIFICATION DATA

Color: Off White (tintable to light pastel colors only), ready-mixed colors

Finish: Semi-Gloss

Reduction Solvent: T-10 Thinner

Clean-up Solvent: T-10 Thinner

Weight/Gallon: 12.9 lbs./gal. (1.5 kg/L) – varies with color

VOC (EPA 24)**:** 1.41 lbs./gal. (170 g/L) – varies with color

Solids By Volume (ASTM D 2697 – 7 day)**:** 80%

Theoretical Coverage at 1.0 Mil (25 microns) **Dry:** 1283 sq. ft./gal. (31.5 m^2/L)

Recommended Film Thickness: 4.0-8.0 mils (100-200 microns) dry – 5-10 mils (125-250 microns) wet. (Make allowances for loss due to overspray & irregular surfaces.)

Systems: Please consult the appropriate system guide, the particular job specification or your ICI Devoe Coatings' Industrial Coatings Specialist for proper systems using this product. Systems must be selected considering the particular environment involved.

Service Temperature Limits: 250°F (121°C) dry

Minimum Dry Time (ASTM D 1640)**:** At 6 mils (150 microns) DFT

Substrate Temperature	20°F (-7°C)	40°F (4°C)	60°F (16°C)	80°F (27°C)
Minimum Recoat	26 Hours	9 Hours	5 Hours	3.5 Hours
Dry Hard	53 Hours	17 Hours	10 Hours	7 Hours
Maximum Recoat				
Self	30 Days	30 Days	30 Days	30 Days
Devthane Urethane	7 Days	6 Days	5 Days	5 Days

Warning: The above table provides general guidelines only. Always consult your ICI Devoe Coatings Specialist for appropriate recoat windows since the maximum aged recoat time of this product may be significantly shortened or lengthened by a variety of conditions, including, but not limited to humidity, surface temperature, and the use of additives or thinners. The use of accelerators or force curing may shorten the aged recoat of individual coatings. The above recoat windows may not apply if recoating with a product other than those listed above. If the maximum aged recoat window is exceeded, please consult your ICI Industrial Coatings Specialist for appropriate recommendations to enhance adhesion. Failure to observe these precautions may result in intercoat delamination.

Shelf Life: Over 24 months at 77°F (25°C) – unopened

Hardness (ASTM D 3363, 7 day cure @ 77°F (25°C)**:** 3H

Mix Ratio By Volume: 4 (base): 1 (converter) – see mixing instructions.

Induction: 15 minutes @ 77°F (25°C) – see mixing instructions.

Pot Life: 4 hours @ 77°F (25°C) & 50% R.H.

PERFORMANCE DATA

Adhesion: (ASTM D 4541) – Excellent

Salt Spray Resistance: (ASTM B 117) – Excellent

Abrasion Resistance: (ASTM D 4060) – Good

Humidity Resistance: (ASTM D 2247) – Excellent

Chemical Resistance: (ASTM D 1308 – 24 hr. contact) Excellent. Resists splash and spillage of alkalis, salts, moisture, oils, greases, foodstuffs and detergents, 50% Sodium Hydroxide, 28% Ammonia, 5% Trisodium Phosphate, 25% Citric Acid, 25% Lactic Acid, 10% Sulfuric Acid, Crude Oil, 10% Hydrochloric Acid, 20% Tannic Acid, 5% Sodium Chloride, 10% Ammonium Hydroxide, sewage.

DANGER! COMBUSTIBLE. HARMFUL OR FATAL IF SWALLOWED. Read label and Material Safety Data Sheet Prior to Use. See other cautions on last page. DSF2-0790

GENERAL SURFACE PREPARATION

Surfaces must be dry, clean, free of oil, grease, form release agents, curing compounds, laitance, other foreign matter and be structurally sound. Remove all loose paint, mortar spatter, mill scale, and rust. All direct to metal coatings provide maximum performance over blasted surfaces. There are situations and cost limitations which preclude blasting. BAR-RUST 236 was designed to provide excellent protection over less than ideal surface preparation. The minimum standard for non-immersion service is SSPC-SP2 (ISO-St2); for immersion service the minimum standard is SSPC-SP3 (ISO-St3). **These minimum surface preparation standards apply to steel that has been previously abrasive blasted, coated and deteriorated.** Where very rusty surfaces still remain after cleaning use PRE-PRIME 167™ Sealer before application of BAR-RUST 236.

New Surfaces: Steel – New steel surfaces should be initially blasted to near-white metal surface cleanliness in accordance with SSPC-SP10 or ISO-Sa21/2 for immersion service or commercial blast cleanliness in accordance with SSPC-SP6 or ISO-Sa2 for non-immersion service. Blast profile on steel should be 1 1/2 to 2 1/2 mils (38-63 microns) in depth and be of a sharp, jagged nature as opposed to a "peen" pattern (from shot blasting). Surfaces must be free of grit dust. **Concrete Block –** Remove loose aggregate and repair voids. Fill with this product or Tru-Glaze® 4010. **Concrete Floors, Poured Concrete –** Cure at least 30 days. Acid etch or abrasive blast slick, glazed concrete or concrete with laitance. Prime with PRE-PRIME 167 or this coating thinned with T-10 Thinner in a 4 to 1 ratio. **Galvanized Steel –** Remove dirt and oils by solvent cleaning or with DEVPREP® 88 Cleaner followed by a thorough water rinsing. Prime with DEVRAN 205 Epoxy Primer for non-immersion. For immersion or severe moisture condition, abrasive blasting is recommended before priming with DEVRAN 201 Epoxy Primer.

Previously Painted Surfaces: Old coatings should be tested for lifting. If lifting occurs, remove the lifted coating. Otherwise scuff sand glossy areas and aged epoxy coatings. Clean aged epoxy or urethane coatings with DEVPREP 88 Cleaner. Remove cracked and peeling paint. Prime bare areas with primer specified under **New Surfaces**. If thinning is required, thin with T-5 Thinner or Xylene only when used over aged alkyd coatings.

DIRECTIONS FOR USE

Tinting: White can be tinted with CHROMA-CHEM* 844 colorants. (Do not use water based colorants). Add colorants to only the base portion. Mix thoroughly before adding the converter portion.

Thinning: Thinning is not normally required or desired. However, at lower temperatures, small amounts (15% or less by volume) of the solvents on the reverse page can be added depending on local VOC and air quality regulations. Any solvent addition should be made after the two components are thoroughly mixed. The pot life of the mixed material is 4 hours at 77°F (25°C). Higher temperatures will reduce working life of the coating; lower temperatures will increase it.

Mixing: BAR-RUST 236 Coating is a two-component product supplied in 5 gallon and 1 gallon kits which contain the proper ratio of ingredients. The entire contents of each container must be mixed together. Power mix the base portion first to obtain a smooth, homogeneous condition. After mixing the base portion, add the converter slowly with continued agitation. After the converter add is complete, continue to mix slowly. Allow the mixed material to stand 15 minutes at 77°F (25°C) before use.

Application: BAR-RUST 236 Coating can be applied by air spray and airless spray methods. However, the preferred method of application is with heavy-duty airless spray. For airless application, a 45:1 King pump or larger is recommended. Tip sizes from .021 to .027 will provide a good spray pattern. For optimum results, fluid hoses should be 3/8'' ID or larger with a maximum length of 50 feet. Longer hose length or cold temperatures may require an increase in pump ratio and/or thinning.

BAR-RUST 236 Coating may also be applied by brush or roller. Care should be taken that proper and uniform film thicknesses are obtained. Brushing and rolling may require multiple coats to achieve correct film thickness and/or hiding. Epoxy coatings may change color and chalk when exposed to direct sunlight.

Tank Lining Systems See BAR-RUST 236 and BAR-RUST 236/DEVCHEM® 253 Chemical Resistance Table.

Spreading Rate: Apply at 160-321 sq.ft. per gallon (3.9-7.9 m^2/L) depending on surface texture and porosity. Make allowance for any losses due to overspray or surface irregularities.

Ventilation: It is very important for the safety of the applicator and the proper performance of the BAR-RUST 236 Coating that good ventilation be provided to all portions of the enclosed area. It is equally important to bring into the enclosed area dry, fresh air to remove all solvent vapors. Since all solvent vapors are heavier than air, ventilation ducts should reach to the lowest portions of the enclosed areas as well as into any structural pockets. Ventilation should be provided throughout the cure period to insure all the solvents are removed from the coating.

Topcoats: In exterior areas, BAR-RUST 236 is commonly finished with DEVTHANE Urethane Enamel or DEVRAN 229H Acrylic Epoxy Coating for improved color retention.

Dry Time: At 70°F (21°C) & 50% R.H., dries to recoat with epoxy or urethane in 5 hours and hard in 7 hours.

Clean-up: Use T-10 Thinner.

PRECAUTIONS

DANGER! COMBUSTIBLE LIQUID AND VAPOR. CAUSES EYE AND SKIN BURNS. HARMFUL OR FATAL IF SWALLOWED. ASPIRATION HAZARD - CAN ENTER LUNGS AND CAUSE DAMAGE. HARMFUL IF INHALED. MAY CAUSE CENTRAL NERVOUS SYSTEM EFFECTS, INCLUDING DIZZINESS, HEADACHE OR NAUSEA. CAUSES RESPIRATORY TRACT IRRITATION. MAY CAUSE ALLERGIC SKIN AND RESPIRATORY REACTION. MAY BE HARMFUL IF ABSORBED THROUGH SKIN. OVEREXPOSURE MAY CAUSE BLOOD, LIVER, KIDNEY DAMAGE. CONTAINS CRYSTALLINE SILICA WHICH CAN CAUSE LUNG CANCER AND OTHER LUNG DAMAGE IF INHALED. CONTAINS MICA WHICH MAY CAUSE PNEUMOCONIOUS. USE ONLY WITH ADEQUATE VENTILATION. KEEP OUT OF THE REACH OF CHILDREN. NOTICE: Products in this series may contain solvents. Reports have associated repeated and prolonged occupational overexposure to solvents with permanent brain and nervous system damage. Intentional misuse by deliberately concentrating and inhaling the contents may be harmful or fatal. For emergency information call (800) 545-2643. For additional safety information, refer to the Material Safety Data Sheet for this product. Keep away from heat, sparks and flame. **Do not** smoke. Vapors may ignite. Extinguish all flames, burners, stoves, heaters and pilot lights and disconnect all electrical motors and appliances before use and until all vapors are gone. If sanding is done, wear a dust mask to avoid breathing of sanding dust. Do not breathe vapors or spray mist. If you experience eye watering, headaches, or dizziness, leave the area. If properly used, a respirator may offer additional protection. Obtain professional advice before using. Close container after each use. **FIRST AID:** In case of skin contact, wash off **quickly** with plenty of soap and water, remove contaminated clothing. For eye contact flush **immediately** with large amounts of water, for at least 15 minutes. **Obtain emergency medical treatment.** If swallowed, **obtain medical treatment immediately.** If inhalation causes physical discomfort, remove to fresh air. If discomfort persists or any breathing difficulty occurs, **get medical help. Note: These warnings encompass the product series. Prior to use, read and follow product specific MSDS and label information.**

DS238-0999

SHIPPING

Flash Point: 100°F (38°C)

Packaging:

1 gallon kit (3.785L)	5 gallon kit (18.925L)
0.80 gallon base	4.00 gallon base
0.20 gallon converter	1.00 gallon converter

Shipping Weight: 4 - 1 gallon kits - 60 lbs. (27.2 kg)
5 gallon kit - 70 lbs. (31.8 kg)

236KXXXX (4/03)
Ad Stock #68638D

*CHROMA-CHEM is a Registered Trademark of Creanova, Inc.

DEVOE HIGH PERFORMANCE COATINGS
ICI Paints
Cleveland,
Ohio, U.S.A.
800-654-2616
www.devoecoatings.com

Submittal Data Sheet

Universal Biotube® Pump Vaults

Orenco Systems® Incorporated
1-800-348-9843

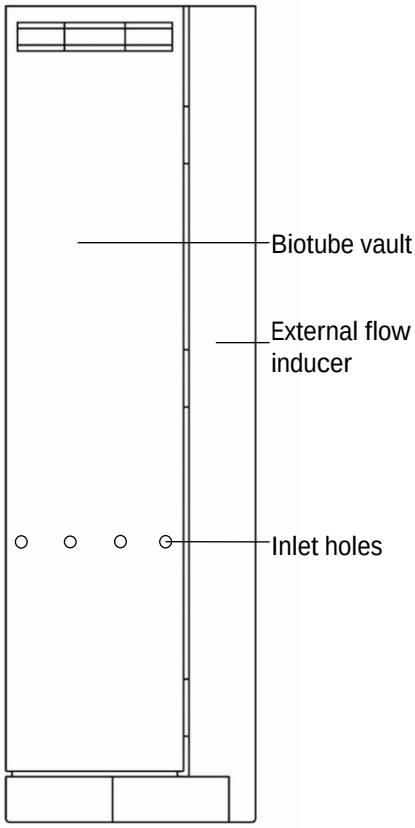
For use with Orenco 4" Submersible Effluent Pumps

Applications

Orenco Biotube® Pump Vaults are used to filter effluent being pumped from septic tanks or separate dosing tanks in STEP systems and onsite wastewater disposal systems. Removes two-thirds of suspended solids, on average. When pumping from a single compartment tank or two-compartment septic tank where both compartments are simultaneously drawn down during pumping, the discharge rate should not exceed approximately 40 gpm. Higher flow rates require a watertight baffle or multiple tank arrangement, typically with an effluent filter in the primary tank.

General

The Orenco Biotube Pump Vault includes a molded polyethylene housing with an internal filter cartridge constructed of polypropylene and PVC. Schedule 80 PVC support pipes are included to suspend the vault in tank openings. The filter cartridge can be removed without pulling the pump or vault. Effluent enters through inlet holes around the perimeter of the Biotube vault and flows through the Biotubes to the external flow inducer. The external flow inducer accommodates one or two pumps. Orenco Biotube Pump Vaults are covered by US patents #4439323 and 5492635.



Side view

Standard Models

PVU57-1819, PVU57-2419, PVU68-1819, PVU68-2425

Nomenclature

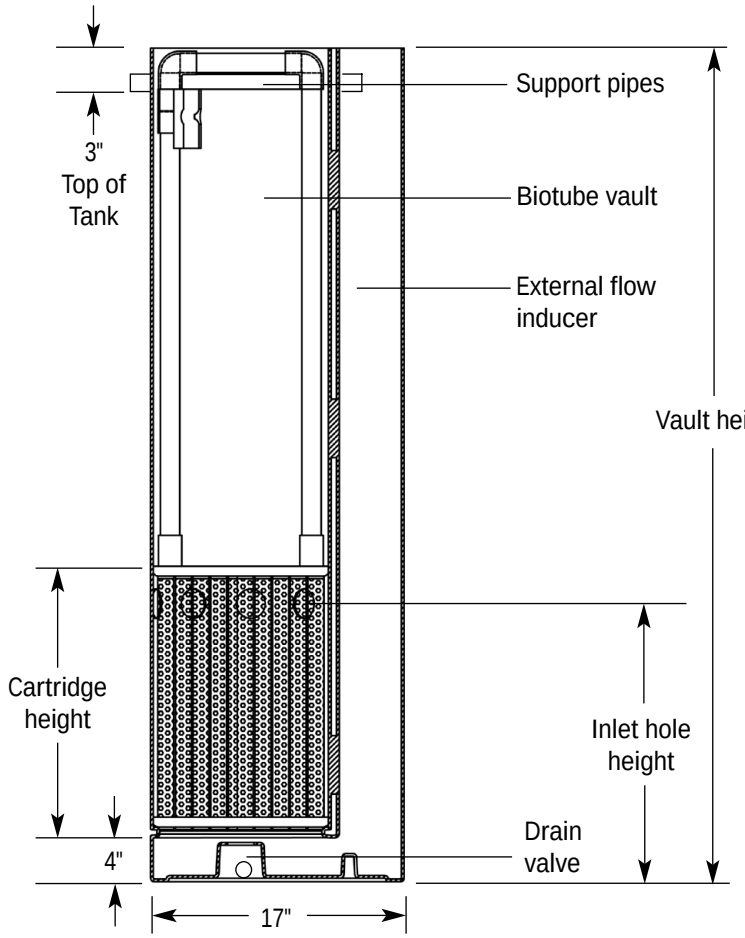
PVU □□-□□ □□

- Indicates inlet hole height: (inches) 13", 19" standard
- Cartridge height = 18", 24" standard, 36"
- Vault height: 57", 68", 72"-96" in 6" increments*
- Universal Pump Vault

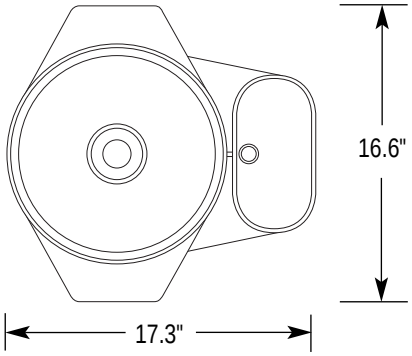
Tank Access and Riser Diameter

Biotube Series	Tank Access Dia. (Minimum)	Tank Access Dia. (Recommended)	Riser Dia. (Minimum)
PVU w/Simplex Pump	19"	20"	24"
PVU w/Duplex Pumps	19"	20"	30"

Universal Biotube® Pump Vaults (continued)



Side view



Top view

Specifications

Model	PVU57-1819	PVU57-2419	PVU68-1819	PVU68-2425
Vault Height (in.)	57	57	68	68
Cartridge Diameter (in.)	12	12	12	12
Biotube Cartridge Height (in.)	18	24	18	24
Biotube Mesh Opening (in.)	0.125	0.125	0.125	0.125
Biotube Nominal Open Area (%)	30	30	30	30
Filter Surface Area (sq.ft.)	15.5	20.6	15.5	20.6
Inlet Hole Height* (in.)	19	19	19	25
Float Setting Range (from top of tank, in.)	29	23	40	34

May vary depending upon the configuration of the tank.

Materials of Construction:

Vaults:	Polyethylene
Biotube Cartridge:	Polypropylene/PVC
Float Stem:	Sch. 40 PVC
Support Pipe:	Sch. 80 PVC
Drain Valve:	Polypropylene

Technical Data Sheet

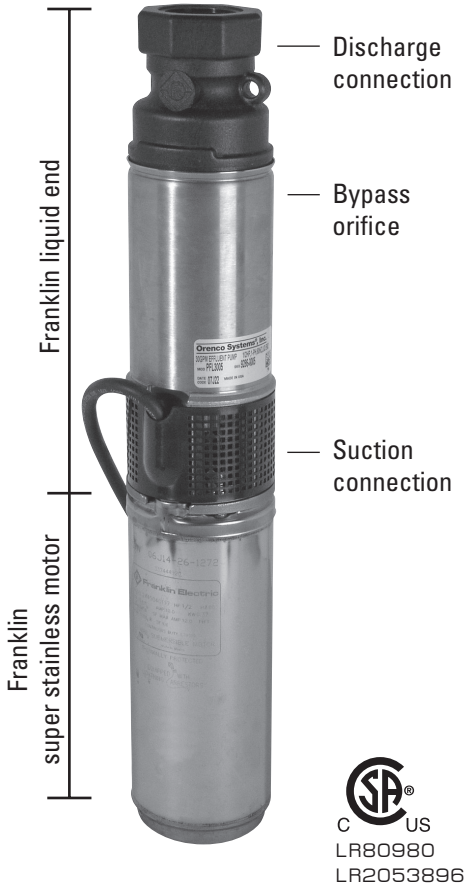
PF Series High-Head Effluent Pumps

Orenco Systems® Incorporated
800-348-9843

Applications

Our submersible High-Head Effluent Pumps are designed to transport screened effluent (with low TSS counts) from septic tanks or separate dosing tanks. All our pumps are constructed of lightweight, corrosion-resistant stainless steel and engineered plastics; all are field-serviceable and repairable with common tools; and all standard 60-Hz PF Series models are CSA certified to the U.S. and Canadian safety standards for effluent pumps, meeting UL requirements.

High-Head Effluent Pumps from Orenco® are used in a variety of applications, including pressurized drainfields, packed bed filters, mounds, aerobic units, effluent irrigation, effluent sewers, wetlands, lagoons, and more. These pumps are designed to be used with a Biotube® pump vault.



Features/Specifications

To specify this pump for your installation, require the following:

- Minimum 24-hour run-dry capability with no deterioration in pump life or performance*
- 1/8-inch (3-mm) bypass orifice (patent pending) to ensure flow recirculation for motor cooling and to prevent air bind
- Liquid end repair kits available for better long-term cost of ownership
- TRI-SEAL™ floating impeller design on 10-, 20-, and 30-gpm models; floating stack design on 50- and 75-gpm models
- Super stainless Franklin Electric motor, rated for continuous use and frequent cycling
- Type SOOW 600-V motor cable (suitable for Class I, Division 1 and Division 2 applications)
- Five-year warranty from date of manufacture against defects in materials or workmanship

** Not applicable for 5-hp models*

Standard Models

See specifications chart, pages 2-3, for a list of standard pumps. For a complete list of available pumps, call Orenco.

Nomenclature

PF □□ □□ □ □-□□

Cord length:
Blank = 10'
20* = 20'
30 = 30'
50 = 50'

Voltage (nameplate):
1 = 115 (1/2 hp only)
200 = 200
2 = 230 (220 if 50 Hz)
4 = 460

Frequency:
1 = single-phase 60 Hz
3 = three-phase 60 Hz
5 = single-phase 50 Hz

Horsepower:
05 = 1/2 hp
07 = 3/4 hp
10 = 1 hp
15 = 1-1/2 hp
20 = 2 hp
30 = 3 hp
50 = 5 hp

Nominal flow (gpm):
10
20
30
50
75

Pump (PF Series)

** Note: 20-foot cords are available only for single-phase pumps through 1-½ hp*

PF Series High-Head Effluent Pumps (continued)

Specifications

60 Hz

Model	Design gpm (L/sec)	Horsepower (kW)	Phase	Nameplate voltage	Actual voltage	Design flow amps	Max amps	Impellers	Discharge size and material[1]	Length, in. (mm)	Min. liquid level,[2] in. (mm)	Weight,[3] lb (kg)	Rated cycles/day
PF100511	10 (0.6)	0.5 (0.37)	1	115	120	12.7	12.7	6	1 1/4 in. GFP	23.0 (660)	16 (406)	26 (12)	300
PF100512	10 (0.6)	0.5 (0.37)	1	230	240	6.3	6.3	6	1 1/4 in. GFP	23.0 (660)	16 (406)	26 (12)	300
PF10053200	10 (0.6)	0.5 (0.37)	3	200	208	3.8	3.8	6	1 1/4 in. GFP	23.0 (660)	16 (406)	26 (12)	300
PF100712[4, 5]	10 (0.6)	0.75 (0.56)	1	230	240	8.3	8.3	8	1 1/4 in. GFP	25.9 (658)	17 (432)	30 (14)	300
PF10073200[4, 5]	10 (0.6)	0.75 (0.56)	3	200	208	5.1	5.2	8	1 1/4 in. GFP	25.4 (645)	17 (432)	31 (14)	300
PF101012[4, 5]	10 (0.6)	1 (0.75)	1	230	240	9.6	9.6	9	1 1/4 in. GFP	27.9 (709)	18 (457)	33 (15)	100
PF10103200[4, 5]	10 (0.6)	1 (0.75)	3	200	208	5.5	5.5	9	1 1/4 in. GFP	27.3 (693)	18 (457)	37 (17)	300
PF102012[6, 7, 8]	10 (0.6)	2 (1.49)	1	230	240	12.1	12.1	18	1 1/4 in. SS	39.5 (1003)	22 (559)	48 (22)	100
PF10203200[6, 8]	10 (0.6)	2 (1.49)	3	200	208	8.7	8.7	18	1 1/4 in. SS	37.9 (963)	20 (508)	44 (20)	300
PF200511	20 (1.5)	0.5 (0.37)	1	115	120	12.3	12.5	4	1 1/4 in. GFP	22.3 (566)	18 (457)	25 (11)	300
PF200512	20 (1.5)	0.5 (0.37)	1	230	240	6.4	6.5	4	1 1/4 in. GFP	22.5 (572)	18 (457)	26 (12)	300
PF20053200	20 (1.5)	0.5 (0.37)	3	200	208	3.7	3.8	4	1 1/4 in. GFP	22.3 (566)	18 (457)	26 (12)	300
PF201012[4, 5]	20 (1.5)	1 (0.75)	1	230	240	10.5	10.5	7	1 1/4 in. GFP	28.4 (721)	20 (508)	33 (15)	100
PF20103200[4, 5]	20 (1.5)	1 (0.75)	3	200	208	5.8	5.9	7	1 1/4 in. GFP	27.8 (706)	20 (508)	33 (15)	300
PF201512[4, 5]	20 (1.5)	1.5 (1.11)	1	230	240	12.4	12.6	9	1 1/4 in. GFP	34.0 (864)	24 (610)	41 (19)	100
PF20153200[4, 5]	20 (1.5)	1.5 (1.11)	3	200	208	7.1	7.2	9	1 1/4 in. GFP	30.7 (780)	20 (508)	35 (16)	300
PF300511	30 (1.9)	0.5 (0.37)	1	115	120	11.8	11.8	3	1 1/4 in. GFP	21.3 (541)	20 (508)	28 (13)	300
PF300512	30 (1.9)	0.5 (0.37)	1	230	240	6.2	6.2	3	1 1/4 in. GFP	21.3 (541)	20 (508)	25 (11)	300
PF30053200	30 (1.9)	0.5 (0.37)	3	200	208	3.6	3.6	3	1 1/4 in. GFP	21.3 (541)	20 (508)	25 (11)	300
PF300712	30 (1.9)	0.75 (0.56)	1	230	240	8.5	8.5	5	1 1/4 in. GFP	24.8 (630)	21 (533)	29 (13)	300
PF30073200	30 (1.9)	0.75 (0.56)	3	200	208	4.9	4.9	5	1 1/4 in. GFP	24.6 (625)	21 (533)	30 (14)	300
PF301012[4]	30 (1.9)	1 (0.75)	1	230	240	10.4	10.4	6	1 1/4 in. GFP	27.0 (686)	22 (559)	32 (15)	100
PF30103200[4]	30 (1.9)	1 (0.75)	3	200	208	5.8	5.8	6	1 1/4 in. GFP	26.4 (671)	22 (559)	33 (15)	300
PF301512[4, 5]	30 (1.9)	1.5 (1.11)	1	230	240	12.6	12.6	8	1 1/4 in. GFP	32.8 (833)	24 (610)	40 (18)	100
PF30153200[4, 5]	30 (1.9)	1.5 (1.11)	3	200	208	6.9	6.9	8	1 1/4 in. GFP	29.8 (757)	22 (559)	34 (15)	300
PF302012[4, 5, 7]	30 (1.9)	2 (1.49)	1	230	240	11	11	10	1 1/4 in. SS	35.5 (902)	26 (660)	44 (20)	100
PF30203200[4, 5]	30 (1.9)	2 (1.49)	3	200	208	9.3	9.3	10	1 1/4 in. SS	34.0 (864)	24 (610)	41 (19)	300
PF303012[6, 7, 8]	30 (1.9)	3 (2.23)	1	230	240	16.8	16.8	14	1 1/4 in. SS	44.5 (1130)	33 (838)	54 (24)	100
PF303032[6, 8]	30 (1.9)	3 (2.23)	3	230	240	10	10.1	14	1 1/4 in. SS	44.3 (1125)	27 (686)	52 (24)	300
PF305012[6, 7, 8]	30 (1.9)	5 (3.73)	1	230	240	25.6	25.8	23	1 1/4 in. SS	66.5 (1689)	53 (1346)	82 (37)	100
PF305032[6, 8]	30 (1.9)	5 (3.73)	3	230	240	16.6	16.6	23	1 1/4 in. SS	60.8 (1544)	48 (1219)	66 (30)	300
PF500511	50 (3.2)	0.5 (0.37)	1	115	120	12.1	12.1	2	2 in. SS	20.3 (516)	24 (610)	27 (12)	300
PF500512	50 (3.2)	0.5 (0.37)	1	230	240	6.2	6.2	2	2 in. SS	20.3 (516)	24 (610)	27 (12)	300
PF50053200	50 (3.2)	0.5 (0.37)	3	200	208	3.7	3.7	2	2 in. SS	20.3 (516)	24 (610)	28 (13)	300
PF500712	50 (3.2)	0.75 (0.56)	1	230	240	8.5	8.5	3	2 in. SS	23.7 (602)	25 (635)	31 (14)	300
PF50073200	50 (3.2)	0.75 (0.56)	3	200	208	4.9	4.9	3	2 in. SS	23.1 (587)	26 (660)	32 (15)	300
PF500734	50 (3.2)	0.75 (0.56)	3	460	480	1.8	1.8	3	2 in. SS	34.8 (884)	25 (635)	31 (14)	300
PF501012	50 (3.2)	1 (0.75)	1	230	240	10.1	10.1	4	2 in. SS	27.0 (686)	26 (660)	35 (16)	100
PF50103200	50 (3.2)	1 (0.75)	3	200	208	5.7	5.7	4	2 in. SS	26.4 (671)	26 (660)	39 (18)	300
PF501512[4]	50 (3.2)	1.5 (1.11)	1	230	240	12.5	12.6	5	2 in. SS	32.5 (826)	30 (762)	41 (19)	100
PF50153200[4]	50 (3.2)	1.5 (1.11)	3	200	208	7	7	5	2 in. SS	29.3 (744)	26 (660)	35 (16)	300
PF503012[4, 5, 7, 8]	50 (3.2)	3 (2.23)	1	230	240	17.7	17.7	8	2 in. SS	43 (1092)	37 (940)	55 (25)	100
PF503032[4, 5, 8]	50 (3.2)	3 (2.23)	3	230	240	10.4	10.4	8	2 In SS	40 (1016)	30 (762)	46 (21)	300
PF50303200[4, 5, 8]	50 (3.2)	3 (2.23)	3	200	208	13.1	13.1	8	2 in. SS	43.4 (1102)	30 (762)	55 (25)	300
PF505032[6, 8]	50 (3.2)	5 (3.73)	3	230	240	16.5	16.5	13	2 in. SS	59.3 (1506)	49 (1245)	64 (29)	300
PF751512	75 (4.7)	1.5 (1.11)	1	230	240	12.1	12.3	4	2 in. SS	33.4 (848)	30 (762)	44 (20)	100

See notes on following page.

PF Series High-Head Effluent Pumps (continued)

50 Hz Model	Design gpm (L/sec)	Horsepower (kW)	Phase	Nameplate voltage	Actual voltage	Design flow amps	Max amps	Impellers	Discharge size and material[1]	Length, in. (mm)	Min. liquid level,[2] in. (mm)	Weight,[3] lb (kg)	Rated cycles/day
PF100552	10 (0.6)	0.5 (0.37)	1	220	230	3.9	4.1	6	1 1/4 in. GFP	23 (584)	17 (432)	26 (12)	300
PF100752	10 (0.6)	0.75 (0.56)	1	220	230	6.2	6.2	9	1 1/4 in. GFP	26.8 (658)	17 (432)	30 (14)	300
PF300552	30 (1.9)	0.5 (0.37)	1	220	230	4.1	4.1	4	1 1/4 in. GFP	22.5 (572)	19 (483)	26 (12)	300
PF300752	30 (1.9)	0.75 (0.56)	1	220	230	6.1	6.1	5	1 1/4 in. GFP	24.8 (630)	19 (483)	29 (13)	300
PF301052	30 (1.9)	1 (0.75)	1	220	230	7.4	7.4	7	1 1/4 in. GFP	28.4 (721)	20 (508)	32 (15)	100
PF301552[4, 5]	30 (1.9)	1.5 (1.11)	1	220	230	9.3	9.3	8	1 1/4 in. GFP	35.4 (899)	24 (610)	40 (18)	100
PF500552	50 (3.2)	0.5 (0.37)	1	220	230	4	4	2	2 in. SS	20.3 (516)	25 (635)	29 (13)	300
PF500752	50 (3.2)	0.75 (0.56)	1	220	230	6.3	6.4	3	2 in. SS	23.7 (602)	25 (635)	31 (14)	300
PF501052	50 (3.2)	1 (0.75)	1	220	230	7.3	7.4	4	2 in. SS	27 (686)	26 (660)	35 (16)	100
PF501552	50 (3.2)	1.5 (1.11)	1	220	230	9.1	9.1	5	2 in. SS	32.5 (826)	30 (762)	42 (19)	100

[1] GFP = glass-filled polypropylene; SS = stainless steel. The 1 1/4-in. NPT GFP discharge is 2 7/8 in. octagonal across flats; the 1 1/4-in. NPT SS discharge is 2 1/8 in. octagonal across flats; and the 2-in. NPT SS discharge is 2 7/8 in. hexagonal across flats. Discharge is female NPT threaded, U.S. nominal size, to accommodate Orenco® discharge hose and valve assemblies. Consult your Orenco Distributor about fittings to connect hose and valve assemblies to metric-sized piping.

[2] Minimum liquid level is for single pumps when installed in an Orenco Biotube® Pump Vault or Universal Flow Inducer. In other applications, minimum liquid level should be top of pump. Consult Orenco for more information.

[3] Weight includes carton and 10-ft cord.

[4] High-pressure discharge assembly required.

[5] Do not use cam-lock option (Q) on discharge assembly.

[6] Custom discharge assembly required for these pumps. Contact Orenco.

[7] Capacitor pack included with pump. Custom control panel required.

[8] Torque locks are available for all pumps, and are supplied with 3-hp and 5-hp pumps.

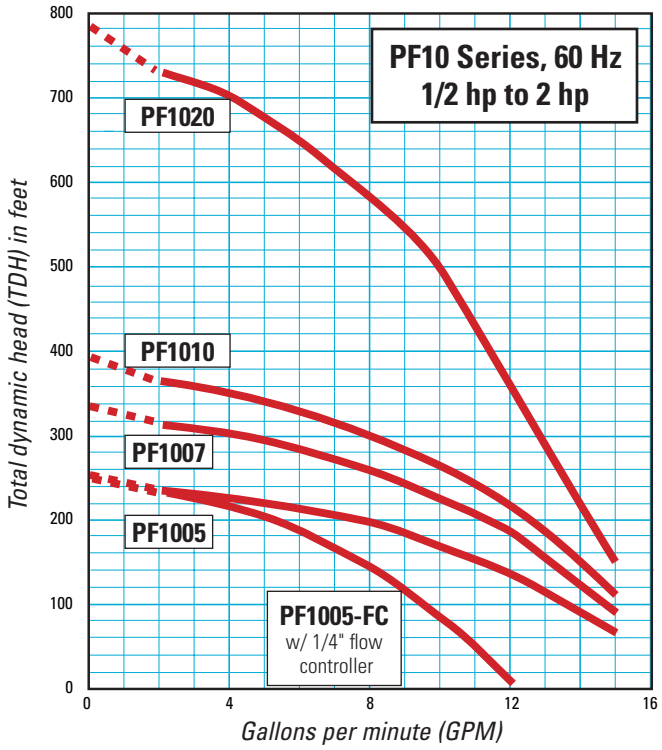
Materials of Construction

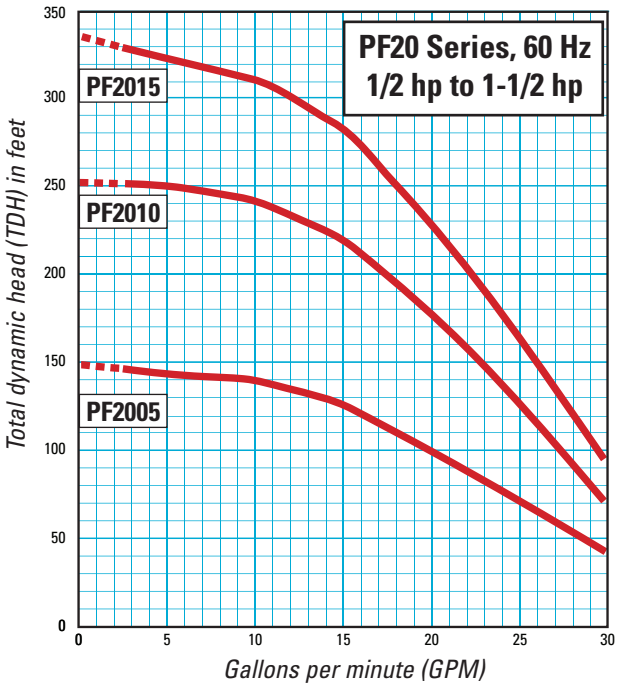
Discharge:	Glass-filled polypropylene or stainless steel
Discharge bearing:	Engineered thermoplastic (PEEK)
Diffusers:	Glass-filled PPO (Noryl GFN3)
Impellers:	Celcon® acetal copolymer on 10-, 20, and 30-gpm models; 50-gpm impellers are Noryl GFN3
Intake screen:	Polypropylene
Suction connection:	Stainless steel
Drive shaft:	7/16 inch hexagonal stainless steel, 300 series
Coupling:	Sintered stainless steel, 300 series
Shell:	Stainless steel, 300 series
Motor:	Franklin motor exterior constructed of stainless steel. Motor filled with deionized water and propylene glycol for constant lubrication. Hermetically sealed motor housing ensures moisture-free windings. All thrust absorbed by Kingsbury-type thrust bearing. Rated for continuous duty. Protected against thermal overload and equipped with surge arrestors for added security.

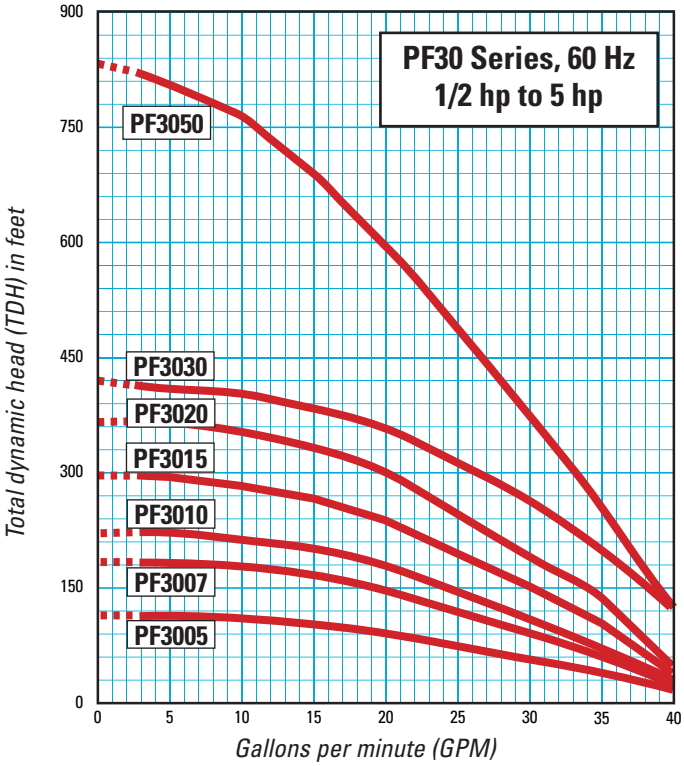
Using a Pump Curve

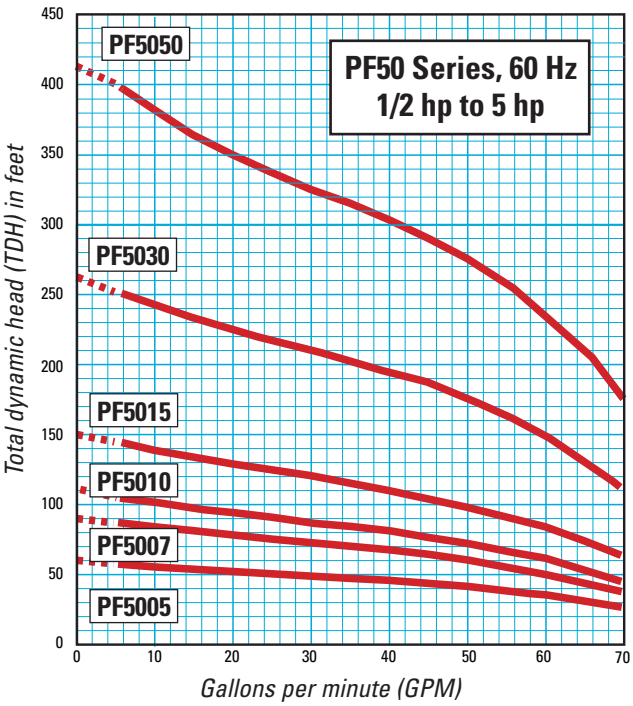
A *pump curve* helps you determine the best pump for your system. Pump curves show the relationship between flow (gpm or L/sec) and pressure (total dynamic head, or TDH), providing a graphical representation of a pump's optimal performance range. Pumps perform best at their *nominal flow rate* — the value, measured in gpm (or L/sec), expressed by the first two numerals in an Orenco pump nomenclature. At low flow rates, TDH varies from pump to pump, so it is represented as a dashed line in the pump curves. For most accurate pump specification, use Orenco's PumpSelect™ software.

60 Hz Models



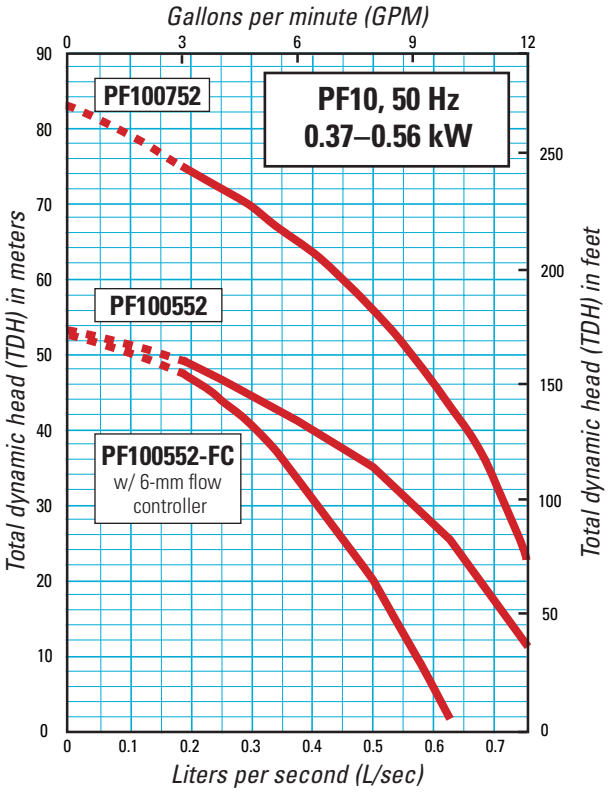


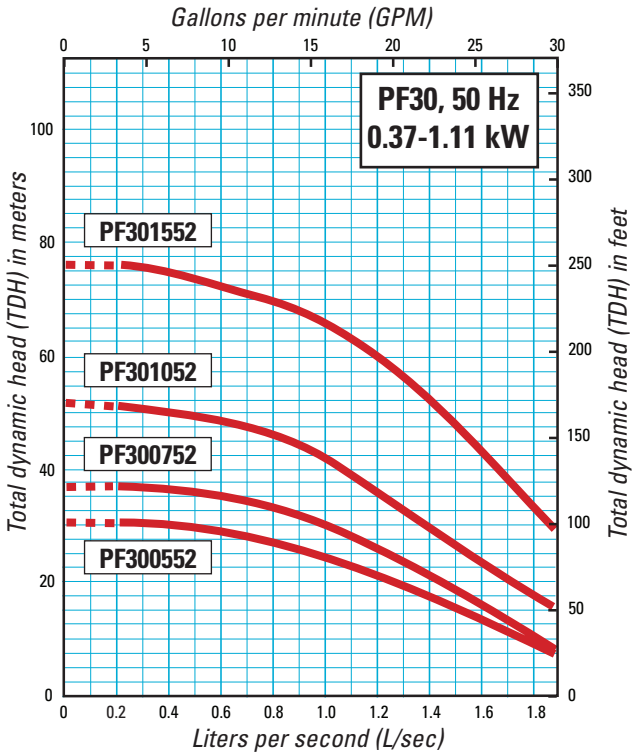


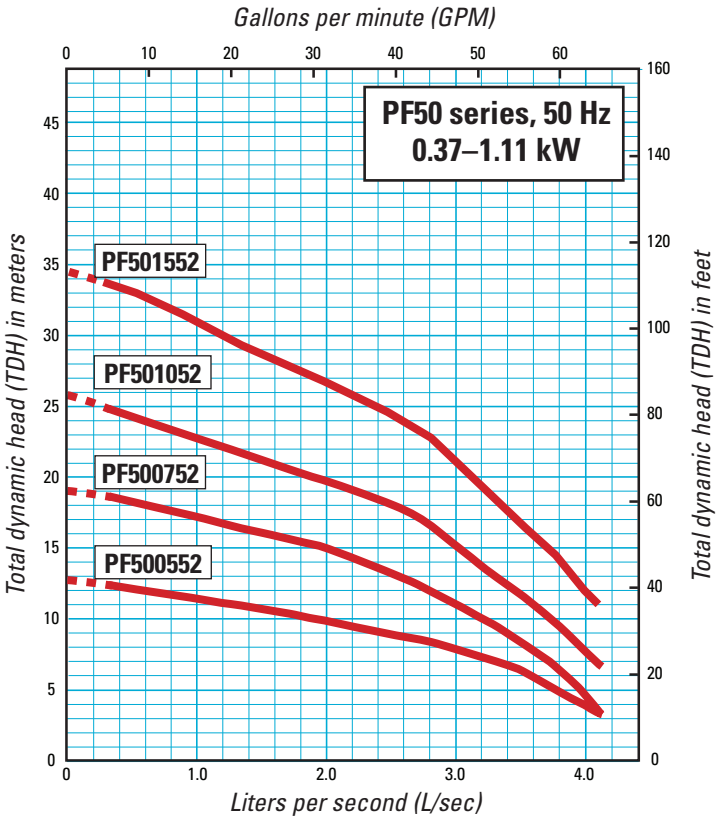


PF Series High-Head Effluent Pumps (continued)

50 Hz Models







Simplex Alarm Panels

Submittal
Data Sheet

Orenco Systems®
Incorporated
1-800-348-9843

Applications

Orenco Simplex Alarm Panels are used to control effluent pumps, alarms, and other equipment as specified in on-site septic systems.

General

Orenco Simplex Alarm Panels are specifically engineered for pressure sewer (STEP) systems, onsite septic treatment systems, and for pump control into conventional gravity systems. Standard features include circuit breakers, an automatic/manual/off toggle switch, and an audio/visual high water alarm with auto reset. Other standard features and options are listed on page 2. Orenco Panels are designed for use with mechanical and/or mercury float switches. Listed per UL 508; a UL-Canada listing is available.

Standard Models

A1, A2.

Nomenclature

A X XXXX

Indicates options (see p.2).

Indicates voltage.
1 = 120 VAC.
2 = 240 VAC.

Specifications

Panel Enclosure:	Measures 9.5” high x 7.3” wide x 5” deep. NEMA 4X rated. Constructed of UV resistant fiberglass; hinges and latch are stainless steel.
A1 Panel Ratings:	120 VAC, 1 hp, 16 Amps, single phase, 60 Hz.
A2 Panel Ratings:	240 VAC, 1 hp, 10 Amps, single phase, 60 Hz.

Simplex Alarm Panels (continued)

Standard Features

Feature	Specification(s)
Pump Circuit Breaker	20 amps, OFF/ON switch. Single pole 120 VAC, double pole 240 VAC. DIN rail mounting with thermal magnetic tripping characteristics.
Controls Circuit Breaker	10 amps, OFF/ON switch. Single pole 120 VAC. Din rail mounting with magnetic tripping characteristics
Toggle Switch	Single-pole, double-throw HOA switch. 20 amps, 1hp.
Audio Alarm	95 dB at 24", warble-tone sound.
Audio Alarm Silence Relay	120 VAC, automatic reset. DIN rail mount.
Visual Alarm	7/8" diameter red lens, "Push-to-silence." NEMA 4X, 1 watt bulb, 120 VAC.
Padlock Latch	Constructed of non-corrosive stainless steel.

Optional Features

Feature	Specification(s)	Product Code Adder
Redundant Off Relay	120 VAC, 25 amps, automatic reset, provides low level alarm capability.	RO
Elapsed Time Meter	120 or 240 VAC (model-dependent), 7-digit, non-resettable. Limit of 99,999 hours; accurate to 0.01 hours.	ETM
Event Counter	120 or 240 VAC (model-dependent), 6-digit, non-resettable.	CT
Heater	Anti-condensation heater. Self-adjusting: radiates additional wattage as temperature drops.	HT

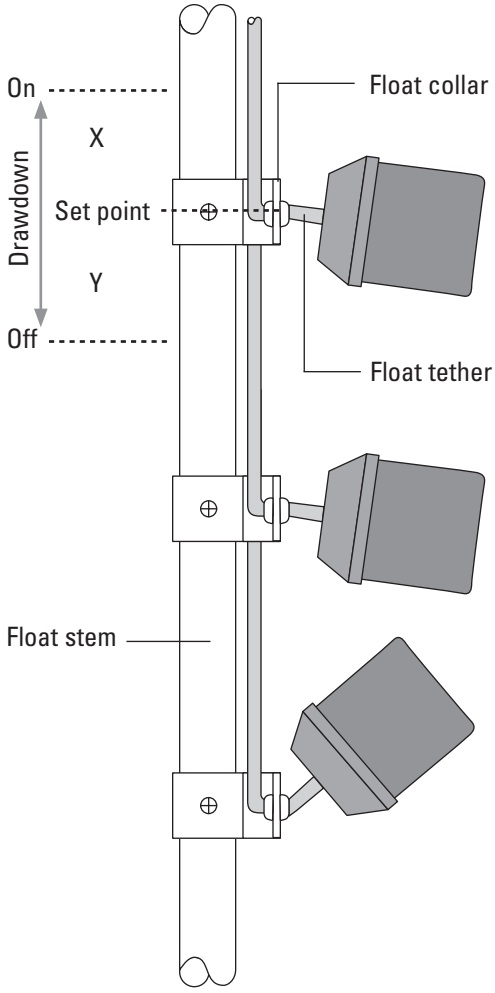
Submittal Data Sheet

Float Switch Assemblies

Orenco Systems® Incorporated
800-348-9843

Applications

Float switches are used to signal liquid level positions for alarm and pump control applications. Orenco float switch assemblies can be mounted in pump vaults, effluent screens, pump basins, and risers.



The "On" and "Off" positions describe normally open floats. For normally closed floats, the functions are reversed.

General

All models listed are UL listed and CSA certified for use in water or sewage. Model "A" floats are also CE certified for sale in European Union countries.

Floats are typically ordered in assemblies that include one or more floats mounted on a 1" PVC float stem. ABS float collars are used to provide secure mounting that is easily adjustable.

Non-mercury floats (models B, C, D, V and X) are used where components containing mercury are prohibited.

Standard Models

A, B, C, D, G, T, V, X

Nomenclature

MF □ □□□ - □ □□ □ □

Cord length:
Blank = 10' cord (standard)
20 = 20' cord*
30 = 30' cord*

Application:
FS = field set
FTL = elbow-style for Biotube base-inlet filters only
PB = pump basin
V = pump vault (factory standard float settings)
VC = pump vault (specify float settings)

Stem length:
Blank = no stem, floats on collars only
19, 21, 27, 33, 37, 39, 45, 51, 57, 66 = stem length in inches
5, 11 = stem length in inches for elbow-style float brackets for effluent filters

Color code:
Blank = no color indicated
Y = yellow
G = green
B = blue
R = red
O = orange
E = gray
W = white
P = purple
YG = yellow-green
YP = yellow-purple

Float switch models:
A, B, C, D, G, T, V, X

Number of float switches (when using multiples of same float switch model)
Blank = no float collar

Mechanical or mercury float switch assembly

* Not standard for V, X floats. Special order required.

Examples

An MFAB indicates one "A" float and one "B" float, with the "B" float being lower on the float stem; an MF3AT indicates three "A" floats and a "T" float. (Note that floats are listed in order from the top of the float stem down).

Materials of Construction

Float housing	Impact-resistant, noncorrosive PVC plastic for use in liquids up to 140˚ F (60˚ C)
Float cord	Flexible 2-conductor (UL, CSA) SJOW; water-resistant (CPE); neoprene coating
Float collar	ABS

Float Switch Assemblies (continued)

Signal- and Motor-Rated Float Switch Matrix

Float	State[1]	Type[2]	IR[3]	Volts	Amps	hp	Tether	X	Y	Drawdown[4]
Signal-rated mercury floats[5] (for control switch applications)										
A Model[a]	Normally open	Mercury	Yes	n/a	n/a	n/a	2.00 in.	n/a	n/a	n/a
T Model	Normally closed	Mercury	Yes	n/a	n/a	n/a	2.00 in.	n/a	n/a	n/a
Signal-rated mechanical floats[5] (for control switch applications)										
V Model[a,b]	Normally open	Mechanical, small drawdown	Yes	n/a	n/a	n/a	2.00 in.	< 1 in.	< 1 in.	< 1 in.
X Model[b]	Normally closed	Mechanical, small drawdown	Yes	n/a	n/a	n/a	2.00 in.	< 1 in.	< 1 in.	< 1 in.
Motor-rated floats[5] (for pump switch applications)										
B Model[b]	Normally open	Mechanical	No	120V	13A	1/2 hp	2.00 in.	2.50 in.	1.50 in.	4.00 in.
				240V	13A	1 hp	3.00 in.	3.00 in.	1.50 in.	4.5 in.
							4.00 in.	3.25 in.	1.50 in.	4.75 in.
C Model[b]	Normally open	Mechanical	No	120V	13A	1/2 hp	2.00 in.	3.00 in.	2.50 in.	5.50 in.
				240V	15A	2 hp	3.00 in.	3.50 in.	3.00 in.	6.50 in.
							4.00 in.	4.00 in.	3.50 in.	7.50 in.
							5.00 in.	4.50 in.	4.00 in.	8.50 in.
							6.00 in.	5.25 in.	4.25 in.	9.50 in.
D Model[b]	Normally open	Mechanical	No	120V	15A	3/4 hp	2.00 in.	3.00 in.	2.50 in.	5.50 in.
				240V	15A	2 hp	3.00 in.	3.50 in.	3.00 in.	6.50 in.
							4.00 in.	4.00 in.	3.50 in.	7.50 in.
							5.00 in.	4.50 in.	4.00 in.	8.50 in.
							6.00 in.	5.25 in.	4.25 in.	9.50 in.
G Model	Normally open	Mercury	Yes	120V	15A	3/4 hp	2.00 in.	1.50 in.	3.00 in.	4.50 in.
				240V	15A	2 hp	3.00 in.	1.75 in.	3.00 in.	4.75 in.
							4.00 in.	2.00 in.	3.50 in.	5.50 in.

a. Suitable for use with VCOM and MVP.
b. Suitable for use with potable water.

Notes

[1] State: normally open or normally closed

The default state of a float — normally open or normally closed — refers to the contact positions in the float when the float is resting (down). Float switches have an internal contact. The terms "normally open" (N/O) and "normally closed" (N/C) refer to the state of the float switch contact in the down position. A normally open float switch has an open contact (off) in the down position and a normally closed float switch has a closed contact (on) 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.

[2] Type

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

[3] IR (intrinsically safe relay)

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

[4] Drawdown

Drawdown (in inches) 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 (one that has no motor contactor in the control panel) should have a drawdown capability, to avoid rapid cycling of the pump.

[5] Signal-rated or motor-rated

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

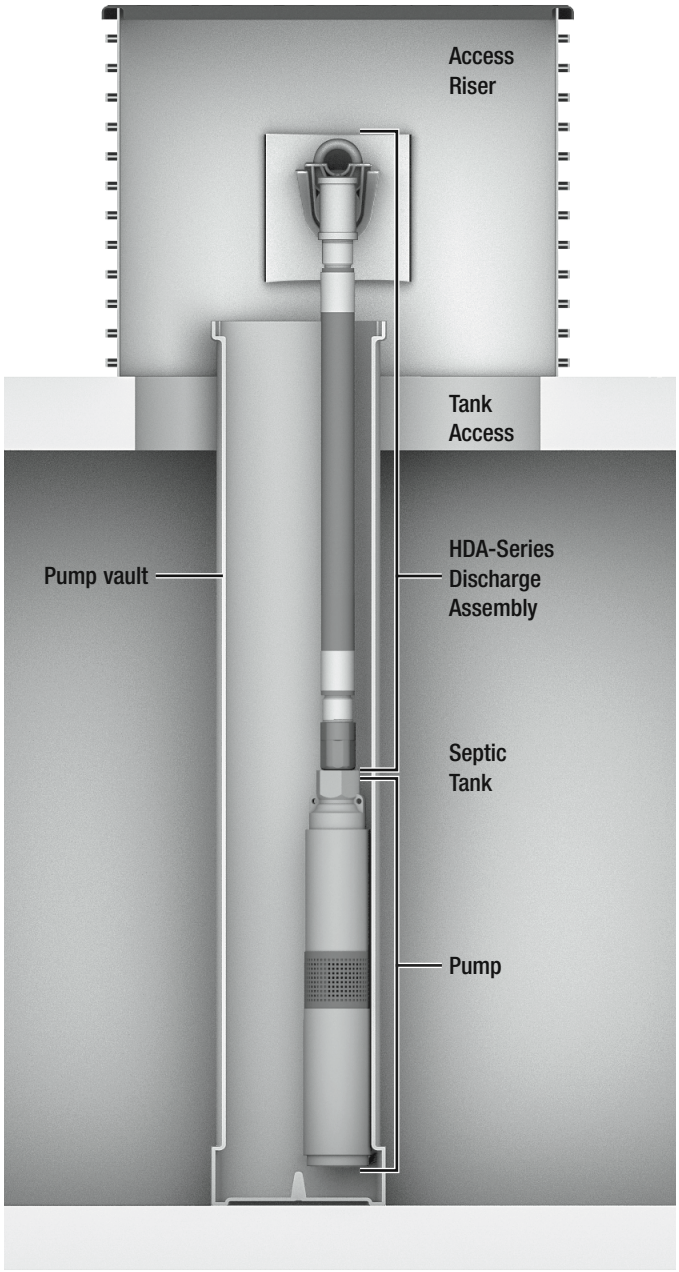
Orenco SYSTEMS

Technical Data Sheet

HDA Discharge Assemblies

Applications

Orenco's HDA Discharge Assemblies are designed to work with 4-inch (100-mm) submersible effluent pumps to convey effluent to the exterior of a riser, tank or basin. They are not intended for "low-head" centrifugal pumps. HDA discharge assemblies are suitable for most pumping applications requiring simplex or duplex pumps. And they are ideal for sites with deep burial needs or cold weather conditions.



HDA Discharge Assemblies provide clear access to tank and basin components. (Cross-sectional illustration of simplex HDA installed in a typical concrete tank.)

General

HDAs are hanging-style discharge assemblies designed to provide a simple, durable, watertight installation and clear access to tank and basin components. They combine an ABS mounting plate with a quick-disconnect fitting and a section of flexible, high-pressure hose with stainless steel fittings. Hose length is determined by the system configuration. Contact your Distributor or Orenco for more information.

HDAs are rated for 10-, 20-, and 30-gpm pumps (0.6-, 1.3-, and 1.9-L/sec).They are extremely easy to remove and reinstall for servicing with a simple tool (HDATOOL), available separately for purchase.

Standard Models

HDAS24125CFCASLC-XX

HDAD24125CFCASLC-XX

HDATOOL

Product Code Diagram

HDA ☐ ☐ ☐ ☐ ☐ - ☐

- Hose length: Length in 1/4-inch increments (6 mm)
- Options (in order):
  - C = check valve, bronze*
  - FC = flow control disc
  - AS = anti-siphon valve
  - LC = line check valve
- Hose diameter, in. (mm):
  - 125 = 1.25 (32)
- PVC riser diameter:
  - 24 = 24-in. (600-mm) diameter
  - 30 = 30-in. (750-mm) diameter
- Simplex/duplex option:
  - S = simplex pumping system
  - D = duplex pumping system
- HDA-series pump discharge assembly

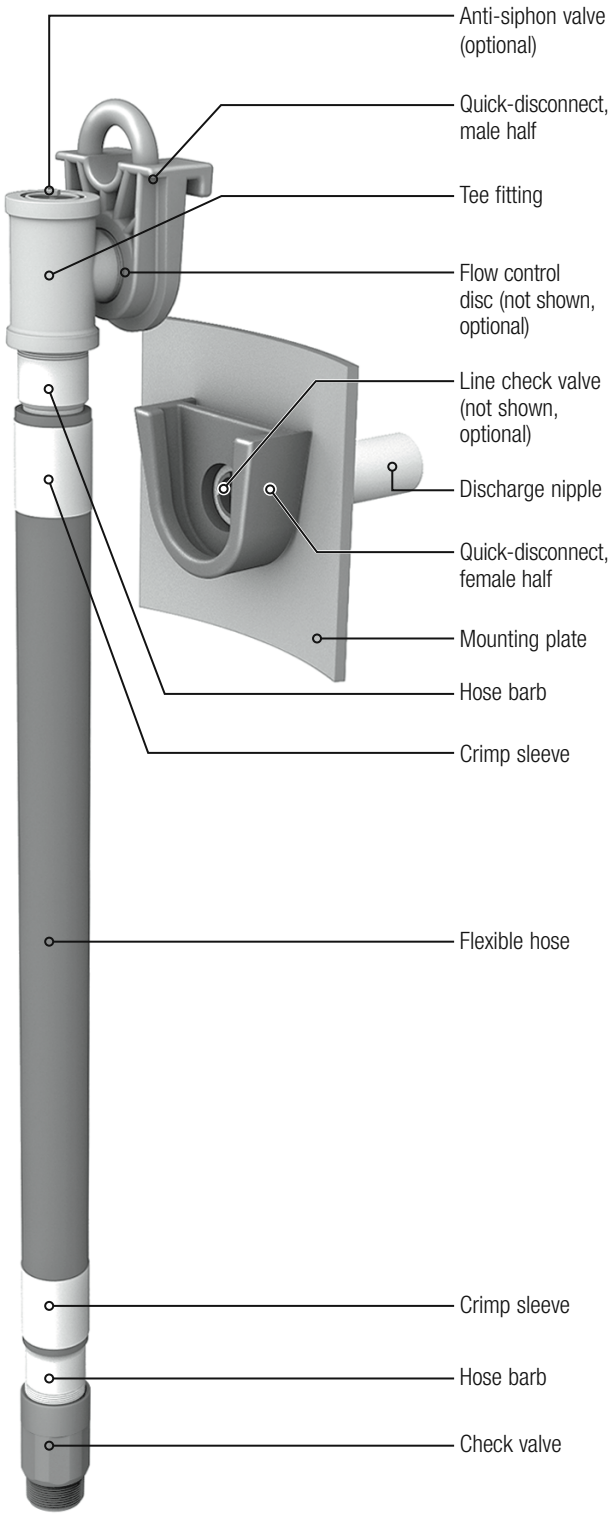
** Bronze check valves are not needed if the pump used has an internal check valve. Orenco's PF100511CV pump is equipped with an internal check valve.*

Materials of Construction

HDA	
Anti-siphon valve	Sch. 80 PVC, EPDM, stainless steel
Check valve	Bronze
Crimp sleeve	Stainless steel
Discharge nipple	Sch. 80 PVC
Flexible hose	Reinforced EPDM
Flow control disc	Sch. 80 PVC, 1/8-inch (3.2 mm) orifice
Hose barb	Stainless steel
Line check valve	Sch. 80 PVC, EPDM, stainless steel
Mounting plate	ABS (simplex), fiberglass (duplex)
Mounting plate screws	Stainless steel
Quick-disconnect	Glass-filled thermoplastic
Tee fitting	Stainless steel
HDATOOL	
Handle	Fiberglass
Tool head	Stainless steel
End cap	Rubber

Working Pressures and Dimensions

Model	HDAS24125C-XX	HDAD24125C-XX
Unit working pressure, psi (kPa)	150 (1034)	150 (1034)
Height, mounting plate, in. (mm)	7 (178)	7 (178)
Width, mounting plate, in. (mm)	7 (178)	14 (356)
Diameter, discharge nipple, in. (mm)	1¼ (32)	1¼ (32)
Diameter, flow control disc orifice, in. (mm)	¼ (6.35)	¼ (6.35)



HDA Discharge Assemblies are constructed of durable, corrosion-resistant parts that are designed to work together for a long service life. (Simplex model shown.)

Orenco Systems® Inc. , 814 Airway Ave., Sutherlin, OR 97479 USA • 800-348-9843 • 541-459-4449 • www.orenco.com

Hose Length Selection Chart

	Correct HDA Hose Length for Pump and PVU Model, in. (mm)*						
Pump	**PVU48**	**PVU57**	**PVU68**	**PVU72**	**PVU84**	**PVU95**	**PV55**
PF100511CV²	24.00 (610)	33.00 (838)	44.00 (1118)	48.00 (1219)	60.00 (1524)	71.00 (1803)	31.75 (806)
PF10051X	21.00 (533)	30.00 (762)	41.00 (1041)	45.00 (1143)	57.00 (1448)	68.00 (1727)	27.75 (705)
PF100712	18.00 (457)	27.00 (686)	38.00 (965)	42.00 (1067)	54.00 (1372)	65.00 (1651)	24.75 (629)
PF15031X	24.50 (622)	33.50 (851)	44.50 (1130)	48.50 (1232)	60.50 (1537)	71.50 (1816)	31.25 (794)
PF20051X	21.75 (552)	30.75 (781)	41.75 (1060)	45.75 (1162)	57.75 (1467)	68.75 (1746)	28.50 (724)
PF201012	15.50 (394)	24.50 (622)	35.50 (902)	39.50 (1003)	51.50 (1308)	62.50 (1588)	22.25 (565)
PF201512	10.00 (254)	19.00 (483)	30.00 (762)	34.00 (864)	46.00 (1168)	57.00 (1448)	16.75 (425)
PF30051X	22.75 (578)	31.75 (806)	42.75 (1086)	46.75 (1187)	58.75 (1492)	69.75 (1772)	29.50 (749)
PF300712	19.25 (489)	28.25 (718)	39.25 (997)	43.25 (1099)	55.25 (1403)	66.25 (1683)	26.00 (660)
PF301012	17.00 (432)	26.00 (660)	37.00 (940)	41.00 (1041)	53.00 (1346)	64.00 (1626)	23.75 (603)
PF301512	11.25 (286)	20.25 (514)	31.25 (794)	35.25 (895)	47.25 (1200)	58.25 (1480)	18.00 (457)
PVA100511	22.00 (559)	31.00 (787)	42.00 (1067)	46.00 (1168)	58.00 (1473)	69.00 (1753)	28.75 (730)
PVA300511	23.50 (597)	32.50 (826)	43.50 (1105)	47.50 (1207)	59.50 (1511)	70.50 (1791)	30.25 (768)
PF10053200	21.00 (533)	30.00 (762)	41.00 (1041)	45.00 (1143)	57.00 (1448)	68.00 (1727)	30.75 (781)
PF10073200	18.50 (470)	27.50 (699)	38.50 (978)	42.50 (1080)	54.50 (1384)	65.50 (1664)	25.25 (641)
PF20053200	21.75 (552)	30.75 (781)	41.75 (1060)	45.75 (1162)	57.75 (1467)	68.75 (1746)	28.50 (724)
PF20103200	16.25 (413)	25.25 (641)	36.25 (921)	40.25 (1022)	52.25 (1327)	63.25 (1607)	23.00 (584)
PF20153200	13.25 (337)	22.25 (565)	33.25 (845)	37.25 (946)	49.25 (1251)	60.25 (1530)	20.00 (508)
PF30053200	22.75 (578)	31.75 (806)	42.75 (1086)	46.75 (1187)	58.75 (1492)	69.75 (1772)	29.50 749)
PF30073200	19.50 (495)	28.50 (724)	39.50 (1003)	43.50 (1105)	55.50 (1410)	66.50 (1689)	26.25 (667)
PF30103200	17.50 (445)	26.50 (673)	37.50 (953)	41.50 (1054)	53.50 (1359)	64.50 (1638)	24.25 (616)
PF30153200	14.25 (362)	23.25 (591)	34.25 (870)	38.25 (972)	50.25 (1276)	61.25 (1556)	21.00 (533)
PF301534	14.50 (368)	23.50 (597)	34.50 (876)	38.50 (978)	50.50 (1283)	61.50 (1562)	21.25 (540)

** Hose lengths shown are based on a discharge hole center height of 8 inches (200 mm) from the bottom of the riser and with the pump vault's support pipes resting on the top of the tank. These lengths also work for a discharge hole center height 11 inches (279 mm) from the bottom of the riser when using an Orenco RRFTA24 or FRTA24-RVF tank adapter on a tank. Other factors may affect the hose length selection process. Contact Orenco for more details.*

Submittal Data Sheet

Riser Pipe – Ultra-Rib

Orenco Systems® Incorporated
1-800-348-9843

Applications

Orenco's Access Risers are used to provide easy entry to septic tank access ports for maintenance and monitoring purposes.

Example cut-to-length Ultra-Rib Pipe

General

Orenco Ultra-Rib Access Risers are constructed of ribbed PVC pipe and are available in 18" and 24" diameters. Ultra-Rib riser pipe is available in truckload quantities and comes in 13' lengths. A complete line of Orenco cutting tools makes on-the-job riser pipe cutting easy. Risers can be sized to the length required for each application, in 3" increments.

Standard Models

RPU18, RPU24

Nomenclature

RPU □□

Indicates riser diameter (13' length)
18 = 18"
24 = 24"

Bulk Ultra-Rib riser pipe

Specifications

Dimensions

	Model RU18	Model RU24
I.D. (in.)	17.65	23.5
Wall Thickness - excluding ribs (in.)	0.15	0.2
O.D. - including ribs (in.)	19.63	25.97

Materials of Construction

PVC

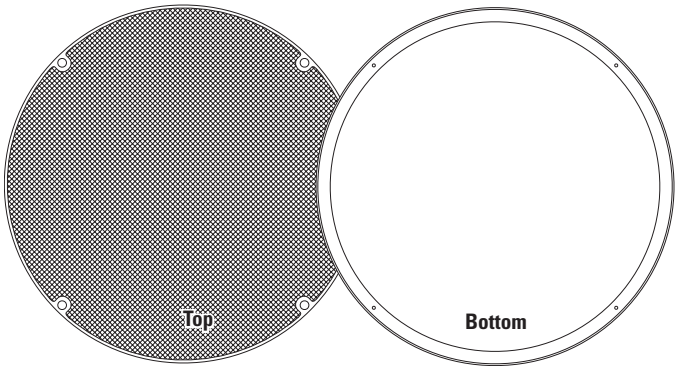
Technical Data Sheet

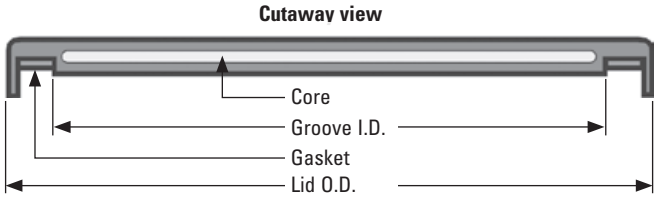
Fiberglass Access Lids

Orenco Systems® Incorporated
800-348-9843

Applications

Orenco® Fiberglass Access Lids provide a secure covering for risers, pump basins, and access ports. Lids fit Perma-Loc™, Ultra-Rib™, Kor Flo™, and Ultra-Corr™ pipe. Orenco Fiberglass Access Lids are capable of supporting a 2500-lb (1134-kg) wheel load; however, they are not designed or recommended for vehicular traffic.





General

Orenco Fiberglass Access Lids are molded using fiberglass reinforced polyester resin encapsulating a wood or structural foam core, for added durability and longevity. The finish is green or brown and the top surface is textured to provide a nonskid surface. Gasketed lids include a polyurethane or neoprene gasket. Lid comes with either two or four 5⁄16-inch stainless steel flathead socket cap screws and a hex key wrench.

Standard Models

FL18G-4BU, FL21G, FL24G, FL24-4B, FL30G, FL36G, FL48G

Nomenclature

FL 24 G I2

FL □□ □ - □ - □

Options:
Blank = green
B = brown
W = warning label (24" and 30" only)
C = custom logo
ATX = AdvanTex logo (24" only)

Attachment method:
Blank = 2-bolt-hole lid (30" diameter only)
4B = 4-bolt-hole lid (24", and 36" diameter only)
4BU = 4-bolt-hole lid Ultra-Rib (18" and 24" diameter only)
8B = 8-bolt-hole lid (48" diameter only*)

Options:
G = gasket
V = vent
CF = carbon filter†
I2 = 2" insulation‡
I4 = 4" insulation‡

Lid diameter: 18", 21", 24", 30", 36", 48"

Fiberglass lid

** 48" lids come without bolt holes unless FL48G-8B is ordered and hole locations are specified. For a 48" lid with no holes, to mount on a concrete riser, specify FL48G.*

† For more information on this option, see the Carbon Filters Submittal Data Sheet, NSU-RLA-CF-1.

‡ Blue Styrofoam™ has an R-value of 10 per each 2-inch (51mm) increment.

Note: for basin bottoms without bolt holes, specify FL18, FL21, FL24, or FL30.

Materials of Construction

Lid	Fiberglass
Core	Wood (structural foam in FL36)
Gasket	Polyurethane or neoprene

Specifications

Model	FL18G-4BU	FL21G	FL24G-4BU	FL24G-4B	FL30G	FL36G	FL48G
Lid O.D. in. (mm)	20.25 (514)	22.5 (572)	26.25 (667)	25.5 (648)	32.6 (829)	39.63 (1006)	53.88 (1368)
Groove I.D. in. (mm)	17.5 (445)	20.25 (514)	22.75 (578)	23.25 (591)	28.75 (730)	35 (889)	47.5 (1207)
Avg. thickness in. (mm)	0.75 (19)	0.75 (19)	0.75 (19)	0.75 (19)	1.0 (25)	1.5 (38)	1.5 (38)
Weight lb (kg)	7.25 (3.3)	9.75 (4.4)	12.5 (5.7)	12.5 (5.7)	21.5 (9.8)	41.0 (18.6)	103.0 (46.7)
Gasket type	polyurethane	polyurethane	neoprene	polyurethane	polyurethane	polyurethane	polyurethane
Applications	Ultra-Rib	Ultra-Rib Perma-Loc	Ultra-Rib	Perma-Loc	Perma-Loc Kor Flo	Kor Flo	Call for more information

Liquid Level Alarms

Submittal
Data Sheet

Orenco Systems®
Incorporated
1-800-348-9843

Applications

Orenco Liquid Level Alarms are used to monitor liquid levels in onsite septic systems.

(model depicted is a SENTINEL I)

General

Orenco Liquid Level Alarms are specifically engineered for monitoring liquid levels of onsite septic treatment systems. Orenco Liquid Level Alarms are designed for use with mechanical or mercury float switches.

Standard Models

AMSENTI, AMSENTII, AMSENTII-W

Specifications

Feature	AMSENTI	AMSENTII	AMSENTII-W
Power Source	115 VAC	9 VDC	9 VDC
Enclosure	4" x 4" x 2"	4" x 4" x 2"	4" x 4" x 2"
Enclosure Rating	NEMA 1	NEMA 1	NEMA 4X
Test Switch	SPDT	SPDT	SPDT
Audio Alarm	85 dB at 12"	85 dB at 12"	80 dB at 24"
Audio Silence Feature	Switch	Switch	Switch
Visual Alarm	Red LED	Red LED	Red LED
Use	Indoor Only	Indoor Only	Indoor / Outdoor