

## What is a STEP Sewer System?



Many Munford sewer customers rely on a "STEP sewer system" to discharge household wastewater to Munford's city-wide sewer system. "STEP" stands for "Septic Tank Effluent Pump" and these systems are used throughout the United States. If you are one of our STEP customers, it's important that you are aware of that fact, and understand how it works at your location.

For STEP system customers, household wastewater spends time in a STEP sewer tank before heading out to the "main" sewer collection lines that terminate at Munford's wastewater treatment plant.

That is, there is a "STEP in-between" flushing your toilet and that wastewater entering the city-wide gravity sewer system. Here are the details of how it works.

## How Do STEP Systems Work?

STEP systems include a holding tank for sewage, a screen chamber, and a small pressure pump within the tank. The liquid waste is pumped through a small pressure line into the city-wide sewer lines leading to Munford's wastewater treatment plant.

The STEP system pump is controlled by a system of floats within your tank. The electrical box mounted on the side of your house controls the floats and pumps. The floats activate an alarm in the electrical (alarm) box when the fluid level in the tank gets too high or too low. The alarm makes a sound that is audible – and the light on it flashes -- so you can be alerted. At that point, it's important you contact the City promptly.

The City may visit your STEP system location in order to assess its status and perform maintenance.

**If Your STEP Alarm Sounds or Lights Up -- Contact the City and Silence the alarm!**

If the alarm activated, it will make a loud alarm sound. To silence the alarm, locate the alarm box on the exterior of your home and push the red button. The red light will stay on as long as there is an alarm condition. Then:

**VERY IMPORTANT** -- Call (901) 837-0171 to report a STEP alarm condition, regardless of day or time -- unless your alarm went off during a power outage (see info below for a power outage). Or if your STEP system has just been serviced by the City's personnel.

**DURING WORKING HOURS:** If you call during City Hall working hours, one of our Front Desk staff will take your information and dispatch a Service Technician.

**AFTER WORKING HOURS:** If you call after City Hall working hours, your call will be answered by the Automated Operator. Select the EMERGENCY choice and leave a VOICEMAIL stating this is a "STEP ALARM ALERT", along with your name and address (VERY IMPORTANT). Our "On-Call" technician monitors this line 24 hours per day, and will respond as soon as possible.

**Alarm Sounding Following a Power Outage**

Your STEP alarm may sound after power has returned following an outage. If this happens, you only need to silence the alarm. You DO NOT need to call the City unless your tank is overflowing or the alarm light stays on for more than 6 hours.

See "Steps to Follow During and After a Power Outage" below for more information.

**Alarm Light On After System is Serviced**

The STEP alarm light being on after servicing is normal.

When the City comes out and services your STEP system, your alarm light may stay on. The light will stay on until the tank level is high enough to trigger the pump to start. This may take 2 - 14 days.

**Conserve Water**

All sewer systems have limits to their capacity and this is particularly true of STEP systems. Reasonable and responsible use of water can help prevent overflow of the holding tank and damage to your home's plumbing system and living space.

**Important Information For Homeowners with STEP Systems**

**Your Tank Riser Lid Must Remain Visible and Accessible**

This helps us locate your system quickly in an emergency situation. A hidden or inaccessible lid means that your STEP system cannot be serviced.

You must maintain a 2-foot clearance around the tank lid and it must NOT be covered by sod, shrubs, or bark.

You can place items weighing less than 30 pounds, (e.g., birdbath, potted plant, or other yard decoration) on the lid, as long as they can be easily removed for maintenance.

It is possible that major landscaping items, e.g., shrubs and trees that obstruct access to the tank lids may be damaged during the performance of operation and maintenance activities. In accordance with the STEP system easement, the owner waives any claim against the City for damage to said items in the case where work by the City is done in a reasonable manner.

#### **Your Alarm Box Must Remain Visible and Accessible**

You must maintain a 3-foot clearance around and in front of the electrical (alarm) box. This means no shrubs or fences can block the box. This allows technicians to access the box to perform routine and emergency maintenance.

When putting up a new fence, please make sure your alarm box is located in front of your fence line. If your alarm box is located behind a fence, we cannot perform maintenance unless you are home.

#### **DO NOT Flush or Dispose of Items that Can Block Your System**

##### **Disposal of the following items, either via a drain or toilet can block your STEP System.\***

Disposable diapers and wipes (baby or otherwise)

Egg shells, nutshells, and coffee grounds

Sanitary napkins, tampons, condoms, or any non-organic material

Paper towels or rags

Hair in significant amounts (human or pet)

Dental floss

Food items containing seeds and peelings

Fats, oils, and greases

Large amounts of kitchen garbage disposal waste. If you use a kitchen garbage disposal, please consider composting your food waste items. This can extend the life of your STEP system.

**\*Routine maintenance of a STEP system is the City's responsibility. But if extra maintenance or cleaning is required due to disposal of inappropriate materials, the maintenance costs may be billed directly to the property owner or resident.**

### **Important Steps to Follow During and After a Power Outage?**

**Call Southwest Electric [external link](#) [external link](#) to report your outage at 1-888-440-1990**

**Conserve water!**

**Your STEP system has limits to its storage capacity. Without electricity, you can expect your tank to fill within one or two days. It is, important that you limit your water use during extended power outages.**

**Silence your alarm after power is restored**

**Push the red button on your alarm box to silence the alarm. Note that it can take 3-4 days for the system to pump down enough for the light to go off. You DO NOT need to call the City\* unless your tank is overflowing or the alarm light stays on for more than 6 hours. If your tank is overflowing or your alarm light has been on for more than 6 hours, call (901) 837-0171, 24 hours a day.**

**Wait at least 30 minutes before returning to normal water use**

**This will give your system time to pump down.**

### **What is the City of Munford Responsible For?**

**Repairing and maintaining the STEP system tank, electrical (alarm) box, and outlet lines from the tank**

**Checking and removing the sludge in the tank, if and when necessary.**

### **What Am I Responsible for as Owner/Resident?**

**Repairing and maintaining the home plumbing and sewer line from the house to the STEP system tank.**

**NOTE: leaking ("running") toilets or other home plumbing leaks may send increased quantities of water to the STEP system. It is the home owner/resident's responsibility to respond to – and correct -- such in-home plumbing problems.**

**Damages to the home or STEP system that occur due to the City's inability to access the STEP system (e.g., electrical box behind a fence)**

**Providing electricity for the pump and controls.**

Report power outages to SW Electric promptly, so power can be restored as soon as possible.

Calling to report an Alarm -- or any unusual sewer condition.

Minimizing water use during an emergency

Eliminating the disposal of improper material into the STEP system\*

\*Routine maintenance of a STEP system is the City's responsibility. But if extra maintenance or cleaning is required due to disposal of inappropriate materials, the maintenance costs may be billed directly to the property owner or resident.

### **Questions?**

For general STEP information call (901) 837-5974 or email [mwalker@munford.com](mailto:mwalker@munford.com)

## **PREFABRICATED SEPTIC TANK EFFLUENT PUMP STATIONS 11395**

### **PART 1 GENERAL**

- 1.1 The Contractor shall furnish and install a factory-built simplex septic tank effluent pump station consisting of 1 water-tight septic tank (1,000 gallon) and a simplex or duplex effluent pumping unit at the locations shown on the Drawings or as directed by the City of Munford.**
- 1.2 The Contractor shall be responsible for all material furnished by him and shall replace at his own expense all such material found defective in manufacture or damaged on delivery. This shall include the furnishing of all material and labor required for the replacement of installed material discovered defective.**
- 1.3 The Contractor shall be responsible for the safe storage of material furnished by him until it has been incorporated in the completed project. All motors and electrical and mechanical components shall be stored in dry environment. The interior of all pipe, fittings and other accessories shall be kept free from dirt and foreign matter at all times.**

### **PART 2 PRODUCTS**

- 2.1 SEPTIC TANK EFFLUENT PUMP:** The manufacturer shall furnish a factory built simplex septic tank effluent pump (Step) station consisting of pumps (with flow tubes mounted externally to filter vaults), mercury switch level controls, discharge piping, and all necessary parts and equipment installed in a waterproof concrete tank as described in the following specifications. The septic tank effluent pump station shall be as manufactured by Orenco Systems, Inc.
- 2.2 OPERATING CONDITIONS:** The pumps shall be of a high head effluent type. Pump motor Shall be a minimum of ½ hp, 115V, single phase, 60 Hz, 2 wire motor, 30 foot long extra heavy duty (SO) electrical cord with ground to motor plug. Pump shall be CSA listed as an effluent pump. The pumps shall not overload at any point on the performance curve shall be free from harmful effects of deactivation at either high or low head.

## **PREFABRICATED SEPTIC TANK EFFLUENT PUMP STATIONS**

### **2.3 TANK**

- A. Interceptor tanks shall be modified 1,000 precast concrete tanks and shall have been designed by an engineer registered in Tennessee and approved by the local regulatory agencies. The manufacturer shall provide the structural design and certification to the City of Munford for review and approval. The design shall be in accordance with accepted engineering practice. The tanks shall be as manufactured by Jarrett Concrete Products or approved equal.**
- B. The tanks shall be designed for the following loading conditions:**
  - 1. Standard**
    - a. Top: 300psf**
    - b. Lateral Loads: 62.4 pcf**
    - c. Cold weather installations requiring deep burial will need special consideration.**
  - 2. Traffic bearing**
    - a. See standard drawing.**
- C. All tanks shall be guaranteed in writing by the tank manufacturer for a period of 2 years from the date of delivery to the project. Manufacturer's signed guarantee shall accompany bids.**
- D. Tanks shall be manufactured and furnished with access openings 24 inches in diameter and of the configuration shown on the standard drawings. Modification of completed tanks will not be permitted.**
- E. Inlet plumbing shall penetrate 18 inches into the liquid from the inlet flow line.**
- F. Tanks shall be capable of successfully withstanding an aboveground static hydraulic test And shall be individually tested.**
- G. All tanks shall be installed in strict accordance with the manufacturer's recommended installation instructions.**
- H. Walls, bottom, and top of reinforced concrete tanks shall be designed across the shortest Dimension using one-way slab analysis. Stresses in each face of monolithically-constructed tanks may be determined by analyzing the tank cross-section as a continuous fixed frame.**
- I. The walls and bottom slab shall be poured monolithically.**

## **PREFABRICATED SEPTIC TANK EFFLUENT PUMP STATIONS**

- J. Reinforcing steel shall be ASTM A615, Grade 60,  $f_y = 60,000$ psi. Details and placement shall be in accordance with ACI 315 and ACI 318.**
- K. Concrete shall be ready-mix with cement conforming to ASTM C150, type II. It shall a cement content of not less than 6 sacks per cubic yard and maximum aggregate size of  $\frac{3}{4}$  inch. Water/cement ratio shall be kept low ( 3.35 plus or minus), and concrete shall achieve a minimum compressive strength of 5,000 psi in 28 days.**
- L. Tanks shall be protected by applying Xypex as an admixture at the concrete plant where the tanks are manufactured.**
- M. From release used on tank molds shall be Nox-Crete, or equal. Diesel or other petroleum products are not acceptable.**
- N. Tanks shall not be moved from the manufacturing site to the job site until the tank has cured for 7 days or has reached  $\frac{2}{3}$  of the design strength.**
- O. Tanks shall have a  $\frac{1}{2}$  inch wide by  $\frac{1}{2}$  inch deep groove, 21 inches, 24 inches or 30 inches in diameter, as required, surrounding the access opening. The groove shall be formed in the top of the tank at the time of manufacture to facilitate the installation of the riser.**
- P. In order to demonstrate water tightness, tanks shall be tested to the following methods:**
  - 1. After the tank has been placed into the hole at the particular site, the tank shall be vacuum tested to the requirements as specified in Vacuum Testing that follows. If the tank does not pass it will be sent back to the manufacturer, not to be used for this contract. If the tank successfully passes the test, the Contractor shall immediately, in the presence of the resident engineer, begin backfilling around and on top of the tank, then fill with water to prevent the tank from floating. After proper settlement has occurred the Contractor shall connect all lines to the tank and backfill these areas.**

### **2.4 VACUUM TESTING**

- A. It will be required that all tanks including the risers shall be subjected to a vacuum test of a least 3 lbs Hg prior to acceptance by the City. The test shall be considered acceptable if the vacuum remains at 3 lbs.**
- B. The Contractor is required to furnish all equipment necessary for this test including the manhole sealing apparatus, gauges, pump, plugs, and operating personnel.**
- C. Regardless of the outcome of the vacuum tests, any visual or audio defects are to be repaired.**



## **2.5 RISERS AND LIDS**

- A. Inlet risers (required only on tanks greater than 1,500 gallon capacity) shall be ribbed PVC as manufactured by Orenco Systems, Inc. Risers shall extend to the ground surface and shall have a minimum nominal diameter of 21 inches.**
- B. Outlet risers shall be ribbed PVC as manufactured by Orenco Systems, Inc. Risers shall be At least 12 inches high, shall have a minimum nominal diameter of 24 inches when used with 12 inch or 1 inch diameter pump vaults, or 30 inch when used in a duplex application and shall be factory equipped with the following:**
  - 1. Rubber Grommets: Three ¾ inch diameter grommets ( two for the float assemblies and one for the pump assembly), along with one 1 inch diameter grommet for the pump discharge, installed as shown on the Drawing.**
  - 2. Adhesive: Two part epoxy, 1 pint per riser, for bonding riser to tank. One quart for 30 inch diameter.**
- C. One lid shall be furnished with each riser. Lids shall be Orenco Systems FL – 24g, or FL – 30g, as appropriate, fiberglass with green non-skid finish, and provided with urethane gasket, stainless steel bolts, and wrench. The riser and lid combination shall be able to support a 2,500 pound wheel load. ( Note: This is not to imply that PVC risers are intended for traffic areas. Please refer to section on traffic protection).**

## **2.6 RISER INSTALLATION**

- A. Riser installation shall be accomplished according to the manufacturer's instructions.**

## **2.7 STEP PUMPING ASSEMBLIES FOR RESIDENIAL - COMMERICAL**

- A. Materials: All pumping systems shall be Orenco Systems High Head Pumping Assemblies Composed of:**
  - 1. Screened Pump Vault: Model PVU- 57-2426, PVC vault, fitted with 1/8 inch mesh Polyethylene screen and a 4 inch diameter PVC flow inducer for a high head pump.**
  - 2. Discharge Hose and Valve Assembly: Model HV100BFCPRX-32, 1 inch diameter PVC ball valve, Control Orifice, PVC flex hose with working pressure rating of 250 psi, and a 32 inch stem. When pumping down hill, add AS to nomenclature of the H&V assembly designation.**
  - 3. Mercury Switch Float Assembly: Model ECS2900B2S14-30, Normally Open (NO), ECS2901B2S1-30 Normally Closed (NC) shall be installed as shown on the plans for working with the control panel.**
  - 4. High Head Effluent Pump: ODIP100511-30, 1/2hp, 115v, single phase, 60hz, 2-wire Motor, 30 foot long cord, rated SOW extra heavy duty electrical cord with ground to motor plug. Pump shall be CSA listed as an effluent pump.**
- B. Installation: All pumping systems shall be installed in accordance with the manufacturer's Recommendations and the standard plans.**
- C. Location: The pump control panel shall be mounted on the side of the house nearest the tank and pump. The tank must be located as near to the house as possible. The control panel must be located within 30' of the pump. Location of tank must be approved by the City Of Munford.**

## **2.8 CONTROLS FOR SIMPLE STATION**

- A. Sealed float type mercury switches shall be supplied to control sump level and alarm signal. The mercury tube switches shall be sealed in a solid polyurethane float for corrosion and shock resistance. The support wire shall have heavy neoprene jacket and be attached to the cord above the float to hold the switch in place in the sump. The float switches shall be mounted on a fixed PVC stem attached to the effluent screen. Two float switches shall be used to control level. One for pump turn on/off, and one for alarm control.**
- B. A red alarm light and audible alarm shall be supplied for mounting on the control box. Audible alarm shall be supplied for mounting on the control box.**
- C. Install non-resettable run-time meter for each pump.**

**2.9 OPERATION OF SIMPLEX SYSTEM:** On sump level rise, the on/off mercury switch shall first be energized and start the pump. With pump operating, sump level shall lower to turn-off setting and pump shall stop. If level continues to rise when the pump is operating, the alarm switch shall energize and signal the alarm. All level switches shall be adjustable for level setting from the surface.

**2.10 ELECTRICAL CONTROL PANEL FOR SIMPLEX STATION:** Control panel hardware shall have a NEMA 4X enclosure with stainless steel hinges and hardware. A lock hasp shall be provided on the door. A circuit breaker shall be provided for the pump and a magnetic starter with 1 leg overload protection for single phase operation shall be supplied. H-O-A switches and run lights shall be supplied for the pump. Terminal strip shall be provided for connecting pump and control wires. Additional terminals shall be provided to connect alarm. Control circuit shall be 115V or a transformer shall be supplied to give 24V control circuit. Branch circuit breakers shall be provided for auxiliary loads such as metering equipment, etc.

**2.11 WIRING:** It shall be the responsibility of the electrical contractor to furnish and install, according to the Drawings and in compliance with appropriate national and local codes, the branch circuit protection and all wiring to the pump leads and to the high alarm indicator lamp.

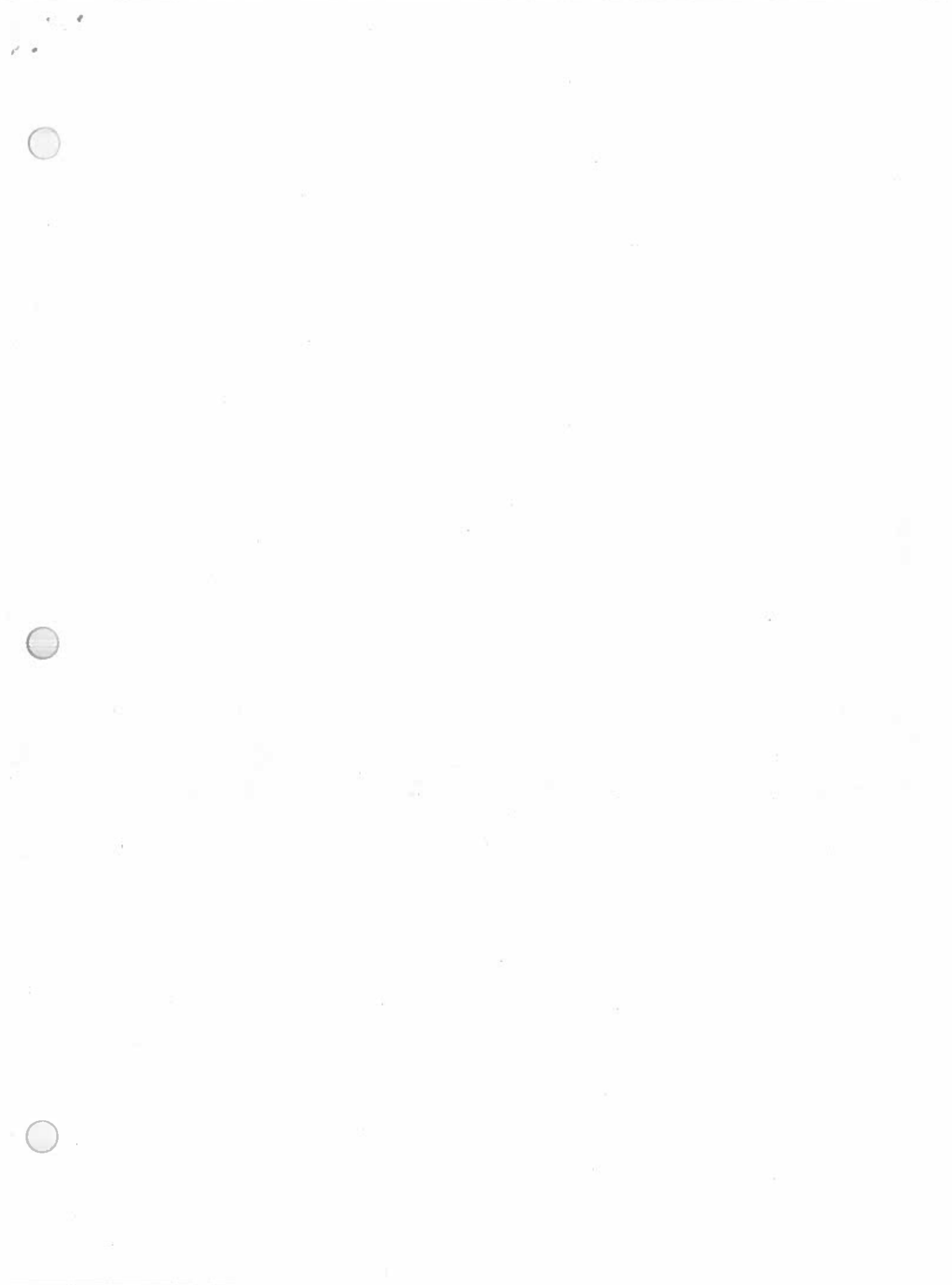
**2.12 CORROSION PROTECTION:** All materials exposed to wastewater shall have inherent corrosion protection; i.e., cast iron, fiber-glass, stainless steel, PVC. Any exterior steel surfaces shall be suitably protected against corrosion.

**2.13 SERVICEABILITY:** The septic tank effluent pump unit shall have provisions for lifting to facilitate easy removal of the unit from the tank if necessary.

## **2.14 CONTROLS FOR DUPLEX PUMP STATIONS**

- A. Control panel for Duplex Stations shall be Vericomm Model ATRTU-100.**

**2.15 MANUFACTURER:** The equipment specified shall be product of a company experienced in the design and manufacture of septic tank effluent pumps for specific use in low pressure sewage systems. The company shall submit detailed installation and user instructions for its product; submit evidence of an established service support program including complete parts and service manuals; and be responsible for maintaining a continuing inventory of septic tank effluent pump



Lynn

## STEP SYSTEM INSPECTION REPORT

Location: \_\_\_\_\_

Date: \_\_\_\_\_

Inspector: \_\_\_\_\_

## RISER TOP

Watertight	YES	NO
Cracks	YES	NO
Damage	YES	NO
Comments:		

## RISER LID

Tight Fit	YES	NO	
Condition of Gasket	GOOD	POOR	
Bolts Missing	YES	NO	If yes, # _____
Comments:			

## INSIDE OF RISER

Watertight	YES	NO	
Grommet Fit	GOOD	POOR	
Grommet Damage	YES	NO	
Signs of High Water	YES	NO	(Alert for float problems)
Gas Seals Tight	YES	NO	
Damage to Fittings	YES	NO	
Condition of Hose and Valve Assembly	GOOD	POOR	
Unions Hand Tight	YES	NO	
Cables			
Bundled	YES	NO	
Away from Ctr. Of Unit	YES	NO	
Comments:			

## CONTROL PANEL

All Wires Securely Fastened	YES	NO	
Scorching & Discoloration	YES	NO	(Signs of Gas in panel or arching)
Corrosion	YES	NO	(Gases cause corrosion)
Securely Attached to Bldg./Supports	YES	NO	
Condition of Panel Box	GOOD	POOR	
Comments:			

## CONTROL PANEL TEST

Turn Panel Switch to Manual-Observe		
Pump Operates Properly	YES	NO
Turn Panel Switch to Auto		
Lift Pump Operations Float-Observe Pump Running	YES	NO
Lift Alarm Float-Observe Alarm Light & Audible	YES	NO

Record Pump Run Times on Card Provided in Panel and Here  
Comments:

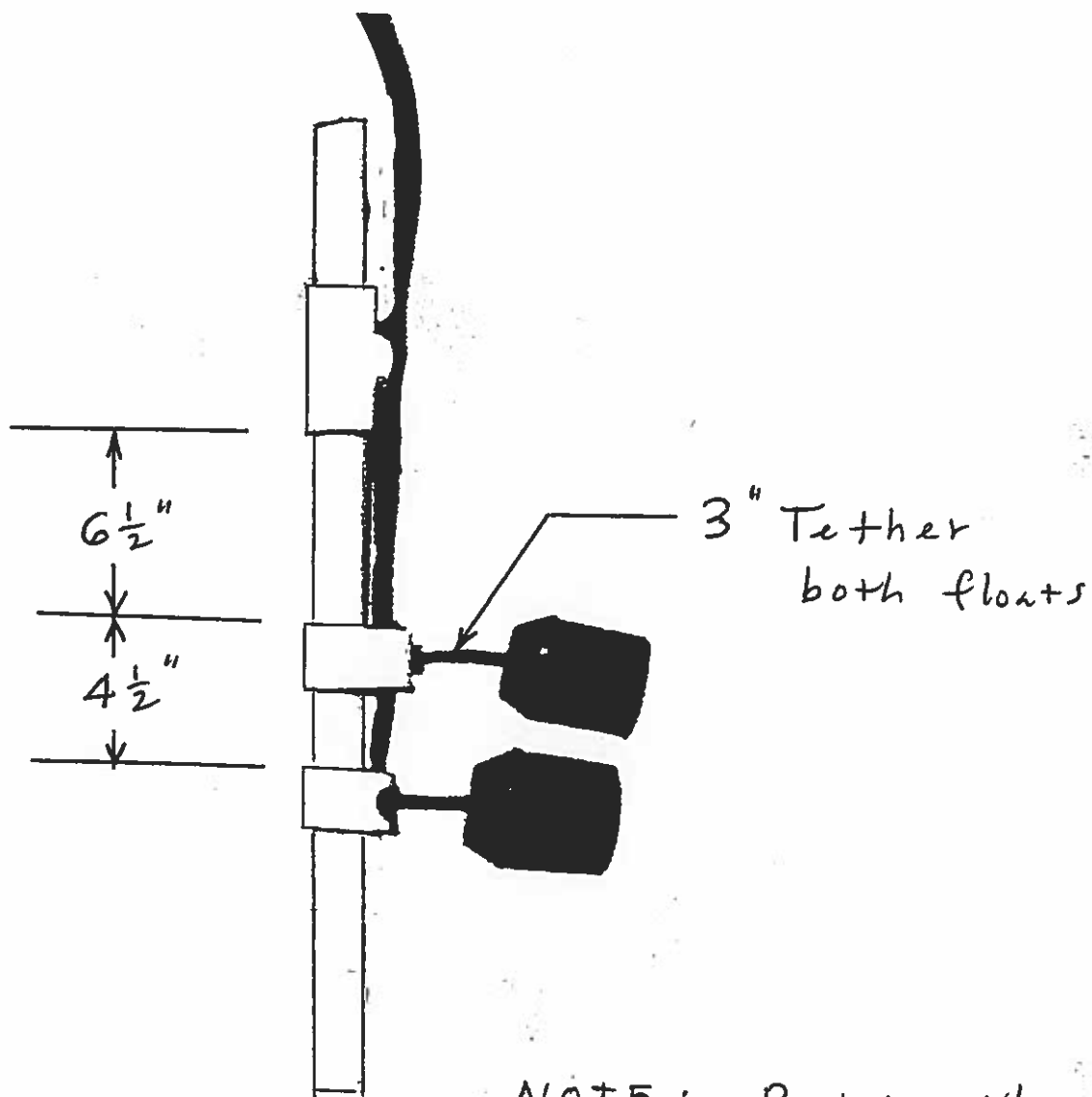
—————> Run Time \_\_\_\_\_

## SLUDGE TEST

Depth	Scum _____	Sludge _____
Does Tank Need Pumping?	YES	NO
Comments:		

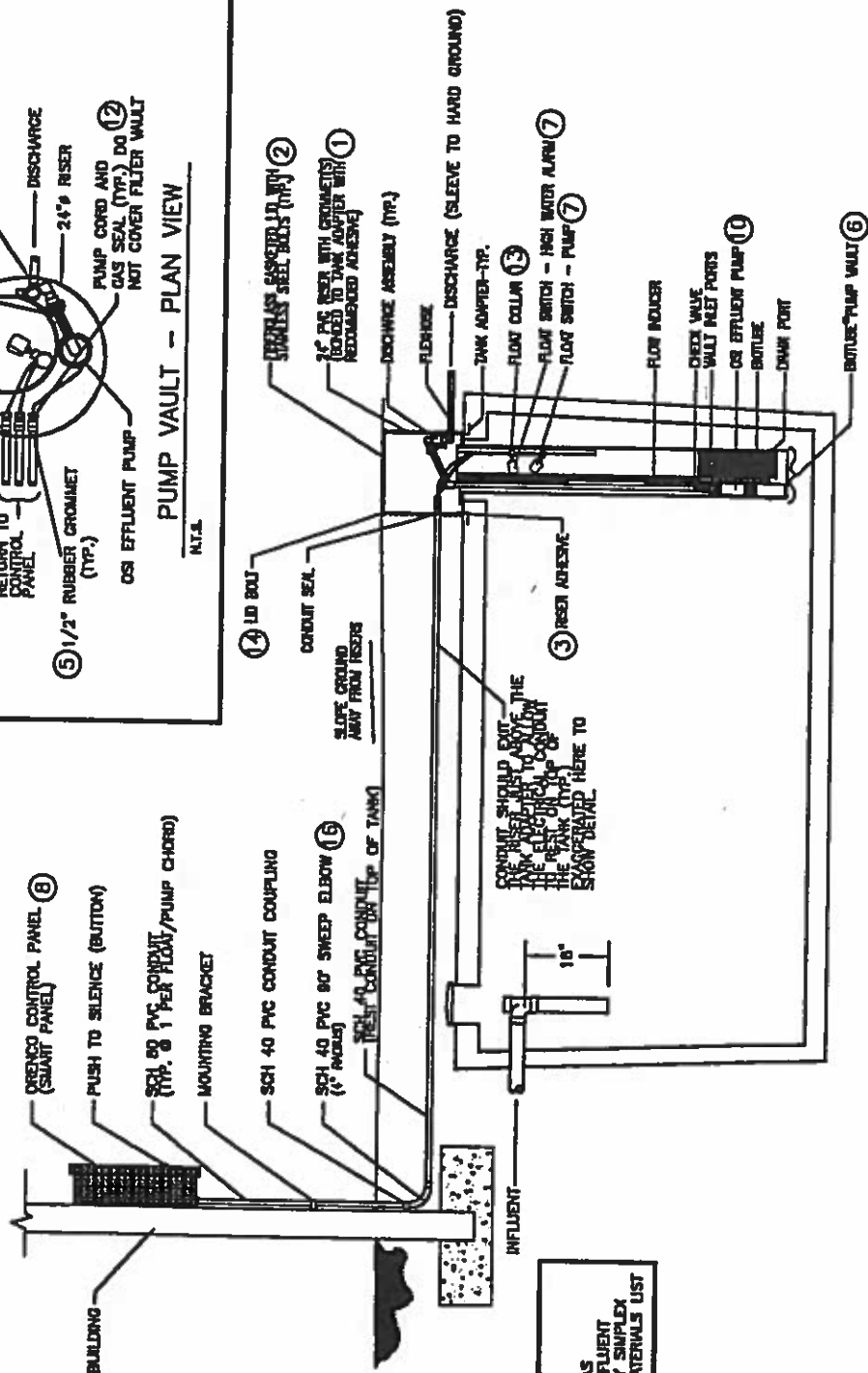
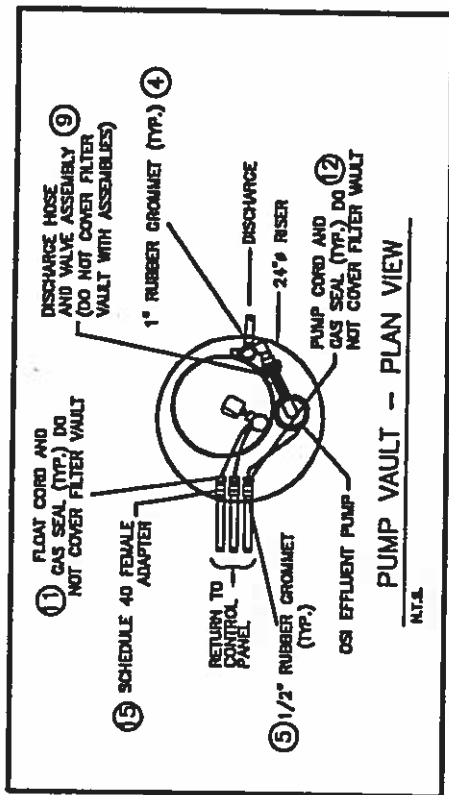
Signature: \_\_\_\_\_

## FLOAT SETTINGS



NOTE: Rotate the bottom float  $20^\circ$  from the top float so that they are not in a vertical line

Drawing #3



**LEGEND:**  
(M) - ITEM NUMBERS AS REFERENCED TO EFFLUENT COLLECTION SUPPLY SIMPLY PUMP ASSEMBLY MATERIALS LIST

**SEPTIC TANK WITH PUMP VAULT**  
N.T.S.

6750 Poplar Avenue, Suite 720  
Memphis, Tennessee 38138  
(901) 755-7166  
(901) 755-7844 Fax

**BWSC** | BARGE  
WAGGONER  
SUMNER &  
CANNON, INC.

**VIA MAIL**

TO: JOHN BRYANT  
J&R CONSTRUCTION COMPANY  
337 FORE LANE  
MASON, TENNESSEE 38049

DATE: 8/14/00  
FILE NO. 12202-20

SUBJECT: MUNFORD STEP SYSTEM

**TRANSMITTED HERewith ARE THE FOLLOWING:**

No. Copies	Description	Approved	Approved as Corrected	Revise & Resubmit	Not Approved
2	ORENCO EFFLUENT PUMP STATIONS		X		
2	PIPE, VALVE AND BOX SUBMITTALS		X		

REMARKS \_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

**COPY TO:**

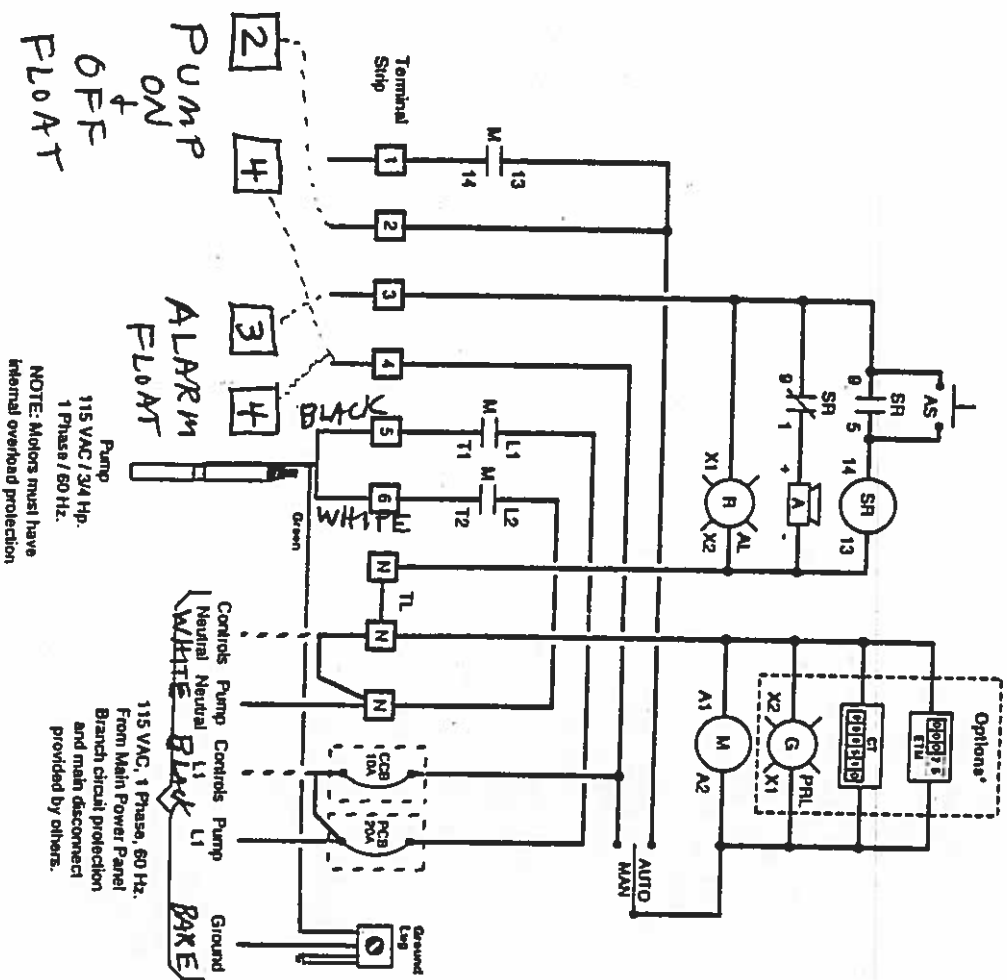
NEAL HUNTER - MUNFORD w/enclosure  
BWSC

JIM McMULLIN

**BARGE, WAGGONER, SUMNER AND CANNON, INC.**

By *Bryant Bondurant*  
BRYANT BONDURANT

## Panel Wiring Diagram Model S1



NOTE: TIE BLACK FLOAT WIRES TOGETHER & PLACE UNDER TERMINAL 4

## Simplex Operation

**High Level Alarm:** This float activates the alarm light and audible alarm when filled. The audible alarm may be silenced by pressing the Muffled Push to Silence button on the front of the control panel. The alarm light will remain on until the float is lowered.

**Pump On:** This float turns on the pump when filled. The pump will continue to run until the pump off float is lowered.

**Pump Off:** This float shuts off the pump when lowered.

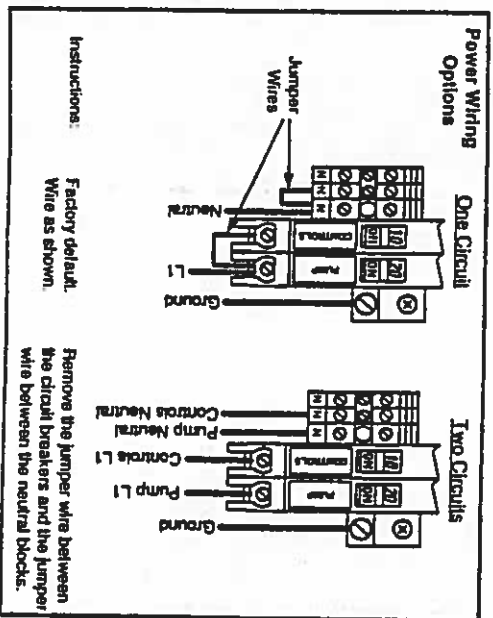


## Key

- Factory Wire
- Field Wire
- Alternate Field Wire
- A = Audio Alarm, 115 VAC
- AL = Alarm Light
- AS = Audio Silence Switch
- CCB = Contactor Circuit Breaker
- M = Motor Contactor
- PCB = Pump Circuit Breaker
- SR = Silence Control Relay (1P)
- TL = Terminal Link

**Options.**

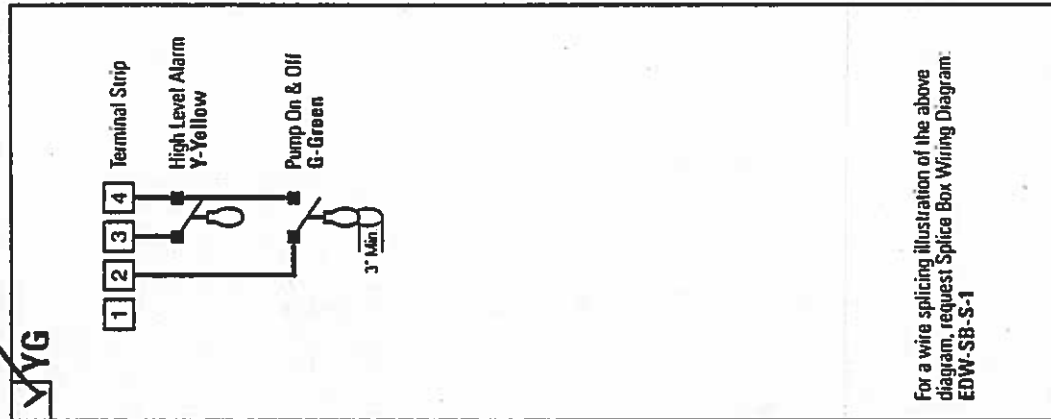
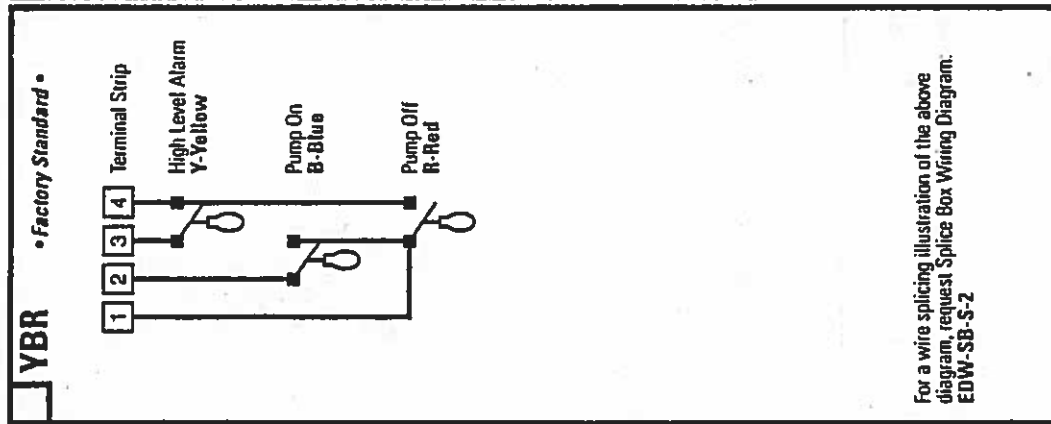
ETM = Elapsed Time Meter  
CT = Cycle Counter  
PRL = Pump Run Light








# Float Arrangement Diagram


Check the appropriate box for the float function (color code) used in your system.



- ### Float Types
- 

Typical OSI float model: A  
Specs: contact - normally open  
differential - no minimum  
power rating - signal  
Possible substitutions: B,C,D,E
  - 

Typical OSI float model: E  
Specs: contact - normally open  
differential - 3" min.  
power rating - signal  
Possible substitutions: B,C,D
  - 

Typical OSI float model: B  
Specs: contact - normally open  
differential - 3" min.  
power rating - pump  
Possible substitutions: C,D
  - 

Typical OSI float model: R  
Specs: contact - normally closed  
differential - 3" min.  
power rating - signal

**Oreco Systems\***  
Incorporated

814 AIRWAY AVENUE

SUTHERLIN, OREGON

97479-9012

TELEPHONE:

(541) 459-4449

FACSIMILE:

(541) 459-2884

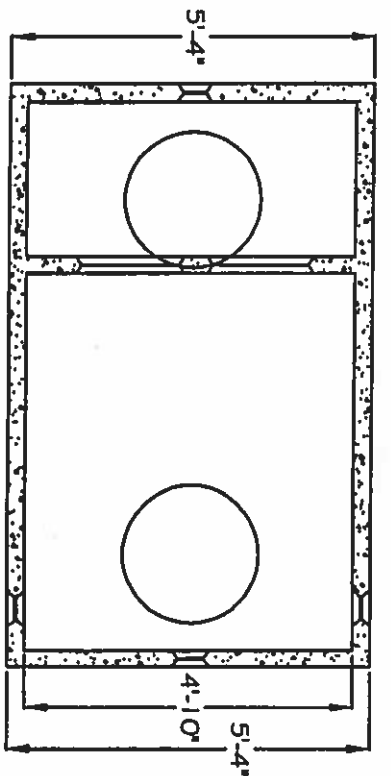
Control Panel Series

Drawing No.

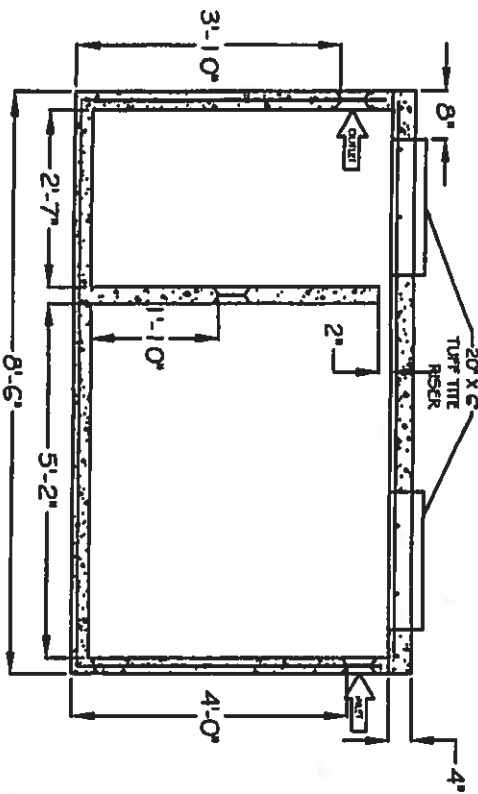
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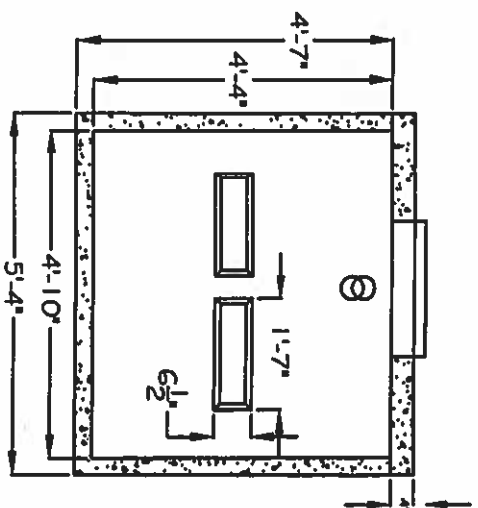
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Rev 2 0 0007/7/98



PLAN VIEW



ELEVATION VIEW



END VIEW

Natural Ground

Natural Ground

Chris Koehn  
 20578 Egypt Rd  
 Aberdeen, MS 39730  
 662-369-8835  
 669-369-9783 Fax  
 chris@leesprecast.com  
 www.leesprecast.com

**SPECIFICATION:**

CONCRETE: 4,500 psi concrete (28 days)  
 REINFORCEMENT: # 4 grade 60 rebar, Synthetic Micro Fibers  
 TANK SEALS: ASTM 1227-07a (ASTM C923 tanks seals available)  
 SEALANT: Sealant use for joints meets or exceed C990 Specification  
 INTERNAL BAFFLE & FILTER: Information is available upon request.



APPROX. WT: 8,000 lbs.

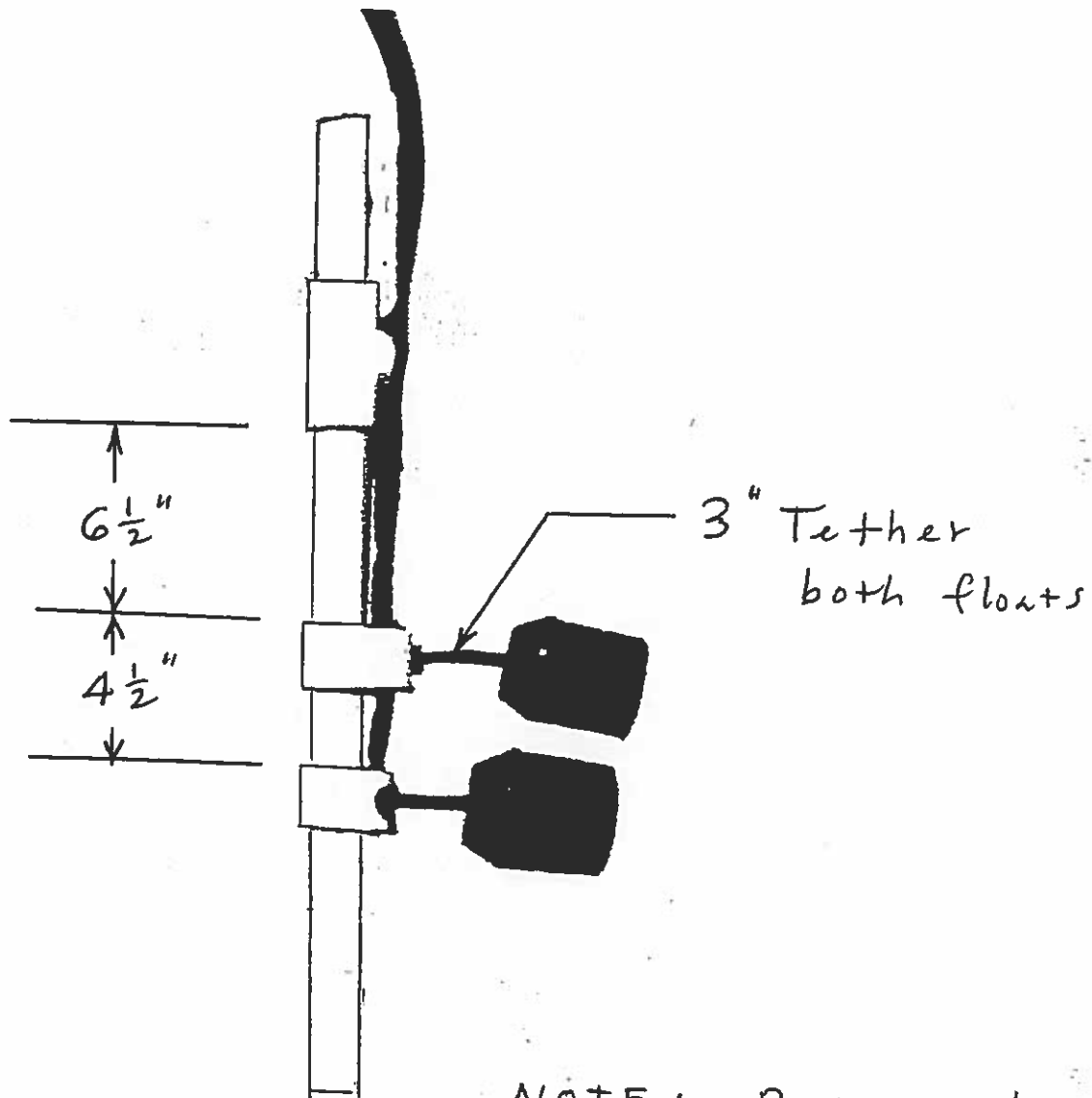
DRAWN BY: Allen Lee

Tank Type: Septic 1000 Gallon Two Compartment

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 LEES PRECAST



## FLOAT SETTINGS



NOTE: Rotate the bottom float  $20^\circ$  from the top float so that they are not in a vertical line

# INSULATION GROMMETS

LYNN

Standard Item



GROOVE DIA

CATALOG NUMBER	INSIDE DIAMETER	GROOVE	GROOVE DIAMETER	OUTSIDE DIAMETER	THICKNESS	TYPE AVAILABLE	PERTINENT DATA
Z-502	15/16	1"	1-1/2	1-1/2	1-1/4	RC	
Z-3127	61/64	7/64	1-1/4	1-3/8	23/64	RC	
Z-920	63/64	1/16	1-13/64	1-41/64	11/32	RC	
Z-340	1"	1/16	1-1/4	1-1/2	5/16	RC	
Z-2354	1"	7/16	1-1/4	1-3/16	5/16	RC	
Z-2273	1"	1/8	1-3/8	1-3/4	7/16	RC	
Z-1232	.994	1/16	1-13/32	1-13/16	.44	RC	Dash No. 23
Z-2274	1"	1/16	1-7/8	2-1/4	7/16	RC	Dash No. 24
Z-228	1"	3/32	1-1/8	1-1/4	1/4	RC	
Z-3097	1"	3/32	1-1/4	1-1/2	7/32	RC	
Z-2439	1"	3/32	1-1/4	1-1/2	11/32	RC	
Z-2032	1"	3/32	1-3/8	1-3/4	3/8	RC	
Z-1309	1"	3/32	1-7/8	2-1/4	5/32	RC	
Z-224	1"	1/8	1-1/4	1-1/2	3/8	RC	
Z-3065	1"	1/8	1-3/8	1-3/4	1/2	RC	
Z-513	1"	1/8	1-3/8	1-3/4	7/16	RC	Dash No. 52
Z-3200	1"	1/8	1-7/8	2-1/4	1/2	RC	Dash No. 53
Z-1113	1"	3/16	1-1/4	1-1/2	7/16	RC	
Z-3323	1"	3/16	1-3/8	1-11/16	3/4	RC	
Z-3047	1"	3/16	1-3/8	1-3/4	9/16	RC	Dash No. 91
Z-3203	1"	3/16	1-7/8	2-1/4	9/16	RC	Dash No. 97
Z-2296	1"	1/4	1-1/4	1-1/2	1/2	RC	
Z-3015	1"	1/4	1-3/8	1-3/4	5/8	RC	Dash No. 110
Z-3219	1"	1/4	1-7/8	2-1/4	5/8	RC	Dash No. 111
Z-830	1"	5/16	1-3/8	1-3/4	5/8	RC	
Z-828	1"	5/16	1-3/8	1-3/4	11/16	RC	
Z-794	1"	3/8	1-3/8	1-3/4	3/4	RC	
Z-4170	1"	1/2	1-1/4	1-1/2	1"	RC	
Z-2245	1-1/64	1/8	1-17/64	1-13/64	3/8	RC	
Z-894	1-1/64	1"	1-1/4	1-1/2	1-1/4	RC	
Z-2026	1-1/32	7/16	1-11/32	1-9/16	5/16	RC	
Z-437	1-1/32	1/16	1-11/32	1-3/4	5/16	RC	
Z-279	1-1/32	1/8	1-11/32	1-3/16	3/8	RC	
Z-2030	1-1/32	3/16	1-11/32	1-9/16	7/16	SC	
Z-951	1-040	.100	1-260	1-5/8	.412	RC	
Z-2369	1-3/64	3/64	1-15/64	1-23/64	13/64	RC	

3075  
Z-1113



## Minor Rubber Company Inc.

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SALES & ORDER DEPARTMENT

800-433-6885

EMAIL: sales@minorrubber.com  
WWW: www.minorrubber.com

# Pipe Grommets

Submittal  
Data Sheet



Oranco Systems  
Incorporated

614 AIRWAY AVENUE

SUTHER, IN, 46354

97479

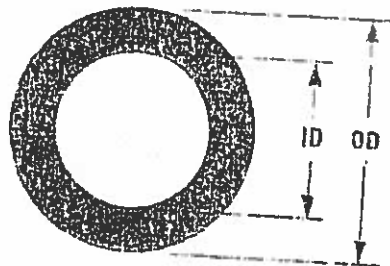
TELEPHONE

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(317) 461-2331



## General

Oranco Pipe Grommets are constructed of corrosion-resistant rubber to provide long-lasting seals. Grommets conform to standard IPS sizes. Not all models conform exactly to the depiction shown.

## Applications

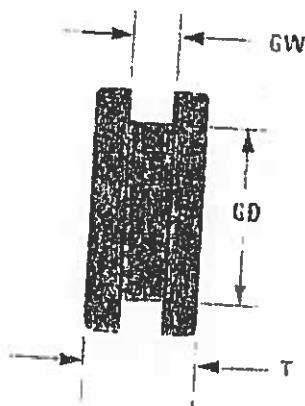
Oranco Pipe Grommets are used to provide a seal to prevent the passage of liquids through pipe ports.

## Standard Models

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

G XXX L

L Indicates not installed  
- Indicates nominal pipe size (inches)



## Specifications

Dimensions	* < G10						
Model	G1L	G125L	G150L	G2L	G3L	G4L	G6L
OD (inches)	1 7/8	2 1/8	2 1/2	3 1/8	5	6	8 1/8
ID (inches)	1 1/4	1 1/2	1 3/4	2 1/8	3	4	5 1/8
GD (inches)	1 5/8	1 3/4	2 1/8	2 11/16	3 13/16	4 15/16	5 11/16
GW (inches)	1/4	1/4	1/4	5/16	5/16	1/4	1/4
T (inches)	9/15	5/8	5/8	15/16	15/16	7/8	13/16

## Material of Construction:

EPDM synthetic rubber in accordance with MIL-STD-417, 60 durometer.

G10

~~G015~~

# OSI Pump Information (continued)

Model	Horsepower	Cable			Listings	FLA	Disch. Size	Discharge		Pump Height	MLL	Run Dry?	Solids	Overload?
		Type	Size	Length				Height	Height					
Grundfos SE 100	1	SJOW-A	16/3	20'	UL/ULC	103	2"	613/16"	173/4"	5"	No	No	2"	Yes
Goulds WS102B	1	STO	14/3	15'	ETL	123	2"	73/4"	203/4"	7"	Yes	Yes	2"	Yes
Goulds WS102BH	1	STO	14/3	15'	ETL	125	2"	73/4"	203/4"	7"	Yes	Yes	2"	Yes
Grundfos SE 150	1 1/2	SJOW-A	16/3	20'	UL/ULC	131	2"	613/16"	173/4"	5"	No	No	2"	Yes
Myers RG-10	1	SJOW	16/3	20'	CSA	110	1"	51/2"	17"	2"	No	No	1/8"	Yes
10GR05HH	1/2	SO	16/3	8'	UL	120	1 1/4"	221/4"	221/4"	18"	No	No	1/8"	Yes
12AER05HHF	1/2	SO	16/3	8'	CSA	120	1"	261/2"	261/2"	20"	No	No	1/8"	Yes
100SI05HHF	1/2	SOW	16/3	8'	UL/CSA	120	1"	251/4"	251/4"	20"	No	No	1/8"	Yes
100SI07HHF	3/4	SOW	16/3	8'	UL/CSA	80	1"	265/8"	265/8"	24"	No	No	1/8"	Yes
100SI10HHF	1	SOW	16/3	8'	UL/CSA	96	1"	293/8"	293/8"	28"	No	No	1/8"	Yes
200SI05HHF	1/2	SOW	16/3	8'	UL/CSA	120	1 1/4"	253/4"	253/4"	20"	No	No	1/8"	Yes
200SI07HHF	3/4	SOW	16/3	8'	UL/CSA	80	1 1/4"	263/4"	263/4"	22"	No	No	1/8"	Yes
200SI10HHF	1	SOW	16/3	8'	UL/CSA	96	1 1/4"	30"	30"	25"	No	No	1/8"	Yes
200SI15HHF	1 1/2	SOW	16/3	8'	UL/CSA	120	1 1/4"	323/4"	323/4"	28"	No	No	1/8"	Yes
300SI05HHF	1/2	SOW	16/3	8'	UL/CSA	120	1 1/4"	211/4"	211/4"	22"	No	No	1/8"	Yes
300SI07HHF	3/4	SOW	16/3	8'	UL/CSA	80	1 1/4"	24"	24"	24"	No	No	1/8"	Yes
300SI10HHF	1	SOW	16/3	8'	UL/CSA	96	1 1/4"	261/2"	261/2"	27"	No	No	1/8"	Yes
300SI15HHF	1 1/2	SOW	16/3	8'	UL/CSA	120	1 1/4"	323/4"	323/4"	29"	No	No	1/8"	Yes
400SI05HH	1/2	SOW	16/3	8'	UL/CSA	120	1 1/4"	221/4"	221/4"	23"	No	No	1/8"	Yes
500SI05HHF	1/2	SOW	16/3	8'	UL/CSA	132	2"	211/4"	211/4"	22"	No	No	1/8"	Yes
500SI07HHF	3/4	SOW	16/3	8'	UL/CSA	88	2"	24"	24"	24"	No	No	1/8"	Yes
500SI10HHF	1	SOW	16/3	8'	UL/CSA	106	2"	261/2"	261/2"	27"	No	No	1/8"	Yes
500SI15HHF	1 1/2	SOW	16/3	8'	UL/CSA	144	2"	323/4"	323/4"	29"	No	No	1/8"	Yes
700SI15HH	1 1/2	SOW	16/3	8'	None	120	2"	357/8"	357/8"	36"	No	No	1/8"	Yes

## Cable Guide:

- SO: Heavy duty, extra hard usage, rubber insulated, oil-resistant neoprene jacketed cable rated for 600V. 60°C to 90°C
- SOW: Same as SO, but water resistant jacket (CSA). 60°C to 90°C
- SJOW: Junior hard service, same construction as type SOW but only rated for 300V (jacket thickness different). 60°C
- SJOW-A: Same as SJOW except with asbestos insulation. 60°C
- STO: Heavy duty, extra hard usage, all plastic constructed cable rated for 600V. 60°C
- STO-: Junior hard service, same construction as type STO but only rated for 300V (jacket thickness different).

## Model Code for Ordering

### Biotube® Pump Vault

PVU□□-□□□

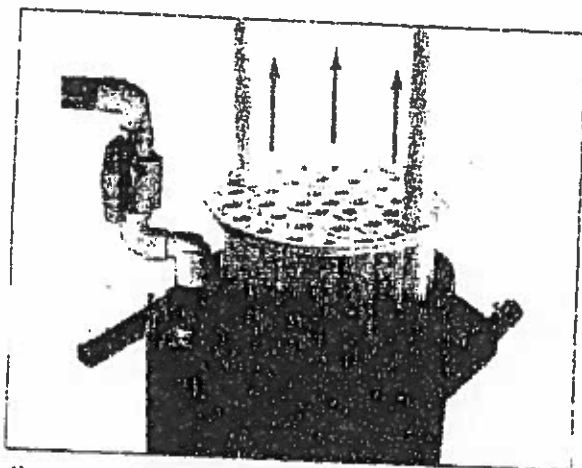
Indicates inlet hole height: (inches)

Cartridge height = 18", 24", 36" standard

Vault height: 57", 66"-96" in 6" increments \*

Universal Pump Vault

\*66"-96" in 6" increments available mid-2001



Easy access design allows filter cartridge removal without pulling the pump or vault; simplifies filter inspection and maintenance

### Biotube Cartridge Effective Screen Area

Cartridge Height	12" Diameter
18"	16.8 ft²
24"	22.4 ft²
36"	33.6 ft²

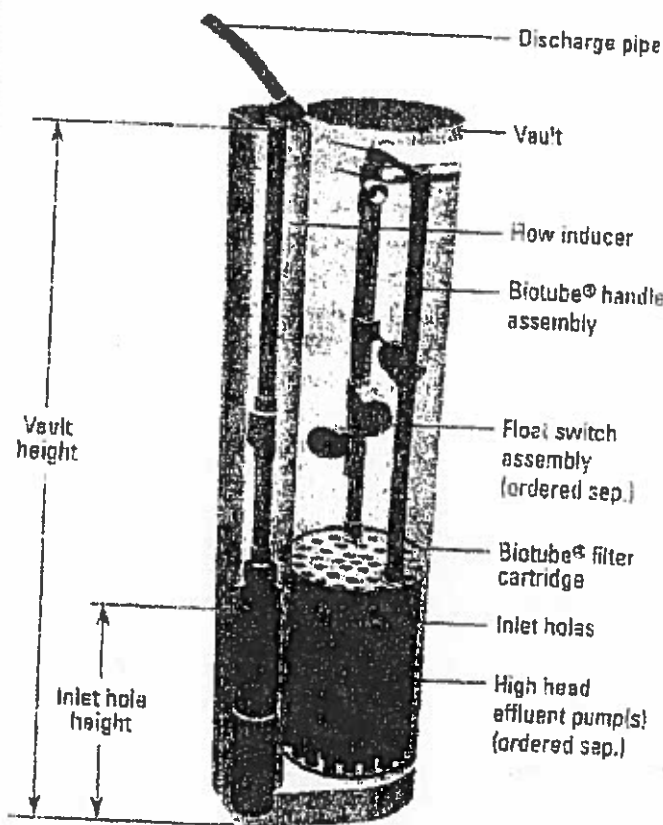
Orenco's Biotube Pump Vault is available in standard and customized configurations. Contact Orenco or your nearest distributor for sizing recommendations.

### 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"

Distributed By:

## Biotube Pump Vault Components



### To Order

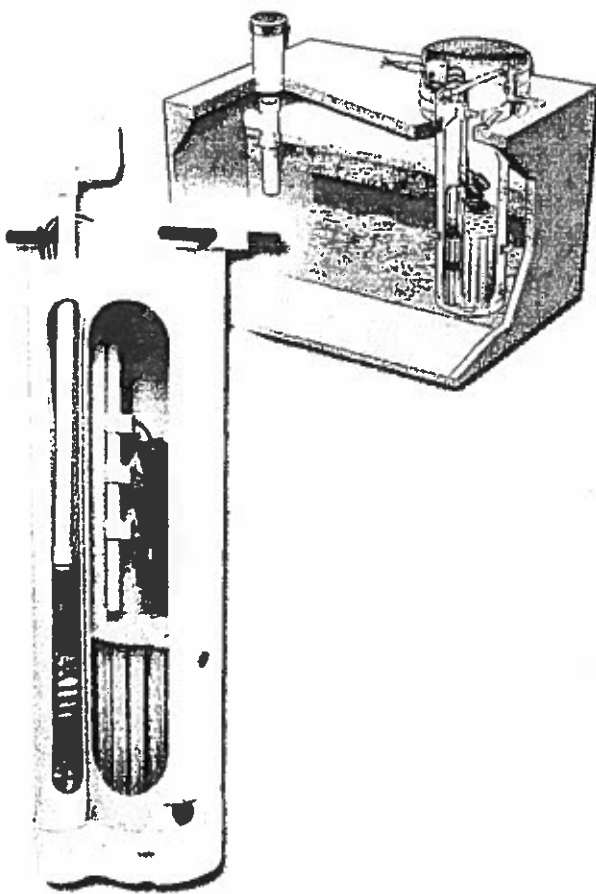
Call your nearest Orenco Systems®, Inc. distributor.  
For nearest distributor, call Orenco at 1-800-348-9843.  
[www.orenco.com](http://www.orenco.com)

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# Biotube® Pump Vault

## Applications

Orenco's patented\* Biotube Pump Vaults in 8" and 12" diameter sizes are ideal for filtering and transporting effluent from septic tanks or separate dosing tanks in effluent pumping systems. They prevent large solids from leaving the tank, dramatically improving wastewater quality and extending the life of downstream treatment systems. Each PVC pump vault houses an Orenco High Head Effluent Pump, discharge assembly, Biotube filter cartridge, float switch bracket, and float switch assembly. Pump, float switches, and discharge assembly are ordered separately.



*Orenco's Biotube Pump Vault comes with Biotube filter cartridge, float switch bracket, and support pipes. It easily drops into virtually any septic or dosing tank opening. The unique Biotube filter cartridge provides a large filter surface area (see specs. on back) in a small space, to resist clogging while providing maximum long-term protection.*

APS-BPV-1  
Rev. 1.0 © 2/00

\*Covered by patent numbers 5,492,635 and 4,439,323

## Standard Features & Benefits

- Installs quickly in virtually any new or existing tank
- Easy access design allows filter cartridge removal without pulling the pump or vault; simplifies filter inspection and maintenance
- Patented Biotube filter has several times the filtering capacity of other pump vaults
- Removes approximately two-thirds of suspended solids, on average
- Available in Simplex or Duplex configuration, for use with one or two pumps
- Float switch bracket allows easy removal and adjustment of float switch assembly
- Corrosion-proof construction ensures long life

## Biotube Filtering Process

Effluent from the relatively clear zone of the septic tank, between the scum and sludge layers, enters the Biotube Pump Vault through inlet holes in the housing. Effluent then enters the annular space between the housing and the Biotubes, utilizing the Biotubes' entire surface for filtering. Particles larger than the Biotube's mesh are prevented from leaving the tank.



**Orenco Systems®**  
Incorporated

*Changing the Way the  
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[www.orenco.com](http://www.orenco.com)



MEMBER



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105 East Avenue M  
Conroe, TX 77301

Plant/  
425 South 67th Avenue  
Phoenix, AZ 85043

## Short Form Specification: Ultra-Rib™ PVC Gravity Sewer Pipe Sizes 8"-30"

### Scope:

This Short Form Specification designates the requirements for Ultra-Rib™ PVC Gravity Sewer Pipe and Fittings for sanitary gravity sewer systems.

### General Requirements:

Ultra-Rib™ PVC Gravity Sewer Pipe is available in sizes 8"-30". Pipe shall have a smooth interior with a solid cross-sectional rib exterior. Exterior ribs shall be perpendicular to the axis of the pipe to allow placement of sealing gasket without additional cutting or machining. Ultra-Rib™ PVC Gravity Sewer Pipe shall be green in color. Ultra-Rib™ PVC Gravity Sewer Pipe shall meet the requirements of ASTM F794 "Standard Specification for Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter" and Uni-Bell Uni-B-9 "Recommended Standard Performance Specification for Polyvinyl Chloride (PVC) Profile Wall Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter."

### Material:

Ultra-Rib™ PVC Gravity Sewer Pipe shall be made of PVC material having a cell-classification of 12454-B, 12454-C or 13364-B as defined in ASTM D1784 "Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds."

### Workmanship:

Pipe and fittings shall be homogenous throughout and free from cracks, holes, foreign inclusions, or other defects. The pipe shall be as uniform as commercially practicable in color, opacity, density and other physical properties.

### Flattening:

There will be no evidence of splitting, cracking or breaking when pipe is flattened by 60% of its outside diameter between parallel plates.

### Extrusion Quality:

Pipe shall not disintegrate or flake when tested in accordance with ASTM D2152 "Test for Quality of Extruded Poly (Vinyl Chloride) Pipe by Acetone Immersion."

### Impact Resistance:

The impact resistance of Ultra-Rib™ PVC Gravity Sewer Pipe shall meet the requirements shown below when tested in accordance with ASTM D2444 "Test for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)." 8" 210 ft/lbs, and 10"-30" 220 ft/lbs.

### Pipe Stiffness:

The minimum "Pipe Stiffness" ( $F/\Delta y$ ) at 5% Deflection shall be 60 psi for 8"-12" when tested in accordance with ASTM D2412 "External Loading Properties of Plastic Pipe by Parallel-Plate Loading." The minimum "Pipe Stiffness" ( $F/\Delta y$ ) at 5% deflection shall be 46 psi for 15"-30" when tested in accordance with ASTM D2412.

### Marking:

Each length of pipe shall be marked with the following information:

Size, Company Name or Logo, Lot Code, Extrusion Line Number, Plant, Date, Crew, and Blend Code.

## Applicable ASTM Specifications

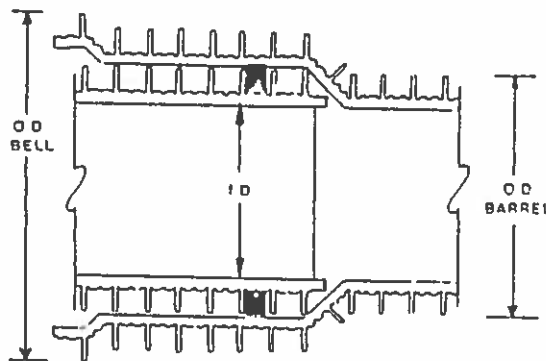
- D618 Methods of Conducting Plastics and Electrical Insulating Materials for Testing.
- D883 Definitions of Terms Relating to Plastics.
- D1784 Specification for Rigid Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds.
- D2122 Method of Determining Dimensions of Thermoplastic Pipe and Fittings.
- D2152 Test Method for Degree of Fusion of Extruded Poly (Vinyl Chloride) (PVC) Pipe and Molded Fittings by Acetone Immersion.
- D2321 Practice for Underground Installation of Flexible Thermoplastic Sewer Pipe.
- D2412 Test Method for External Loading Properties of Plastic Pipe by Parallel-Plate Loading.
- D2444 Test Method for Impact Resistance of Thermoplastic Pipe and Fittings by Means of a Tup (Falling Weight)
- D2855 Practice for Making Solvent-Cemented Joints with Poly (Vinyl Chloride) (PVC) Pipe and Fittings.
- D3212 Specification for Joints for Drain and Sewer Plastic Pipes Using Flexible Elastomeric Seals.
- F402 Practice for Safe Handling of Solvent Cements and Primers Used for Joining Thermoplastic Pipe and Fittings.
- F412 Definitions of Terms Relating to Plastic Pipe Systems.
- F477 Specification for Elastomeric Seals (Gaskets) for Joining Plastic Pipe.
- F794 Standard Specification for Poly (Vinyl Chloride) (PVC) Ribbed Gravity Sewer Pipe and Fittings Based on Controlled Inside Diameter.

## ULTRA-RIB™ DIMENSIONS

Pipe Size in. (mm)	Avg. I.D. in. (mm)	Avg. O.D. Barrel in. (mm)	Nominal Thickness (t) in. (mm)	Approx. Wt./Ft. (Lbs./Ft.)	Approx. Bell O.D. in. (mm)
8 (200)	7.89 (200.41)	8.81 (223.77)	.105 (2.67)	2.48	9.76 (247.90)
10 (250)	9.86 (250.44)	11.02 (279.91)	.105 (2.67)	3.50	12.22 (310.39)
12 (300)	11.74 (298.20)	13.10 (332.74)	.105 (2.67)	5.05	14.60 (370.84)
15 (375)	14.37 (365.00)	15.91 (404.11)	.135 (3.43)	7.26	17.50 (444.50)
18 (450)	17.65 (448.31)	19.45 (494.03)	.150 (3.81)	10.50	21.40 (543.56)
21 (530)	20.75 (527.05)	22.99 (583.95)	.177 (4.50)	14.50	25.50 (647.70)
24 (600)	23.50 (596.90)	25.76 (654.30)	.197 (5.00)	21.19	28.50 (723.90)
27 (675)	26.50 (673.10)	29.14 (740.16)	.217 (5.51)	24.70	32.50 (825.50)
30 (750)	29.50 (749.30)	32.37 (823.49)	.244 (6.20)	35.50	36.00 (914.40)

Dimensions: Inches

\* Metric equivalent for reference purposes only.



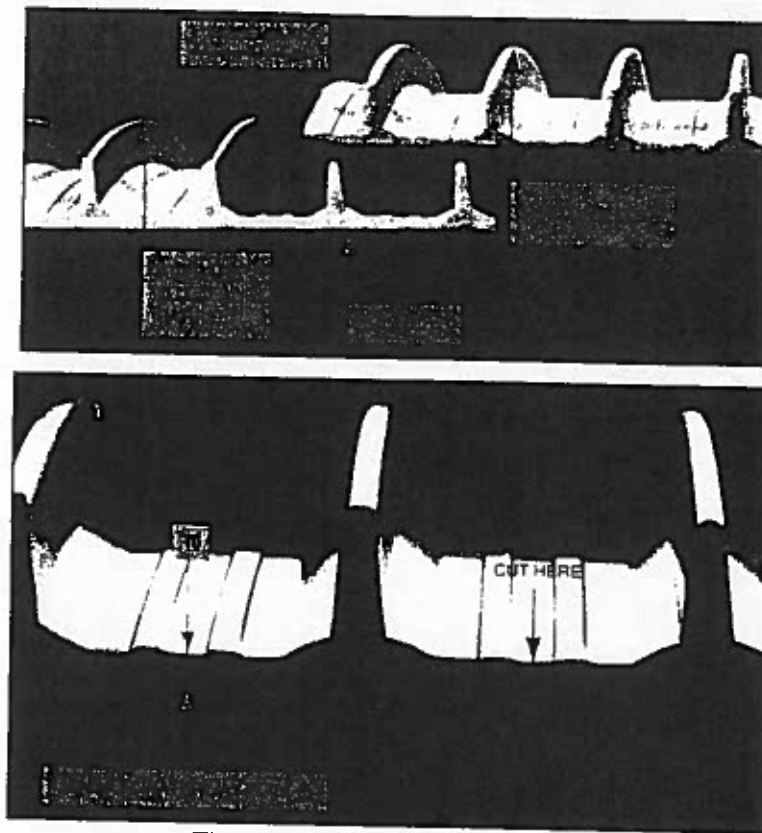
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Rev. 12/97

# ULTRA-RIB™

## Dimensions

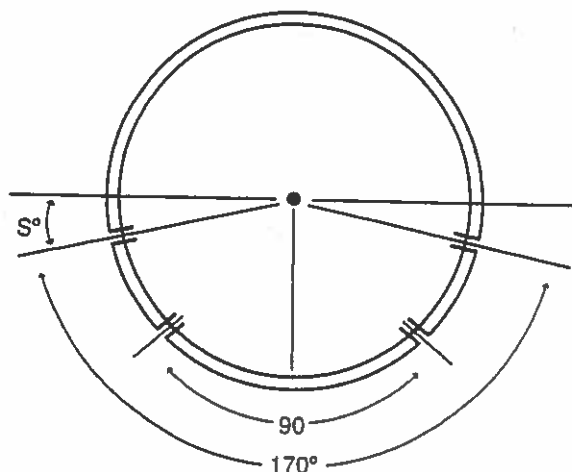


The standard lay length is 13 feet.

### Dimensions

Pipe Size	Avg. I.D.	Avg. O.D. Barrel	Nominal Thickness	Approximate Wt./Ft. (Lbs./ft)	Approximate Bell O.D.
8	7.89	8.81	.105	2.48	9.76
10	9.86	11.02	.105	3.50	12.22
12	11.74	13.10	.105	5.05	14.60
15	14.37	15.91	.135	7.26	17.50
18	17.65	19.45	.150	10.50	21.40
21	20.75	22.99	.177	14.50	25.50
24	23.50	25.78	.197	21.19	28.50
27	26.50	29.14	.217	24.70	32.50
30	29.50	32.37	.244	35.50	36.00

### Perforation Patterns



Rows of Perforations	Hole Size (Inches)
4	3/16 - 3/8

# Discharge Assemblies

Submittal  
Data Sheet



**Oreco Systems<sup>®</sup>**  
Incorporated

814 AIRWAY AVENUE

SUTHERLIN, OREGON

97479

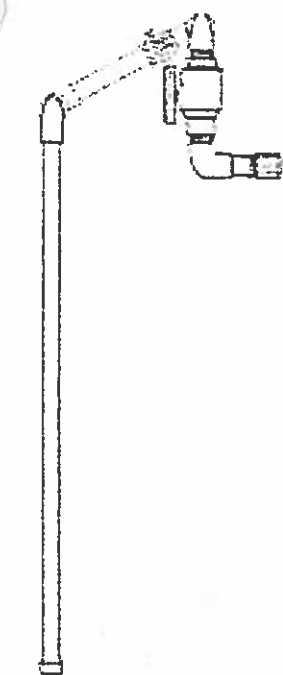
TELEPHONE:

(541) 459-4449

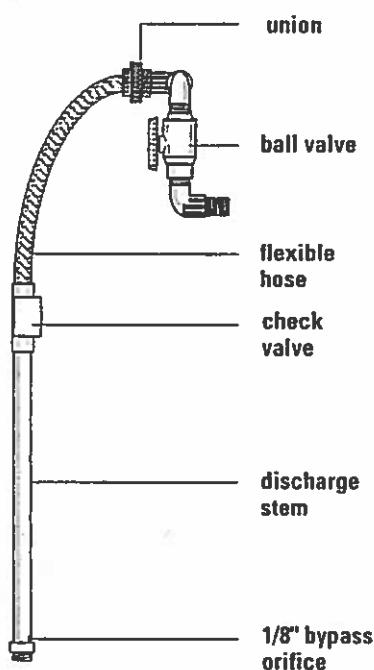
(800) 348-9843

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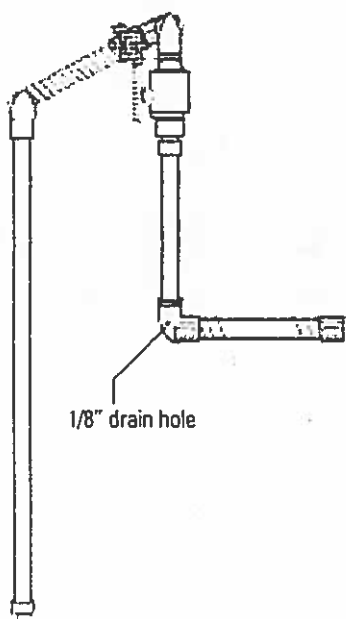
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Standard Style



Low Head Style



Cold Weather Style



Drainback Style

## General

Oreco Discharge (Hose & Valve) Assemblies are corrosion resistant and adjustable for a proper fit. The flexible hose dampens vibration from the pump and allows for easy installation. All parts are either solvent welded or threaded and sealed with teflon paste.

"Low head style" discharge assemblies are designed for use with common effluent pumps; "high head style" discharge assemblies are designed for use with submersible turbine effluent pumps.

## Applications

Discharge Assemblies include all of the necessary plumbing (pipe, fittings, etc.) to convey effluent from a pump to the outside of a riser or pump basin.

## Standard Models

**HV100**, HV125, HV150, HV200.

Model Code Nomenclature:

HV XXX XXX

Indicates selected components (see product code adders)  
Indicates component diameters (nominal; in.)

Example: HV125BC - Includes all 1 1/4" diameter components, a ball valve and check valve.

# Fiberglass Access Lids

Submittal  
Data Sheet



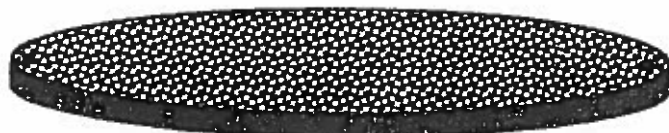
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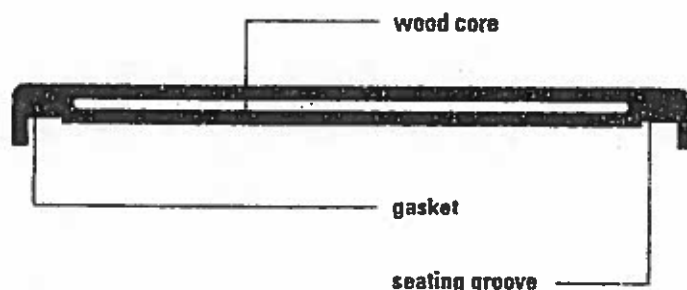
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Actual View



Cutaway View



## General

Orencia Fiberglass Access Lids are molded using fiberglass reinforced polyester resin encapsulating a wood core. The finish is green in color and the top surface is textured to provide a nonskid surface. (A polyurethane gasket is cast in and the lip extends 1/2" over the riser wall for secure seating.)

## Applications

Orencia Fiberglass Access Lids are used as riser covers, pump basin covers, and access port covers.

Lids fit "Perma-loc" and "Ultra-rib" type pipe.

## Standard Models

FL18G, FL21G, **FL24G**, FL30G, FL48G

Model Code Nomenclature:

FLXX GXXX  
└─┬─┘ Indicates selected features (see below)  
└─┬─┘ Indicates the access riser nominal diameter (inches)

FL 24 G  
FL 30 G

## Specifications

### Dimensions

	Model FL18G	Model FL21G	Model <b>FL24G</b>	Model FL30G	Model FL48G
O.D. (in.)	20	22 1/2	25 1/2	32	53 7/8
Groove I.D. (in.)	17.5	20 3/4	23 1/2	29 1/2	47 1/2
Avg. Thickness (in.)	5/8	1	1	1 1/4	1 1/2

Orencia Fiberglass Access Lids are capable of supporting a 2500 lb. wheel load; however, they are not designed or recommended for vehicular traffic.

### Features Available

Feature	Model Code Adder	Optional/Standard
Gasket	G	Standard
Air Vent	V	Optional
Carbon Filter*	CF	Optional
Lid Insulation	I2 or I4	Optional

\*For more information on this option, refer to the Carbon Filters submittal data sheet, ESU-RLA-CF-1.

## Materials of Construction:

Fiberglass Reinforced Polyester  
Wood Core  
Polyurethane Gasket

ESU-RLA-FL-1  
Rev. 3.0, © 01/18/99

# 12" - 15" Dia. Biotube® Effluent Filters

Submittal  
Data Sheet



**Oreco System  
Incorporated**

814 AIRWAY AVENUE  
SUTHERLIN, OREGON  
97479

TELEPHONE:  
(541) 459-4449  
(800) 348-9843

FACSIMILE:  
(541) 459-2884

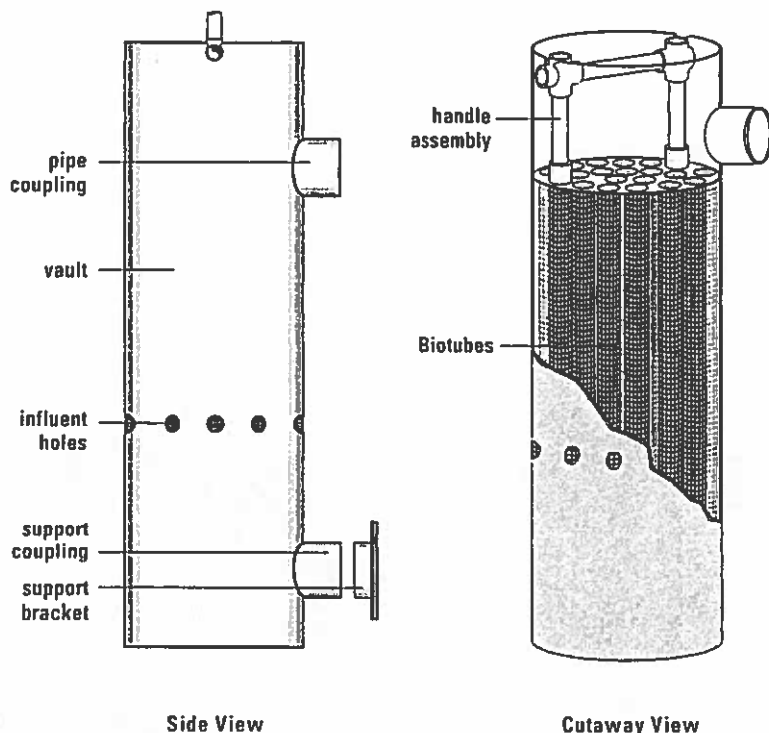
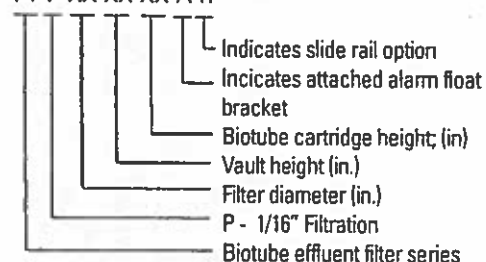
## General

Oreco Biotube Effluent Filters (U.S. Patents No. 4439323 and 5492635) are used to improve the quality of effluent exiting a septic tank. The Biotube cartridge is removable for maintenance; the handle assembly snaps into the notches in the top of the vault and the handle can be extended for easy removal of the cartridge.

## Standard Series

FT1254-36, FT1554-36,  
FT1572-54, FTP1254-36,  
FTP1554-36, FTP1572-54

FT P XX XX XX A R



## Specifications

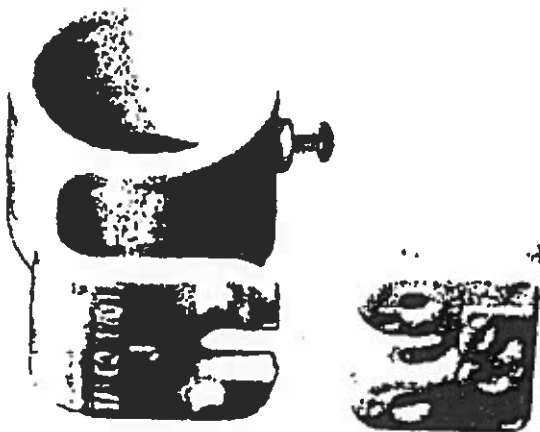
\*Vault height and hole height vary upon system configuration. Optimum hole height is between 65% and 75% of the tank's minimum liquid level.

### Materials of Construction:

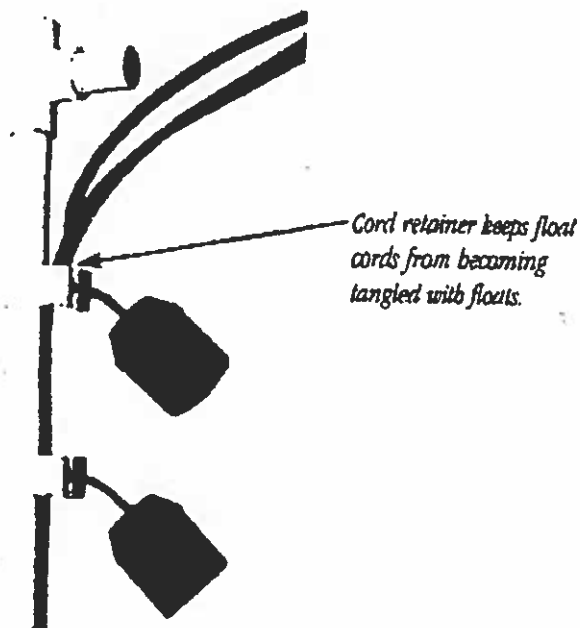
Vault:	PVC
Biotube Cartridge:	Polypropylene and polyethylene
Pipe Coupling:	PVC
Handle Components:	PVC
Support Coupling and Bracket:	PVC

## Applications

Orenco's Float Collars for 1" schedule 40 pipe are the simplest, most reliable way to attach liquid level control floats. Tough ABS construction ensures long life, and the quick release clip requires no special tools to mount or adjust.



*Orenco's float collars make cable ties obsolete. More importantly, they make installing liquid level floats more reliable.*



APS-FC-1  
Rev. 1.8 © 3/15/94

## Standard Features & Benefits

- Constructed of tough ABS plastic, capable of withstanding corrosive septic tank environment; lasts years longer than commonly used cable ties
- Quick disconnect clip makes it easy to mount float cord and adjust tether length; no tools required
- Stainless steel set-screw positively locates float collar; no float slippage or orientation problems
- Two-position clip holds cable tight without chafing wiring sheath. Fits virtually all common cord diameters: best fit is 0.28" to 0.36"
- Integral cord retainer keeps float cords from becoming tangled

## Optional Features & Benefits

- Custom colors available in large quantities

## Model Code for Ordering

### MF COLLAR1

Each float collar kit includes 1 float collar, 1 clip, 1 stainless steel screw, and simple assembly instructions. Bulk quantities of 100 kits also available.

## To Order

Call your nearest Orenco Systems, Inc. distributor. For nearest distributor, call Orenco at 1-800-348-9843.



**Orenco Systems<sup>®</sup>**  
Incorporated

*Changing the Way the  
World Does Wastewater<sup>®</sup>*

# Engineering Details - 2900 Mercury Series

## Wide Angle Float Specifications

**General** - Designed for operating sewage pumps to control liquid level in sumps. Can also be used to operate alarms to indicate high or low water conditions in sumps or tanks.

**Types** - 2900 wide angle controls can be supplied with normally open or normally closed contacts.

One normally open control is used to control operation of a single pump at 1/2 H.P., 120 VAC or 1 H.P., 240 VAC. The wide angle lets you turn pump on or off at two levels ranging from 6" to 30".

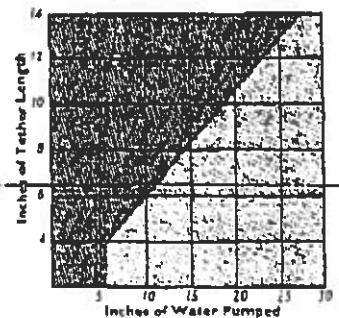
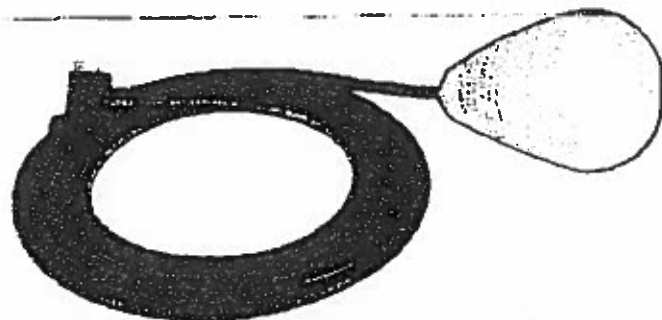
Normally closed controls (pump up) can be supplied for pump up applications such as filling surface or elevated tanks. Normally closed controls are #2901.

**Switch Specifications** - Reliable stainless steel tube mercury switch design has a recommended operating temperature of 170 F and has a standard rating of 20 AMPS at 120 volts AC. Switch will withstand up to a maximum of 43 AMP starting current, with 14 AMPS of run current. The "standard" float is 4 7/8" x 3 1/2" and the "mini" float is 3 3/8" x 2 1/2".

**Power Cord** - Is 16 AWG 2 conductor cord. Type SJOOW-300 Volt CPE (Chlorinated Poly Ethylene).

**Float** - The stainless steel mercury switch is encapsulated in a solid polyurethane float that is leak proof, shock proof, corrosion & impact resistant to sewage and most wastewater conditions.

- Reliable mercury-to-mercury contacts
- Hermetically sealed stainless steel mercury switch
- Smooth surface avocado shape keeps debris off
- Most trouble free control design
- For use in sewage and wastewater applications
- Designed for over 1,000,000 cycles
- CPE (Chlorinated Poly Ethylene) wire which is more resistant to oil, chemicals & water than standard neoprene wire
- For use with intrinsically safe circuits
- Not sensitive to rotation
- Weight or pipe mount available
- Solid polyurethane construction
- Available with or without plug (120VAC or 230VAC)
- Directly controls pumps 1/2 H.P. at 120VAC and 1 H.P. at 230VAC
- Tether length determines amount of water pumped



226 Ohio Street • Ashland, Ohio 44805  
419.289.1444 • FAX 419.281.0366  
Toll Free Fax: 877.6CONERY  
www.conerymfg.com  
email: conmfg@bright.net

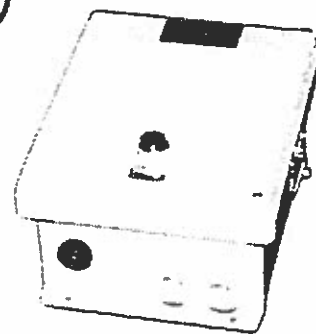
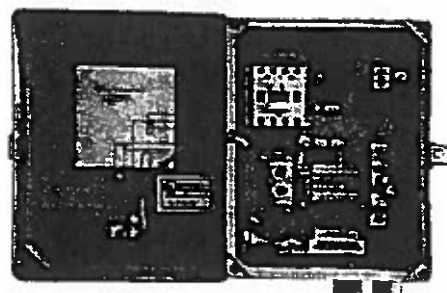
# ORENCO SYSTEMS® SIMPLEX CONTROL PANEL

ORENCO SYSTEMS® Simplex Control Panels offer fine quality components for reliable automatic pump operation. Standard functions include circuit breaker, manual, off and automatic motor control operation, plus an audio/visual high-water alarm circuit with audio silence and automatic reset upon correction of the high-water condition.

A selection of optional features offers flexibility for a variety of pumping applications.

ORENCO SYSTEMS® control panels are specifically engineered for pressure sewer (STEP) systems, for controlling pumping into conventional gravity collection systems and for on-site systems such as intermittent sand filters, recirculating gravel filters, low pressure drainfields, as well as for simple uphill pumping to standard drainfields.

ORENCO SYSTEMS® control panels are designed for use with mercury float switches or any standard dry-contact switching method.



## **STANDARD FEATURES:**

### **•Listing:**

Underwriters Laboratories, UL 508.  
UL-Canada Listing available.

### **•Rating:**

Model S-1 rated at 115 VAC, 1 Hp, 16 A, Single Phase, 60 Hz.  
Model S-2 rated at 230 VAC, 3 Hp, 16 A, Single Phase, 60 Hz.

### **•Motor-Start Contactor:**

Rated for 24 FLA, Single Phase, 60 Hz.

### **•Current Limiting Circuit Breaker:**

20 amp, OFF/ON switch, DIN rail mounting with thermal magnetic tripping characteristics. (Single Pole / 115 V; Double Pole / 220 V)

### **•Toggle Switch:**

A SPDT HOA switch with a 20 amp motor rating.

### **•Fuse Disconnect:**

5 amp (10,000 AIC) fuse with DIN rail mount.

### **•Audible Alarm:**

Panel mount with a minimum of 80 db sound pressure at 24 inches, warble tone sound.

### **•Visual Alarm:**

NEMA 4-rated, 7/8-inch diameter, red lens, oil-tight with push-to-silence feature.

### **•Audio-Alarm Silence Relay:**

115 VAC, automatic reset, with DIN rail mount socket base.

### **•Alarm Circuit:**

120 VAC, wired separately from the pump circuit, so that if the pump's internal overload switch or current-limiting circuit breaker is tripped the alarm system remains functional.

### **•Enclosure:**

NEMA 4X-rated, fiberglass with hinged cover. Noncorroding. Dimensions: 10" High X 8" Wide X 5-1/8" Deep. External mounting ears.

### **•Padlockable Latch:**

Constructed of noncorroding stainless steel.

## **OPTIONAL FEATURES:**

### **•Elapsed Time Meter:**

115 VAC, 7-digit, nonresettable.

### **•Counter:**

115 VAC, 6-digit, nonresettable, horizontal base mount.

### **•Programmable Timer:**

5 amp, 110 VAC, DPDT relay output, repeatable cycle from 10 sec. to 10 hours with four time ranges. Separate variable controls for ON and OFF time.

### **•Intrinsically Safe Control Relay:**

Intrinsically Safe Panels are UL 913 Listed. The secondary circuit limits the current to 2.3 mA at 11 VAC.

Other custom features can be provided.

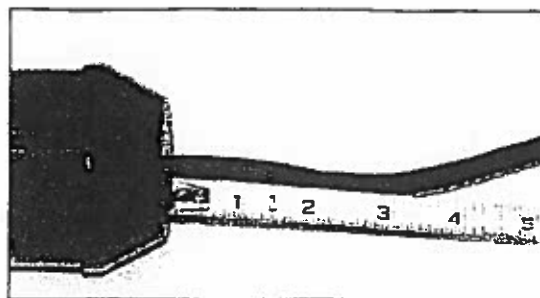


# Float Collar Instruction Guide

## Float Collar Installation

### Step 1: Marking Float Cord Tether Length

Using the manufacturers instructions provided with your floats, determine the proper float cord tether length, and mark the position on the cord.



*Marking Float Cord Tether Length*

### Step 2: Attaching Float Collar to Float

Insert the marked portion of the float cord into the slot in the float collar, and slide the clip onto the collar. The clip is secured by two retaining pegs molded onto the float collar.

The clip is labeled with an "L" on one side, and an "S" on the other, as viewed from the side facing away from the collar. The range of float cord diameters each clip position will clamp is listed below:

"L" Clip position: up to 0.35"

"S" Clip position: down to 0.28"

Use the clip position that holds the cord the tightest without distorting the clip. The cord should not slip when pulled moderately by hand.

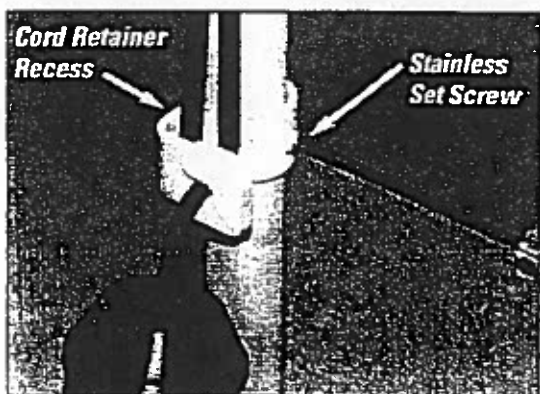


*Attaching Float Collar*

### Step 3: Securing Float Collar to 1" Schedule 40 PVC Pipe

Secure float collars in proper location, using stainless steel set screw provided in the kit. Tighten the set screw until float collar is firmly clamped.

Note: A cord retainer recess is built into the collar. The cords from lower floats can be tucked into the recess, keeping the cords from becoming tangled with floats.



*Securing Float Collar to Float Stem*

## Float Collar Adjustments

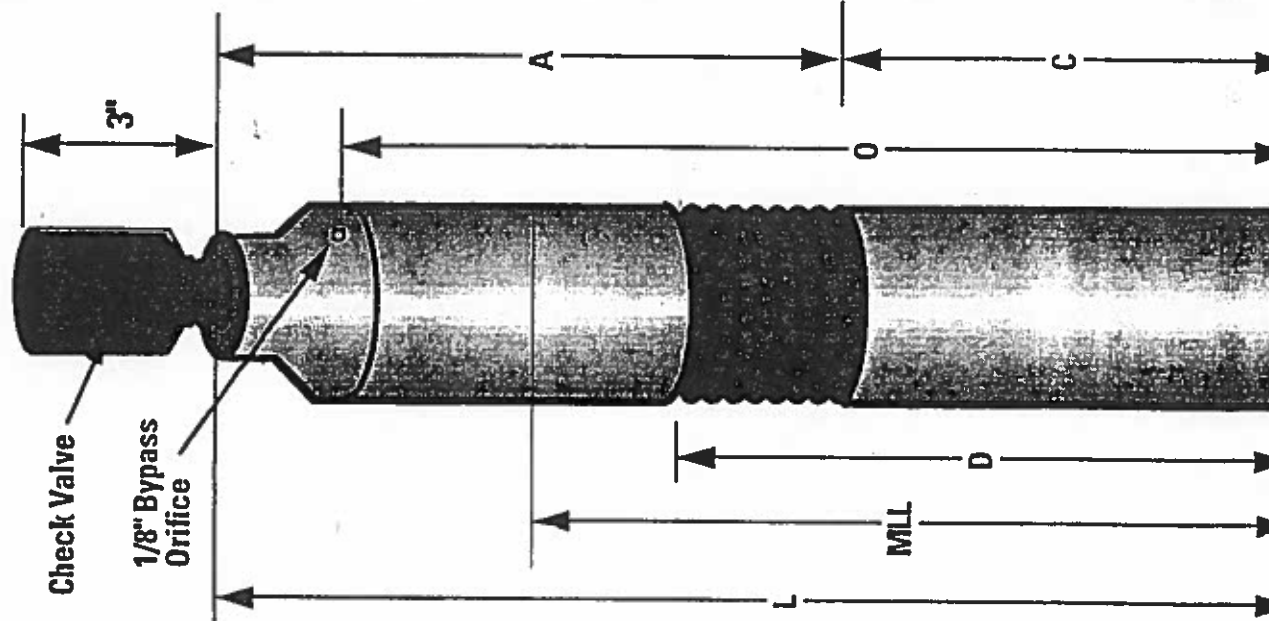
### Adjusting Float Height

Float height can be adjusted by loosening the stainless steel set screw and simply sliding the float collar up or down the float stem.

### Adjusting Float Cord Tether Length

Float cord tether length can be adjusted by removing the clip, adjusting the cord's position, and re-installing the clip.

# OSI Submersible Pump Dimensions



Pump Model	A	C	D	L	O	DS	MLL	Check?
P10GR05HH	12 1/4	9 1/2	11 1/2	22 1/4	19	1 1/4	20	†
P12AER05HHF	14	9 1/2	11 1/2	23 1/2	20 3/8	1	20	Y
P100SI05HHF	12 3/4	9 1/2	12 1/4	22 1/4	20 5/8	1	20	Y
P100SI07HHF	14 3/4	10 1/2	13 1/4	25 1/4	23 5/8	1	22	Y
P100SI10HHF	19	11 1/2	14 1/4	30 3/4	26 3/8	1	24	Y
P200SI05HHF	13 1/4	9 1/2	12 1/4	22 3/4	21	1 1/4	20	Y
P200SI07HHF	13 1/4	10 1/2	13 1/4	23 3/4	22 1/4	1 1/4	22	Y
P200SI10HHF	15 1/2	11 1/2	14 1/4	27	25 1/2	1 1/4	25	Y
P200SI15HHF	17 3/4	15	17 3/4	32 3/4	31 1/8	1 1/4	28	Y
P300SI05HHF	12	9 1/2	12 1/4	21 1/4	19 3/4	1 1/4	22	N
P300SI07HHF	13 1/2	10 1/2	13 1/4	24	22 1/4	1 1/4	24	N
P300SI10HHF	14 3/4	11 1/2	14 1/4	26 1/2	24 7/8	1 1/4	27	N
P300SI15HHF	17 3/4	15	17 3/4	32 3/4	31	1 1/4	29	N
P500SI05HHF	11 1/4	9 1/2	11 1/4	20 5/8	18 3/4	2	22	N
P500SI07HHF	13 1/4	10 1/2	12 3/8	23 3/4	22 1/2	2	24	N
P500SI10HHF	15 1/4	11 1/2	13 1/2	26 7/8	25	2	27	N
P500SI15HHF	17 1/4	15	16 7/8	32 1/4	30 3/8	2	29	N

† The check valve is built into the 10GR05HH pump (it is included in "L").

A = liquid end height

C = motor height

D = intake height

MLL = minimum liquid level

L = overall pump height

O = bypass orifice height

DS = discharge size

Oreco Systems<sup>®</sup>  
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814 AIRWAY AVENUE

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ETD-PU-PU-2  
Rev 1.1 5/8/86

#3460

GSP-163-3460

# **Heyco®** **Liquid Tight** **Straight-Thru Fittings**

For Flexible Cords

**NPT HUBS-Install in either clearance or threaded holes.**

CABLE DIA. RANGE We recommend using the largest max. diameter that will fit in your application			PART NO		NUT HUB DESCRIPTION	PART DIMENSIONS									
Cable Dia. in.	Cable Dia. mm.	Max. Dia. mm.	Black	Gray		A Clearance Hole		C Max. O.A. Length		E Thread Length		F Washing Nut Thk.		G Washing Nut Dia.	
						in.	mm.	in.	mm.	in.	mm.	in.	mm.	in.	mm.
.12	.9	23	3458	3459	RLTF 1/8	.570	14.5	1.45	37.8	.53	13.5	.20	5.1	.75	19.1
.15	1.3	33	3228	3229	LTFA 1/8	.670	17.0	.49	37.8	.53	13.5	.20	5.1	.75	19.1
.18	1.8	46	3231	3232	LTFA 1/4	.770	19.5	.72	43.7	.52	13.2	.20	5.1	.75	19.1
.21	2.1	53	3200	3201	LTFA 1/2	.870	22.1	.87	48.5	.52	13.2	.20	5.1	.75	19.1
.24	2.4	61	3204	3205	LTFA 3/4	1.068	27.1	.97	50.0	.52	13.2	.20	5.1	.75	19.1
.27	2.7	69	3450	3451	RLTF 3/4	1.068	27.1	.97	50.0	.52	13.2	.20	5.1	.75	19.1
.30	3.0	76	3439	3440	RLTF 1"	1.270	32.3	1.27	50.0	.52	13.2	.20	5.1	.75	19.1
.36	3.6	91	8437	8438	LTFA 1"	1.570	40.0	1.57	50.0	.52	13.2	.20	5.1	.75	19.1

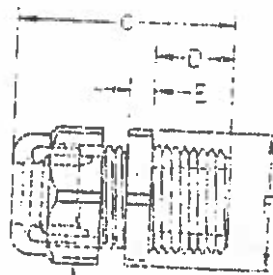
Color: Black. (Gray available at extra charge. Locknut NOT included.)

Standard Color: Black. Gray available at extra charge. Locknut NOT included.  
Listed Under Underwriters Laboratories

U.S. PATENT NO. 5,425,172  
Foreign Patents

- UL Listed Under Underwriters Laboratories File #E-51570
- Recognized Under the Component Program of Underwriters Laboratories File #E-51570
- Certified by Canadian Standards Association File #LR-93570

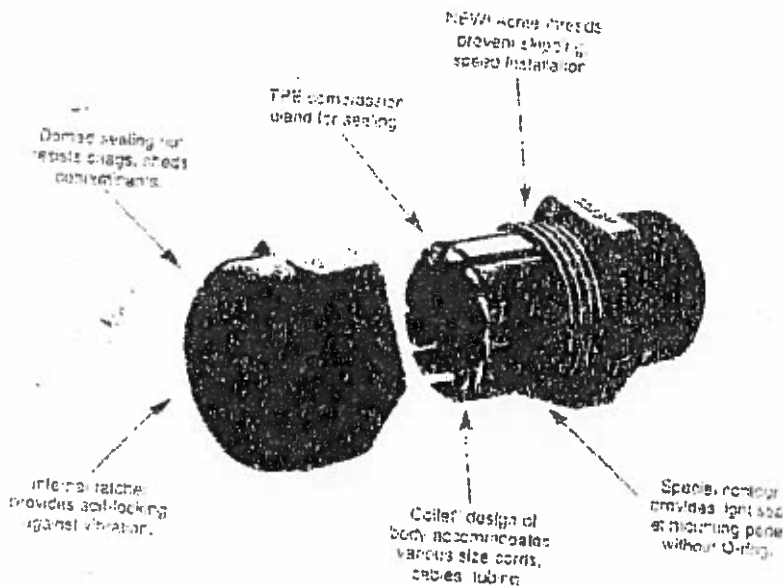
- NEW! Acme threads on body prevent slipping, speed installation.
- Eleven sizes for cable, tubing, etc. with diameters ranging from .093" (1.8mm) to 1.280" (32.0mm).
- We recommend using the smallest maximum diameter fitting that will fit your application.
- All nylon construction with TPE gland resists salt water, wear, acids, gasoline, alcohol, oil, grease and common solvents.
- Working temperatures: -22°F (-30°C) to 212°F (100°C). For short periods to 302°F (150°C).
- Protection class IP 68 per DIN 40050 up to 70 psi (5 bar) water pressure.
- Locknuts are not included. To order nylon or steel locknuts separately, see pages 1-16 and 1-17.



SEALING NUT



Suggested Clearance Hole  
For Non-Threaded Mounting

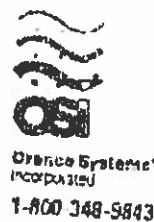


**Heyco Molded Products, Inc.**  
The First Name in Wire Protection  
Box 180, Kenilworth, N.J. 07033  
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(908) 245-2205

# Carbon Filters

(for fiberglass access lids)

Submittal  
Data Sheet



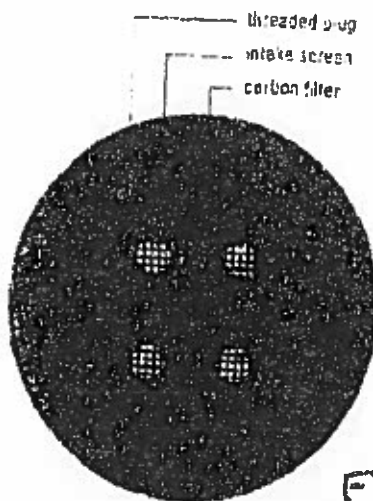
## Applications

Drenco Carbon Filters reduce the odor of sewage gases in the air that passes through the filter.

## General

Drenco Carbon Filter housing is injection molded using fiberglass reinforced polyester resin. The Carbon Filter can be fixed to the under side of the lid using either Weld-On 810 epoxy or threaded fittings. The threaded plug is removable to allow the replacement of the carbon (refill packs available).

Side View (lid with filter in place)



FL21GVCF

Bottom View (lid with filter in place)

## Standard Models

CF12

Post-It Fax Note	Date: 7/16/93	Time: 10:21	Page: 1
To: Bruce / Sam	From: Drenco	Co:	
Card:		Phone:	
Fax:	615-793-1293	Fax:	

## Specifications

### Dimensions:

O.D.: 14 3/4"  
Height: 2 3/4"  
Carbon Weight: 2 3/4 lbs.  
Screen: 1/8" mesh

### Materials of Construction:

Carbon: Granular activated impregnated carbon  
Housing: Molded fiberglass  
Screen: Polyethylene 1/8" mesh  
Plug: Schedule 40 PVC

## High-head Effluent Pumps, 10 - 50 gpm (continued)

	Horsepower	Stages	Flow (gpm)	Diameter (in.)	Disch. Size (in.)	Length (in.)	MLL (in.)
P 10 03	1/3	3	10	4	1	19	18
P 10 05	1/2	6	10	4	1	22 1/4	20
P 10 07	3/4	8	10	4	1	25 1/4	22
P 10 10	1	10	10	4	1	30 3/4	24
P 20 05	1/2	5	20	4	1 1/4	22 3/4	20
P 20 07	3/4	5	20	4	1 1/4	23 3/4	22
P 20 10	1	7	20	4	1 1/4	27	25
P 20 15	1 1/2	9	20	4	1 1/4	32 3/4	28
P 30 05	1/2	3	30	4	1 1/4	21 1/4	22
P 30 07	3/4	4	30	4	1 1/4	24	24
P 30 10	1	5	30	4	1 1/4	26 1/2	27
P 30 15	1 1/2	6	30	4	1 1/4	31	29
P 50 05	1/2	2	50	4	2	21 1/4	22
P 50 07	3/4	3	50	4	2	24	24
P 50 10	1	4	50	4	2	26 1/2	27
P 50 15	1 1/2	5	50	4	2	32 3/4	29

### Materials of Construction:

Check Valve:	Lexan® with bronze body and Celcon valve seat
Discharge:	High fiberglass thermoplastic (10 - 30 OSIs) or stainless steel (50 OSIs)
Discharge Bearing:	Nylatron®
Diffusers:	Lexan®
Impellers:	Delrin®
Thrust Pads:	(Proprietary)
Drive Shaft:	Hexagonal stainless steel
Intake Screen:	Corrosion-proof polypropylene
Intake Housing:	High fiberglass thermoplastic
Suction Cap:	Lexan®
Coupling:	Stainless steel
Shell:	Stainless steel

Franklin motor constructed of 100% corrosion-resistant stainless steel. Constant lubrication through water-filled design. Hermetically sealed motor assures 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. NEMA standard 2-wire motor with ground. Equipped with 16/3 SO type cable.

- ® Nylatron is a registered trademark of Sta-Rite Industries, Inc.
- ® Lexan is a registered trademark of General Electric Co.
- ® Delrin is a registered trademark of E.I. DuPont de Nemours & Co.
- ® Celcon is a registered trademark of Celanese Plastics Co.

# ADH100 Adhesive

Submittal  
Data Sheet



Orencia Systems  
Incorporated

814 AIRWAY AVENUE  
SUTHERLIN, OREGON  
97479

TELEPHONE

(541) 459-4149

(800) 348-9843

FACSIMILE

(541) 459-2884

## General

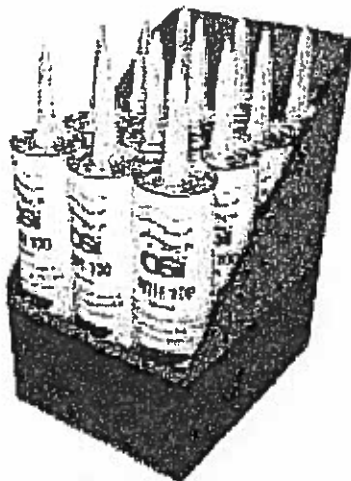
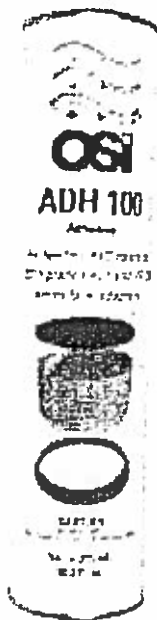
ADH100 is a single component opaque adhesive formulated to bond PVC risers to Orencia grade rings and PRTA series tank adapters. Upon curing, the seal created is both water and chemical resistant.

## Applications

ADH100 is used to bond PVC risers to Orencia grade rings and PRTA series tank adapters.

## Standard Model

ADH100



## Specifications

Gel time is approximately 10 minutes; ultimate bond strength occurs after 24 - 72 hours at 70° - 85°F. Cure time is increased greatly with a decrease in temperature; not recommended for use in temperatures below 32°F. Expected shelf life is approximately 5 years when stored at temperatures between 45° - 85° F.

APPROVED ☐

APPROVED AS CORRECTED ☒

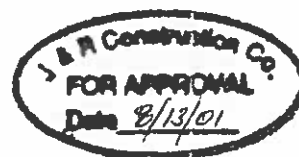
REVISE AND RESUBMIT ☐

NOT APPROVED ☐

APPROVAL IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOB SITE; FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESS OR TO TECHNIQUES OF CONSTRUCTION AND FOR COORDINATION OF THE WORK OF ALL TRADES.

BARGE, WAGGONER, SUMNER & CANNON

DATE 8/14/01 BY WLB



# Air Release Assemblies

Submittal  
Data Sheet



**Oreco System  
Incorporated**

814 AIRWAY AVENUE  
SUTHERLIN, OREGON  
97479

TELEPHONE:  
(541) 459-4449  
(800) 348-9843

FACSIMILE:  
(541) 459-2884

## General

Oreco Air Release Assemblies are installed in collection lines to liberate excess air from an Oreco Pro-STEP collection system. Three models are offered—air release valve for expelling air only, vacuum release valve for relieving vacuum situations, and a combination air & vacuum release valve to expel air and prevent negative pressures.

## Applications

Air Release Assemblies help prevent the formation of air pockets and negative pressure (vacuum) situations in collection lines.

## Standard Models

ARAM, ARA1, ARA2.

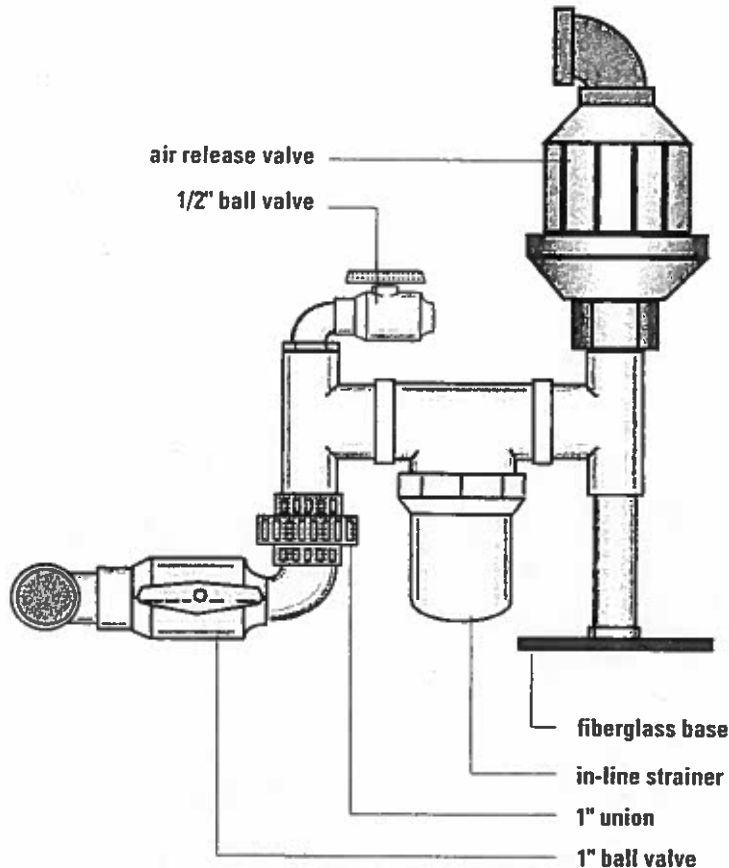
Piping  
ARA X

Indicates piping size:  
1 - 1" Piping (for use with ARB05)  
2 - 2" Piping (for use with ARB15  
and ARB20)  
M - Manual

ARB05, ARB15, ARB20

Valves  
ARB X

Indicates valve type:  
05 - Air Release valve  
15 - Combination Air /  
Vacuum valve  
20 - Vacuum valve



## Specifications

Component	Material(s) of Construction	Remarks
Air Release & Vacuum Valves	Cast iron, stainless steel, Buna N, polypropylene, actel, brass, and glass fiber reinforced nylon.	Corrosion resistant; operable with a minimum line pressure of 2 psig.
In-Line Strainer	Stainless steel, nylon, Buna N, Viton & EPT.	Stainless steel straining screen (#40 mesh) has a surface area of 33 in <sup>2</sup> .
Ball Valves	PVC per ASTM sch. 40 specification.	
Union	PVC per ASTM sch. 80 specification.	Sealed using an EPDM O-ring.
Pipe & Fittings	PVC per ASTM sch. 40 specification.	All parts either solvent welded or threaded and sealed with teflon paste.
Fiberglass Base	Resin is a UV stabilized chemical resistant polymer (70% of laminate by weight). Fiberglass is E-glass mat (30% of laminate by weight).	Base is 4 1/2" in diameter and 3/16" thick.
Enclosure	See Access Risers and Fiberglass Access Lids submittal sheets for more information.	21" in diameter. 24" tall for the ARA1 and ARAM; 28" tall for the ARA2.
Options	Lid insulation and/or carbon filters are available. See their respective submittal sheets for more information.	Additional enclosure height dependent upon the option(s) chosen.

ESU-AR-AR-1  
Rev 3.0, © 2/09/99

# High-head Effluent Pumps

Submittal  
Data Sheet



**Oreco System:**  
Incorporated

814 AIRWAY AVENUE  
SUTHERLIN, OREGON  
97479

TELEPHONE:  
(541) 459-4449  
(800) 348-9843

FACSIMILE:  
(541) 459-2884

## 50 Hertz P10 - P50 series

### General

Oreco High-head Effluent Pumps are single phase effluent pumps that utilize a floating stack design to minimize sand and particle interference. The diffusers and impellers are composed of dissimilar materials for frictional resistance. Consultation with Oreco personnel prior to alternative use is recommended.

### Applications

Oreco High-head Effluent Pumps are designed to transport screened effluent (with low TSS counts) from septic tanks to transport systems.

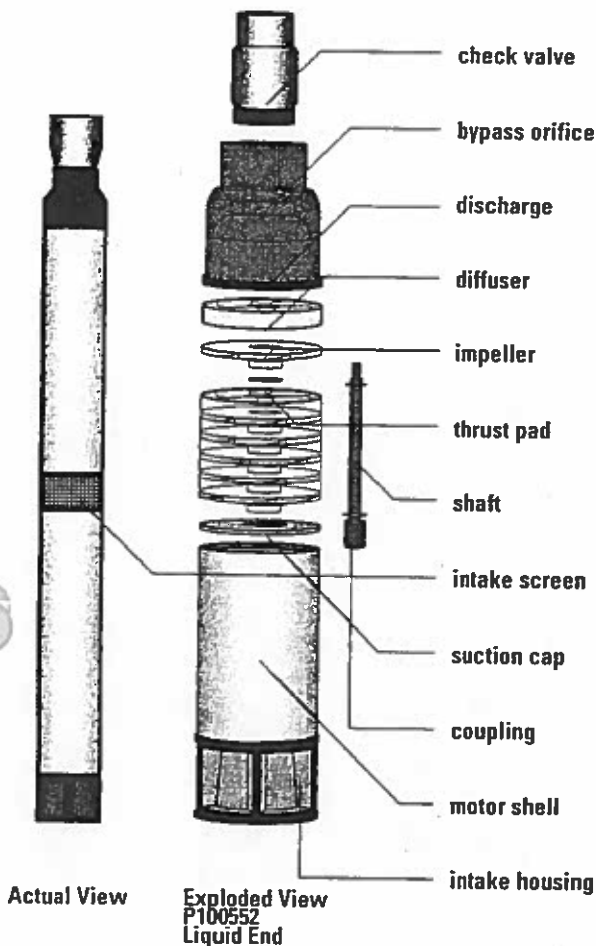
### Standard Models

See specifications for complete list.

Model Code Nomenclature:

P XX XX 52  
 ———— Indicates a 50 Hertz, 220 volt pump.  
 ———— Indicates the approx. hp  
 ———— Indicates the nominal flow (gal./min.)

*115 v Motors*





LYNN

# MANUFACTURER'S CERTIFICATION GASKET — JOINT

## PR200, PR160, PR125 and PR100 PVC PIPE

*This is to certify that the products herein referred to and manufactured by NORTH AMERICAN PIPE CORPORATION meet or exceed the requirements of the pertinent standards and regulating agencies as indicated:*

**MATERIALS** — PVC materials used in PR200, PR160, PR125, and PR100 pipe, manufactured by NORTH AMERICAN PIPE CORPORATION, comply with ASTM Standard D-1784 and are approved by National Sanitation Foundation for potable water use. Pipe is made from a virgin PVC compound with a cell classification of 12454-B; the established hydrostatic-design-basis (HDB) rating is 4,000 psi at 73.4°F. (23°C). The Standard Thermoplastic Pipe Material Designation Code is PVC 1120.

**PIPE** — Physical dimensions and tolerances of PR200, PR160, PR125 and PR100 pipe, manufactured by NORTH AMERICAN PIPE CORPORATION, are within the requirements of ASTM Standard D-2241, Product Standard PS-22-70 and the National Sanitation Foundation Standard 14. Belled-end PR200, PR160, PR125, and PR100 pipe made for gasket joints by NORTH AMERICAN PIPE CORPORATION, meets the above specifications including ASTM D-3139. White is the standard color with blue optional.

**GASKETS AND LUBRICANTS** — Gaskets and Lubricants are compatible with the plastic material in NORTH AMERICAN PIPE CORPORATION pipe and in combination with them will not adversely affect the potable qualities of the water. Each gasket is factory installed in bell-end pipe. Gaskets and joints meet all requirements for performance as specified in ASTM D-3139 and F-477. All NORTH AMERICAN PIPE CORPORATION gaskets are factory installed and have a steel reinforcing ring. (Locked-in)

**FITTINGS** — Gasketed fittings, supplied by NORTH AMERICAN PIPE CORPORATION, meet the requirements of ASTM Standards, D-3139. Said fittings are approved by the National Sanitation Foundation for potable water and have working pressures of 200 PSI at 73.4°F unless otherwise noted.

**MARKING** — PR200, PR160, PR125, and PR100 pipe, are marked as prescribed in ASTM Standard D-2241 i.e. nominal pipe size, type of plastic pipe material, pipe dimension ratio, pressure rating, ASTM specification designation number, manufacturer's name and code, and the National Sanitation Foundation seal for potable water.

### INPLANT TESTING — Per ASTM D-2241:

1. Pipe shall be homogeneous throughout and free from visible cracks, holes, foreign inclusions, and other defects.
2. Wall Thickness, Outside Diameter, and Ovality - Once per hour. Method: ASTM D-2122.
3. QUICK BURST - Every eight hours. Method: ASTM D-1599.
4. FLATTENING - Every eight hours. Method: ASTM D-2241 6.5.
5. IMPACT - Every eight hours. Method: ASTM D-2444.
6. EXTRUSION QUALITY - Every eight hours. Method: ASTM D-2152.
7. SUSTAINED PRESSURE - Twice per year. Method: ASTM D-1598.

APPROVED AS CORRECTED ☒

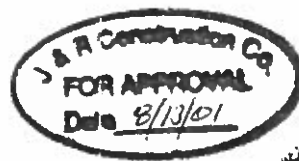
REVISE AND RESUBMIT ☐

NOT APPROVED ☐

APPROVAL IS ONLY FOR CONFORMANCE WITH THE DESIGN CONCEPT OF THE PROJECT AND COMPLIANCE WITH THE INFORMATION GIVEN IN THE CONTRACT DOCUMENTS. THE CONTRACTOR IS RESPONSIBLE FOR DIMENSIONS TO BE CONFIRMED AND CORRELATED AT THE JOB SITE; FOR INFORMATION THAT PERTAINS SOLELY TO THE FABRICATION PROCESS OR TO TECHNIQUES OF CONSTRUCTION AND FOR COORDINATION OF THE WORK OF ALL TRADES.

BARGE, WAGGONER, SUMNER & CANNON

DATE 8/14/01 BY WBD



# IPS CLASSES — PVC GASKET PIPE, (Continued)

ASTM D-2241

(Quantity figured on 20 ft. lengths)

## PR 200 (SDR 21)

Size	Outside Diameter	Wall	Weight Per Foot	Pieces Bundle	Bundle Truckload	Pieces Truckload	Footage
1 1/2"	1.900	.090	.335	203	24	4,872	97,440
2"	2.375	.113	.526	259	12	3,108	62,160
2 1/2"	2.875	.137	.773	186	12	2,232	44,640
3"	3.500	.167	1.149	125	12	1,500	30,000
4"	4.500	.214	1.897	76	12	912	18,240
6"	6.625	.316	4.136	28	12@28	392	7,840
8"	8.625	.410	7.008	14	4@14	242	4,840
10"	10.750	.511	10.952	12	4@24	144	2,880
12"	12.750	.606	15.453	8	2@18	98	1,960
				4	4@20		
				6	2@15		
				3	6@6		
					2@3		

## PR 250 (SDR 17)

Size	Outside Diameter	Wall	Weight Per Foot	Pieces Bundle	Bundles Truckload	Pieces Truckload	Footage
1 1/2"	1.900	.111	.412	203	24	4,872	97,440
2"	2.375	.139	.643	259	12	3,108	62,160
2 1/2"	2.875	.169	.942	186	12	2,232	44,640
3"	3.500	.205	1.400	125	12	1,500	30,000
4"	4.500	.264	2.320	76	12	912	18,240
6"	6.625	.389	5.041	28	12@28	392	7,840
8"	8.625	.507	8.574	14	4@14	242	4,840
10"	10.750	.632	13.376	12	4@24	144	2,880
12"	12.750	.750	18.887	8	2@18	98	1,960
				4	4@20		
				6	2@15		
				3	6@6		
					2@3		

The above tables also apply to Class 315 except for Wall Thickness and Weights Per Foot.

## DESIGN CRITERIA-PHYSICAL PROPERTIES FOR PVC 1120

PROPERTY	VALUE	UNITS	A.S.T.M. NO.
Specific gravity	1.38		D792
Tensile strength (73° F.)	7,500	p.s.i.	D638
Modulus of elasticity in tension	415,000	p.s.i.	D638
Flexural strength	14,500	p.s.i.	D790
Charpy impact (notched at 73° F.)	0.75	ft. lb./in.	D256
(unnotched at 73° F.)	45	ft. lb./in.	D256
Hardness (Shore "D")	78/82		D785
Hardness (Rockwell)	110		D785
Compressive strength	9,000	p.s.i.	D695
Hydrostatic Design Stress	2,000		D695
Coefficient of linear expansion	.0000278	in./in./°F.	D696
Heat distortion (°F. at 264 p.s.i.)	173	degrees F.	D648
Coefficient of thermal conductivity	1.0	BTU/hr./sq. ft./in.	D177
Specific heat	0.25	BTU/lb./°F.	
Water absorption (24 hrs. at 25° C.)	.07	per cent	D570
Cell Classification	12454B		D1784

Above data compiled in accordance with ASTM test requirements and NSF.

# North American Pipe Corporation

## PVC PRESSURE PIPE

### SCHEDULE 40 PVC 1120 ASTM D-1785

Nominal Size	Outside Diameter	Minimum Wall	Max. W.P. @ 73°F.	Weight per Foot	Pieces Bundle	Bundle Truckload	Truckload	
							Pieces	Footage
½"	.840	.109	600 PSI	.161	455	48	10,940	218,800
¾"	1.050	.113	480 PSI	.214	457	32	14,624	292,480
1"	1.315	.133	450 PSI	.318	369	28	10,332	206,640
1¼"	1.660	.140	370 PSI	.431	239	28	6,692	133,840
1½"	1.900	.145	330 PSI	.516	203	24	4,872	97,440
2"	2.375	.154	280 PSI	.693	259	12	3,108	62,160
2½"	2.875	.203	300 PSI	1.111	186	12	2,232	44,640
3"	3.500	.216	260 PSI	1.438	125	12	1,500	30,000
4"	4.500	.237	220 PSI	2.049	76	12	912	18,240
6"	6.625	.280	180 PSI	3.606	33	12	396	7,920
8"	8.625	.322	160 PSI	5.428	20	8	242	4,840
					15	4		
10"	10.750	.365	140 PSI	7.697	12	12	144	2,880
12"	12.750	.406	130 PSI	10.178	8	6@8	98	1,960
					4	2@4		
					6	6@6		
					3	2@3		

### SCHEDULE 80 PVC 1120 ASTM D-1785

½"	.840	.147	850 PSI	.205	455	48	10,940	218,800
¾"	1.050	.154	690 PSI	.278	457	32	14,624	292,480
1"	1.315	.179	630 PSI	.410	369	28	10,332	206,640
1¼"	1.660	.191	520 PSI	.567	239	28	6,692	133,840
1½"	1.900	.200	470 PSI	.688	203	24	4,872	97,440
2"	2.375	.218	400 PSI	.952	259	12	3,108	62,160
2½"	2.875	.276	420 PSI	1.451	186	12	2,232	44,640
3"	3.500	.300	370 PSI	1.944	125	12	1,500	30,000
4"	4.500	.337	320 PSI	2.842	76	12	912	18,240
6"	6.625	.432	280 PSI	5.423	33	12	396	7,920
8"	8.625	.500	250 PSI	8.238	20	8	242	4,840
					15	4		
10"	10.750	.593	230 PSI	12.216	12	12	144	2,880
12"	12.750	.687	230 PSI	16.809	8	6@8	98	1,960
					4	2@4		
					6	6@6		
					3	2@3		

## STANDARDS AND SPECIFICATIONS FOR NAPCO SCHEDULE 40, 80, and 120 PVC PIPE

### ASTM

#### D-1784

Poly (Vinyl Chloride) (PVC) Compounds and Chlorinated Poly (Vinyl Chloride) (CPVC) Compounds, Rigid.

#### D-1785

Poly (Vinyl Chloride) (PVC) Plastic Pipe.

#### D-2564

Solvent Cements for Poly (Vinyl Chloride) (PVC) Plastic Pipe and Fittings.

### PRODUCT STANDARDS

#### PS-21-70

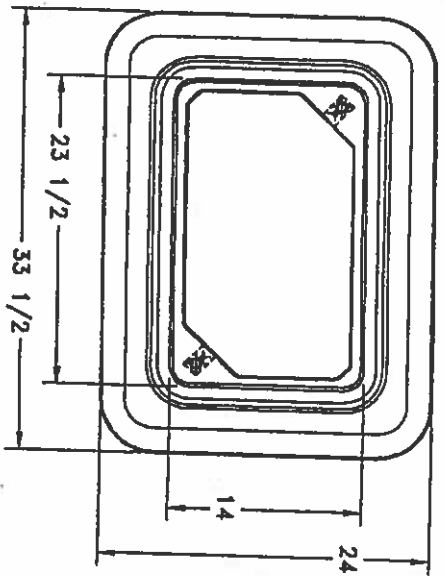
Poly (Vinyl Chloride) (PVC) Plastic Pipe Supersedes CS207-60.

#### NSF

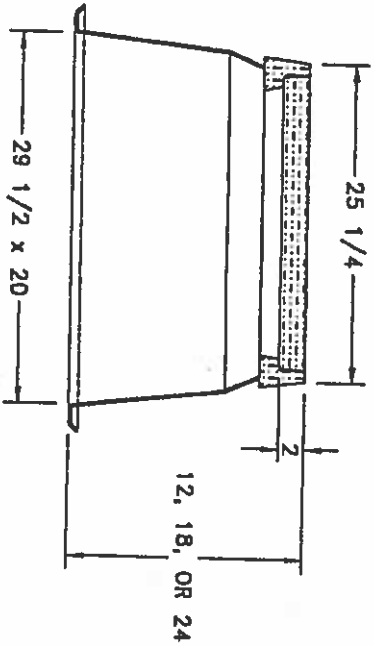
#### Standard 14

Thermoplastic Materials, Pipe, Fittings, Valves and Joining Materials.

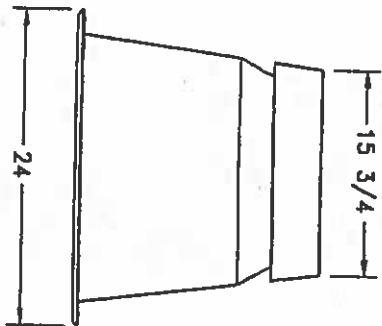
#### ANSI B-72.7



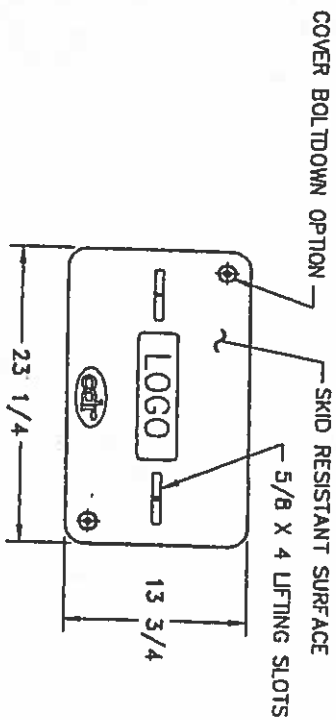
BOX PLAN VIEW



BOX & COVER SECTION

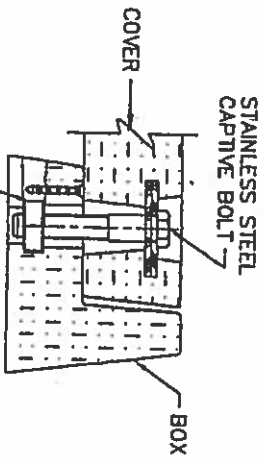


END VIEW

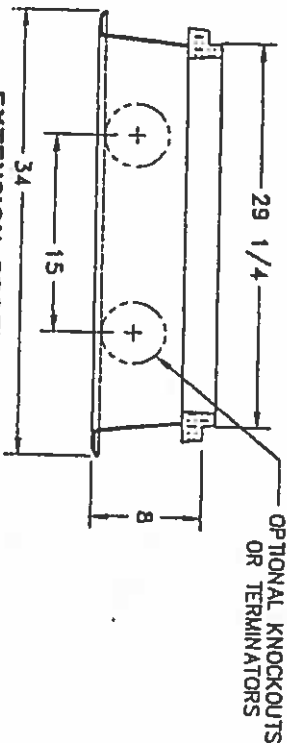


COVER PLAN VIEW

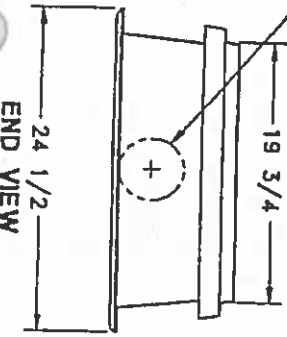
OPTIONAL CAST IRON READER LIDS AVAILABLE



COVER BOLTDOWN OPTION



EXTENSION SECTION

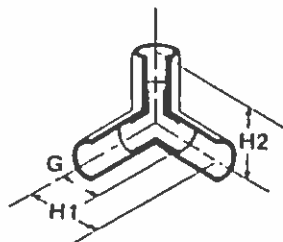


END VIEW

<b>cdr</b> SYSTEMS CORP.			
TITLE 13 X 24 FLARED WALL SERIES BOX, COVER & EXTENSION			
DRAWN	KWHITFORD	DATE	09/27/96
CHECKED			
APPROVED	AOX		
A 1-0005			

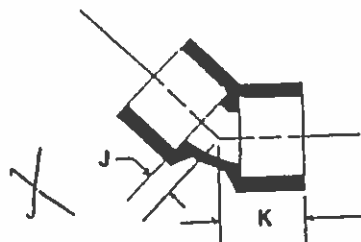
# LASCO®

Fittings, Inc.



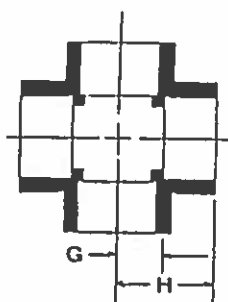
Side Outlet  
90° ELL  
slip x slip x FIPT

Part No.	Size	H2	G	H
414-005	1/2	1 5/32	15/32	1 1/4
414-010	1	1 25/32	11/16	1 13/16
414-101	3/4 x 3/4 x 1/2	1 1/4	9/16	1 11/32
414-130	1 x 1 x 1/2	1 3/8	11/16	1 25/32



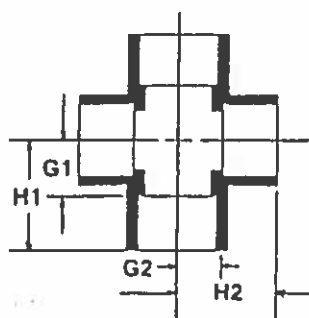
45° ELL  
slip x slip

Part No.	Size	K	J
417-005	1/2	1 1/32	5/16
417-007	3/4	1 1/8	11/32
417-010	1	1 13/32	5/16
417-012	1 1/4	1 9/16	3/8
417-015	1 1/2	1 11/16	7/16
417-020	2	1 31/32	21/32
417-025	2 1/2	2 23/32	23/32
417-030	3	2 25/32	25/32
417-040	4	3 1/32	1 1/32
417-050	5	4 13/32	1 3/8
417-060	6	5 1/4	1 3/4
417-080	8	6 1/2	2



Cross  
slip

Part No.	Size	H	G
420-005	1/2	1 7/32	17/32
420-007	3/4	1 5/16	19/32
420-010	1	1 11/16	11/16
420-012	1 1/4	2 1/8	7/8
420-015	1 1/2	2 5/16	1
420-020	2	2 21/32	1 9/32
420-025	2 1/2	3 1/2	1 1/2
420-030	3	3 13/16	1 13/16
420-040	4	4 5/16	2 11/32

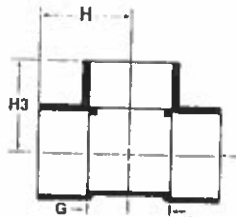


Cross  
Reducing  
slip

Part No.	Size	H1	H2	G1	G2
420-335	3 x 3 x 1 x 1	2 13/16	2 23/32	1 13/16	1 1/16
420-337	3 x 3 x 1 1/2 x 1 1/2	3 1/8	3 1/32	1 13/16	1
420-338	3 x 3 x 2 x 2	3 3/16	3 9/32	1 13/16	1 1/4
420-419	4 x 4 x 1 1/2 x 1 1/2	3 5/8	3 1/32	2 5/16	1
420-420	4 x 4 x 2 x 2	3 11/16	3 9/32	2 5/16	1 7/32

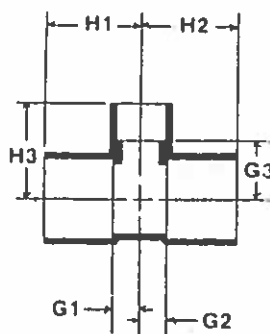
# Schedule 40

Tee  
slip x slip x slip



Part No.	Size	H	G	H3
401-005	1/2	1 1/4	1/2	
401-007	3/4	1 3/8	19/32	
401-010	1	1 11/16	23/32	
401-012	1 1/4	2 1/8	7/8	
401-015	1 1/2	2 1/4	1	
401-020	2	2 19/32	1 7/32	
401-025	2 1/2	3 17/32	1 17/32	
401-030	3	3 27/32	1 13/16	4 1/32
401-040	4	4 11/32	2 9/32	
401-050	5	6	3	
401-060	6	7 1/32	3 1/2	
401-080	8	9	4 1/2	

Tee Reducing  
slip x slip x slip



Part No.	Size	G1	H1	G2	H2	G3	H3
401-094	3/4 x 1/2 x 1/2	17/32	1 5/16	15/32	1 1/4	9/16	1 5/16
401-095	3/4 x 1/2 x 3/4	5/8	1 5/16	9/16	1 1/4	9/16	1 3/8
401-101	3/4 x 3/4 x 1/2	1/2	1 5/16	1/2	1 5/16	19/32	1 11/32
401-122	1 x 1/2 x 1	23/32	1 23/32	21/32	1 7/16	11/16	1 11/16
401-124	1 x 3/4 x 1/2	1/2	1 1/2	11/16	1 5/16	23/32	1 13/32
401-125	1 x 3/4 x 3/4	19/32	1 9/16	19/32	1 3/8	11/16	1 13/32
401-126	1 x 3/4 x 1	21/32	1 21/32	11/16	1 1/2	11/16	1 11/16
401-130	1 x 1 x 1/2	1/2	1 1/2	1/2	1 1/2	11/16	1 15/32
401-131	1 x 1 x 3/4	9/16	1 9/16	9/16	1 9/16	11/16	1 1/2
401-156	1 1/4 x 1 x 1/2	7/8	2 1/16	11/16	1 25/32	13/16	1 9/16
401-157	1 1/4 x 1 x 3/4	7/8	2 1/16	11/16	1 25/32	27/32	1 5/8
401-158	1 1/4 x 1 x 1	29/32	2 3/32	11/16	1 25/32	27/32	1 31/32
401-166	1 1/4 x 1 1/4 x 1/2	17/32	1 25/32	17/32	1 25/32	27/32	1 19/32
401-167	1 1/4 x 1 1/4 x 3/4	19/32	1 27/32	19/32	1 27/32	29/32	1 11/16
401-168	1 1/4 x 1 1/4 x 1	11/16	1 15/16	11/16	1 15/16	7/8	1 27/32
401-199	1 1/2 x 1 1/4 x 1/2	1	2 9/32	7/8	2 1/16	1	1 3/4
401-201	1 1/2 x 1 1/4 x 3/4	31/32	2 7/32	7/8	2 1/16	1 1/32	1 27/32
401-202	1 1/2 x 1 1/4 x 1	1 1/32	2 9/32	7/8	2 1/16	1	2 3/32
401-203	1 1/2 x 1 1/4 x 1 1/4	27/32	2 3/16	27/32	2 3/16	1	2 1/4
401-209	1 1/2 x 1 1/2 x 1/2	1/2	1 13/16	1/2	1 13/16	1 1/32	1 13/16
401-210	1 1/2 x 1 1/2 x 3/4	19/32	1 29/32	19/32	1 29/32	1 1/32	1 27/32
401-211	1 1/2 x 1 1/2 x 1	11/16	2	11/16	2	1	1 31/32
401-212	1 1/2 x 1 1/2 x 1 1/4	7/8	2 3/16	7/8	2 3/16	1 1/16	2 1/4
401-238	2 x 1 1/2 x 3/4	9/16	1 15/16	5/8	1 15/16	1 9/32	2 1/16
401-239	2 x 1 1/2 x 1	13/16	2 3/16	13/16	2 3/32	1 3/8	2 1/2
401-241	2 x 1 1/2 x 1 1/2	no info					
401-247	2 x 2 x 1/2	17/32	1 29/32	17/32	1 29/32	1 1/4	2 1/32

# The Best!

## DETECTABLE UNDERGROUND UTILITY MARKING TAPE

### SPECIFICATIONS, TEST DATA & COLOR CODES

#### I. SPECIFICATIONS

Tape consists of a minimum **5 Mil** overall thickness, with a solid aluminum foil core. Construction is 2 Mil clear film, reverse print laminated to aluminum foil to 2 Mil clear film, making the film permanently printed. All PRO-LINE tape meets or exceeds the industry standards including the American Public Works Association (APWA) color code.

II. TEST DATA	METHOD	VALUE
Thickness	ASTMD2103	5.0 Mil
Tensile Strength	ASTMD882	35 lbs./inch (15,000 PSI)
Elongation	ASTMD882-75B	80%
Colors	APWA Coded	See Below
Bond Strength	Boiling Water	5 Hours w/o Peel
Adhesives	Mfg. Specs.	Morton 548 or Equivalent
Bottom Layer	Mfg. Specs.	Virgin PE
Top Layer	Mfg. Specs.	Virgin PET
Foil	Mfg. Specs.	Industry Standard
Message Repeat	Mfg. Specs.	Varies per Legend
Inks	Mfg. Specs.	AXL II
Flexibility	ASTM 671-76	Pliable Hand
Printability	ASTMD 2578	45 Dynes

#### III. COLOR CODE

Blue	Water & Associated Lines
Brown	Force Mains & Associated Lines
Green	Sanitary & Associated Sewer Lines
Orange	Telecommunications Lines
Purple	Reclaimed Water Lines
Red	Electric & Associated Lines
Yellow	Gas & Associated Lines

- ALL DETECTABLE MARKING TAPES SHOULD BE PERMANENTLY PRINTED

# MANUFACTURER'S CERTIFICATION

## SCHEDULE 40 PVC PIPE and SCHEDULE 80 PVC PIPE

*This is to certify that the products herein referred to and manufactured by NORTH AMERICAN PIPE CORPORATION meet or exceed the requirements of the pertinent standards and regulating agencies as indicated:*

**MATERIALS**—PVC materials used in Schedule 40 and Schedule 80 pipe manufactured by NORTH AMERICAN PIPE CORPORATION, comply with ASTM Standard D-1784 and are a Type 1, Grade 1 compound. The raw material has only additives that are approved by the National Sanitation Foundation for potable water use.

**PIPE**—Physical dimensions and tolerances of Schedule 40 and Schedule 80 pipe, manufactured by NORTH AMERICAN PIPE CORPORATION, are within the requirements of ASTM Standard D-1785, Product Standards PS-21-70, and the National Sanitation Foundation Standard 14.

**FITTINGS**—Schedule 40 and Schedule 80 PVC, socket type fittings, supplied by NORTH AMERICAN PIPE CORPORATION, are within the requirements of ASTM Standards, D-2466. Said fittings and PVC Solvent Cement used by NORTH AMERICAN PIPE CORPORATION, are approved by the National Sanitation Foundation for potable water use.

**MARKING**—Schedule 40 and Schedule 80 pipe, manufactured by NORTH AMERICAN PIPE CORPORATION, is marked as prescribed in ASTM Standard D-1785 i.e., nominal pipe size, type of plastic material, schedule size, pressure rating, ASTM specification designation number, manufacturer's name and code and the National Sanitation Foundation seal.





**SYSTEMS CORPORATION**

146 SOUTH ATLANTIC AVE. • ORMOND BEACH, FL 32176 • TEL: 904-615-9510 • FAX: 904-615-9606 • E-MAIL: sales@cdrsystems.com

B-10

# 13 X 24 BOXES

FLARED WALL

FOR SPLICE BOXES – HANDHOLES – METER BOXES –  
FIBER OPTICS

- **STRONG** - 4 to 5 times the strength of concrete
- **LIGHTWEIGHT** - Quick easy installation for **LOWEST INSTALLED COST.**
- **AVAILABLE** - Light traffic or Heavy duty design
- **NESTABLE** - for easy storage
- **NON-CONDUCTIVE** - And unaffected by UV light, moisture, freezing and sub soil chemicals
- **STAINLESS STEEL HARDWARE** - non-corrosive
- **NO EXTRA CHARGE** for standard cover logos

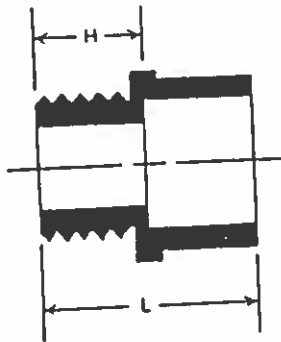
## Assemblies

Box and Cover	COVER		LIGHT TRAFFIC		HEAVY DUTY	
	NOT BOLTED	BOLTED	Part No.	WT.	Part No.	WT.
12" deep	•	•	_A00-1324-12 64		_A02-1324-12 82	
			_A10-1324-12 64		_A12-1324-12 82	
18" deep	•	•	_A00-1324-18 70		_A02-1324-18 88	
			_A10-1324-18 70		_A12-1324-18 88	
24" deep	•	•	_A00-1324-24 78		_A02-1324-24 92	
			_A10-1324-24 78		_A12-1324-24 92	

## Components

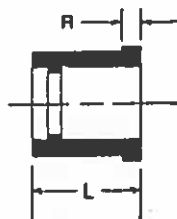
	LIGHT TRAFFIC				HEAVY DUTY			
	NOT BOLT DOWN		BOLT DOWN		NOT BOLT DOWN		BOLT DOWN	
	Part No.	WT.	Part No.	WT.	Part No.	WT.	Part No.	WT.
Box 12" deep	_B00-1324-12	38	_B10-1324-12	38	_B02-1324-12	42	_B12-1324-12	42
Box 18" deep	_B00-1324-18	44	_B10-1324-18	44	_B02-1324-18	50	_B12-1324-18	50
Box 24" deep	_B00-1324-24	52	_B10-1324-24	52	_B02-1324-24	58	_B12-1324-24	58
Cover 2" thick	_C00-1324-02	26	_C10-1324-02	26	_C02-1324-02	40	_C12-1324-02	40
Cover with 4" x 6" Cast Iron Meter Lid	_C00-1324-2C	24	_C10-1324-2C	24	_C02-1324-2C	38	_C12-1324-2C	38
Extension 8" deep	_E00-1324-08	33			_E02-1324-08	38		

# Schedule 40



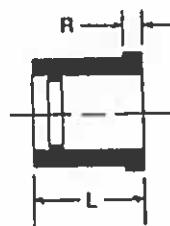
Male Adapter  
Reducing  
MIPT x slip

Part No.	Size	H	L
436-168	1 1/4 x 1	1 3/16	2 3/16
436-169	1 1/4 x 1 1/2	1 7/32	2 17/32
436-212	1 1/2 x 1 1/4	1 7/32	2 7/16
436-213	1 1/2 x 2	1 7/32	2 5/8
436-251	2 x 1 1/2	1 1/4	2 9/16
436-252	2 x 2 1/2	1 5/16	3 11/32
436-293	2 1/2 x 3	1 7/8	3 29/32
436-341	3 x 4	1 29/32	3 29/32



Reducer Bushing  
sp x slip

Part No.	Size	R	L
437-073	1/2 x 3/8	5/16	1 7/32
437-101	3/4 x 1/2	1/4	1 1/16
437-130	1 x 1/2	1/4	1 1/4
437-131	1 x 3/4	1/4	1 1/4
437-166	1 1/4 x 1/2	5/16	1 9/16
437-167	1 1/4 x 3/4	1/4	1 17/32
437-168	1 1/4 x 1	5/16	1 19/32
437-209	1 1/2 x 1/2	5/16	1 5/8
437-210	1 1/2 x 3/4	5/16	1 5/8
437-211	1 1/2 x 1	5/16	1 21/32
437-212	1 1/2 x 1 1/4	5/16	1 19/32
437-247	2 x 1/2	5/16	1 23/32
437-248	2 x 3/4	5/16	1 3/4
437-249	2 x 1	5/16	1 11/16
437-250	2 x 1 1/4	5/16	1 23/32
437-251	2 x 1 1/2	5/16	1 23/32
437-287	2 1/2 x 1/2	19/32	2 19/32
437-288	2 1/2 x 3/4	9/16	2 19/32
437-289	2 1/2 x 1	5/16	2 5/8
437-290	2 1/2 x 1 1/4	1/4	2 1/4
437-290	2 1/2 x 1 1/2	5/16	2 5/16
437-292	2 1/2 x 2	5/16	2 11/32

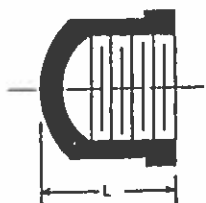


Reducer  
Bushings  
sp x slip

Part No.	Size	R	L
437-334	3 x 3/4	21/32	2 11/16
437-335	3 x 1	3/8	2 13/32
437-336	3 x 1 1/4	3/8	2 15/32
437-337	3 x 1 1/2	3/8	2 13/32
437-338	3 x 2	3/8	2 3/8
437-339	3 x 2 1/2	3/8	2 7/16

# LASCO®

## Fittings, Inc.



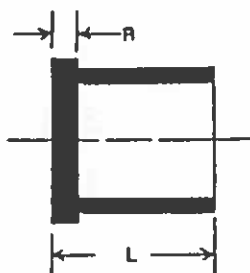
Cap  
FIPT

Part No.	Size	L
448-005	1/2	1 1/8
448-007	3/4	1 5/32
448-010	1	1 1/4
448-012	1 1/4	1 9/16



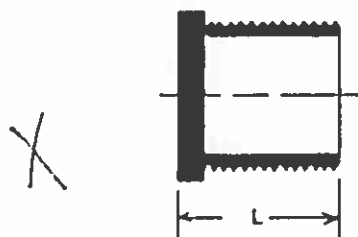
Cap  
FIPT

Part No.	Size	L
448-015	1 1/2	1 5/8
448-020	2	1 3/4
448-025	2 1/2	2 1/2
448-030	3	3 3/16
448-040	4	3 1/4



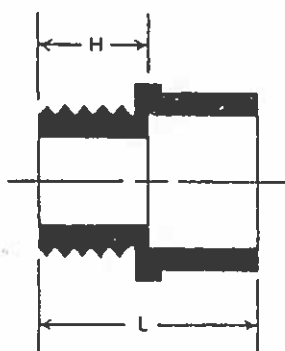
Plug  
sp

Part No.	Size	L
449-005	1/2	1 1/32
449-007	3/4	1 1/16
449-010	1	1 1/4
449-012	1 1/4	1 9/16
449-015	1 1/2	1 5/8
449-020	2	1 23/32
449-025	2 1/2	2 3/8
449-030	3	2 13/32
449-040	3/8	2 13/32



Plug  
MIPT

Part No.	Size	L
450-005	1/2	1 3/32
450-007	3/4	1 1/32
450-010	1	1 1/4
450-012	1 1/4	1 5/16
450-015	1 1/2	1 13/32
450-020	2	1 3/8
450-025	2 1/2	2 1/32
450-030	3	2 1/32
450-040	4	2 1/8



Adapter  
insert x slip

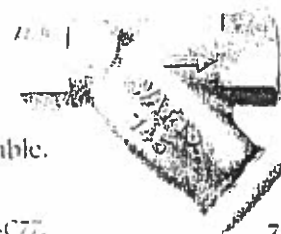
Part No.	Size	L	H
474-007	3/4	2 15/32	1 23/32
474-010	1	2 25/32	1 13/16
474-015	1 1/2	3 5/32	1 27/32

### Series 745 (3/4") Wye-pattern bronze strainers

#### Specifications

Model 745 - Size: 3/4" (20 mm), NPT female connections, 80 mesh strainer screen, 250 psi WOG (17.2 bars) @ 210°F (99°C), and 50 psi WSP (345 kPa) @ 280°F (138°C).

- For applications where scheduled cleaning of the strainer screen makes a hand removable knurled retainer cap desirable.



For additional information, request F-C77.

745

### Series 17 (3/4" - 1") Bronze in-line single union end strainers

- For quick removal of equipment for cleaning, or where feed line separation is required.

#### Specifications

Model 17 - Sizes: 3/4", 1" (20, 25 mm), union end, NPT threaded female connections, #40 mesh strainer screen standard.

- WOG 250 psi (17.2 bars) @ 180°F (82°C).



For optional screens, consult factory. For additional information, request F-C77.

17

### Series 7771 (1/4", 3/8", 1/2") Bronze wye-pattern strainers

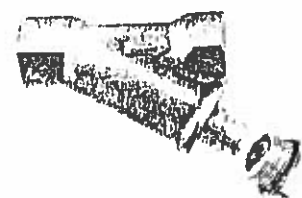
- 30° wye strainers for OEM applications like commercial dishwashers, food processing equipment, etc.

#### Specifications

- Pressure rated at 400 psi (27.6 bars) WOG @ 210°F (99°C).

Model 7771 - Sizes 1/4", 3/8", 1/2" (8,10,15 mm) has 20 mesh stainless steel screen, NPT female connections.

For additional information, request F-C77.



7771

### Series P777-100 (1/4", 3/8") Plastic body wye strainers

- 45° acetal plastic wye strainers for OEM applications requiring an inexpensive corrosion resistant material.

#### Specifications

- Pressure rated at 300 psi CWP.

- NSF approved acetal plastic.

Model P777-100 - Sizes 1/4", 3/8" (8,10 mm) has 100 mesh screen, NPT female connections.

For additional information, request F-C77.



P777-100

### Series 777C-M1 (3/4" x 1") Bronze combination strainer and check valve

- Used with backflow preventers to protect check assemblies from fouling due to dirt and debris
- Especially well suited for use on RPZ assemblies on dead end service.

#### Specifications

- Maximum pressure 200 psi (13.8 bars).
- Maximum temperature 210°F (99°C).

Model 777C-M1 - Size: 3/4" x 1" (20 x 25 mm) female inlet x male outlet connection.

For additional information, request ES-777C-M1.



777C-M1

### Series TC & TB (3/4" - 24") ① Stainless steel temporary strainers

- Used temporarily to protect downstream equipment at start up from debris left in pipelines after construction.
- For liquid or steam service.

#### Specifications

- Sizes: 3/4" - 24", constructed of 14 gauge 304SS

flange ring and perforated screens of 3/64" (1mm) for 3/4" - 3" and 3/8" (3mm) for 4"-24". Temporary conical and basket strainer lengths are provided in 100%, 150% and 200% of open area of pipe I.D.

For additional information, request F-C77.



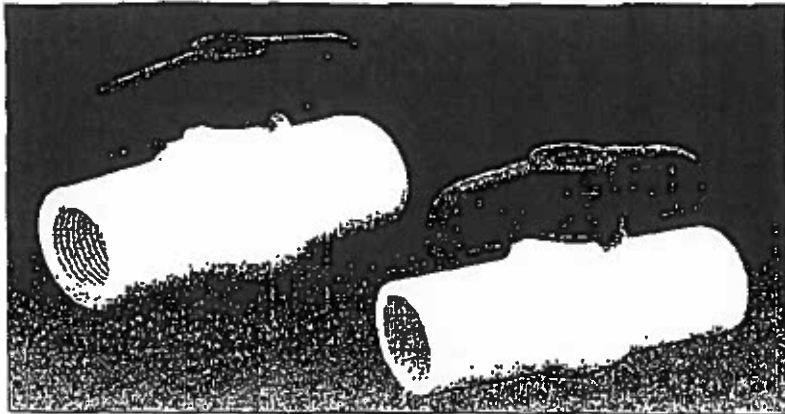
TC

# MATCO-NORCA INC.

SPEC SHEET

## 770 PVC BALL VALVE

One Piece Construction



**For Schedule 40 & 80 pipe**

Working Pressure: 150 PSI 73° F

Number 770 S - Socket end

Number 770 T - Threaded end

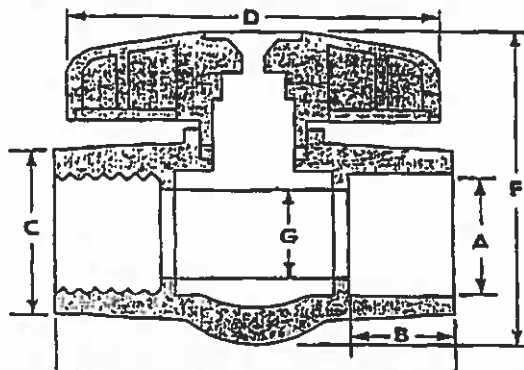
### 770 PVC BALL VALVES

are constructed of plastic materials to ensure corrosion resistance. The large port allows maximum flow with minimum pressure loss. The model 770 may be used on schedule 40 or 80 pipe.

### MATERIAL SPECIFICATIONS

PART	MATERIAL
Body	PVC
Seat seals	EPDM
Ball	PVC
"O" ring	EPDM
Handle	PVC
Screw	Zinc Plated
Cap	ABS

NOT RECOMMENDED FOR COMPRESSED AIR  
MAXIMUM SERVICE TEMPERATURE: 140°F



### DIMENSIONS

SIZE (inches)	A	B	C	D	E	F	G
1/2	0.85	0.88	1.17	3.10	3.26	2.46	0.55
3/4	1.06	1.00	1.49	3.54	3.79	3.10	0.77
1	1.33	1.12	1.79	3.96	4.17	3.70	0.97
1-1/4	1.67	1.25	2.18	3.96	4.26	3.96	1.14
1-1/2	1.92	1.37	2.43	4.29	5.11	4.54	1.42
2	2.39	1.50	3.03	5.30	5.79	5.30	1.83
2-1/2	2.90	1.75	3.63	6.70	8.04	6.28	2.37
3	3.54	1.87	4.17	8.80	9.03	7.51	2.98
4	4.53	2.25	5.31	10.85	11.83	9.27	3.97

**MATCO-NORCA INC.**  
Brewster, NY Houston, TX

BREWSTER: TEL: 800-431-2082  
HOUSTON: TEL: 800-935-5456

FAX: 914-278-9056  
FAX: 800-683-4247

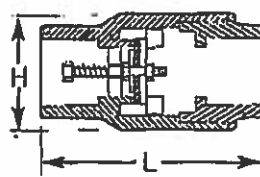
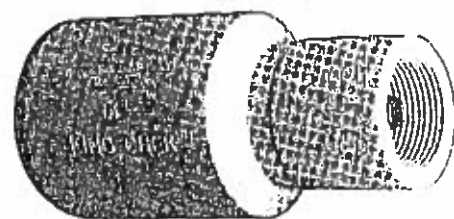
TOTAL P.01

	MODELS	
Size	Slip x Slip	FIPT x FIPT
1/2"	KC-0500-S	KC-0500-T
3/4"	KC-0750-S	KC-0750-T
1"	KC-1000-S	KC-1000-T
1 1/4"	KC-1250-S	KC-1250-T
1 1/2"	*KC-1500-S	KC-1500-T
2"	*KC-2000-S	KC-2000-T

USES: Any system where back flow is not desired. Spas, swimming pools, industrial and irrigation.

- 1/2" pound spring gives positive seal with no back pressure
- Complies with all applicable ASTM & ANSI standards.
- Made of High-Impact PVC Type II material.
- Reinforced Poppet For More Strength.
- UL recognized spa component. (\*)

## 1/2 LB SPRING CHECK VALVE



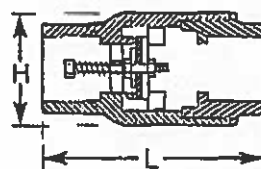
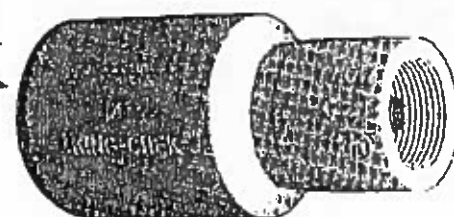
DIMENSIONS		
SIZE	L	H
1/2"	4.63	2.30
3/4"	4.63	2.30
1"	4.35	2.30
1 1/4"	5.32	2.75
1 1/2"	5.32	2.75
2"	5.90	3.35

	MODELS	
Size	Slip x Slip	FIPT x FIPT
1/2"	KC2-0500-S	KC2-0500-T
3/4"	KC2-0750-S	KC2-0750-T
1"	KC2-1000-S	KC2-1000-T
1 1/4"	KC2-1250-S	KC2-1250-T
1 1/2"	*KC2-1500-S	KC2-1500-T
2"	*KC2-2000-S	KC2-2000-T

USES: Any system where back flow is not desired. Spas, swimming pools, industrial and irrigation.

- 2 pound spring for extra back pressure.
- Complies with all applicable ASTM & ANSI standards.
- Made of High-Impact PVC Type II material.
- Reinforced Poppet For More Strength.
- UL recognized spa component. (\*)

## 2 LB SPRING CHECK VALVE



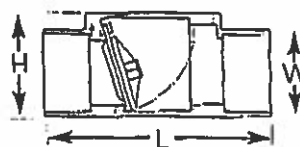
DIMENSIONS		
SIZE	L	H
1/2"	4.63	2.30
3/4"	4.63	2.30
1"	4.35	2.30
1 1/4"	5.32	2.75
1 1/2"	5.32	2.75
2"	5.90	3.35

	MODELS	
Size	Slip x Slip	FIPT x FIPT
1/2"	KSC-0500-S	KSC-0500-T
3/4"	KSC-0750-S	KSC-0750-T
1"	KSC-1000-S	KSC-1000-T
1 1/4"	KSC-1250-S	KSC-1250-T
1 1/2"	KSC-1500-S	KSC-1500-T
2"	KSC-2000-S	KSC-2000-T

USES: Especially useful in systems where fluid is corrosive or contains debris: industrial waste disposal, sewage, etc. EPDM swing gate lifts to provide unobstructed flow. There are no internal metallic parts to corrode. Only 1/2 pound back pressure is required for complete closure.

- Made of High-Impact PVC Type II material.
- Swing Check flow loss insignificant due to full flow design.
- Complies with all applicable ASTM & ANSI standards.
- Swing Check is not recommended to be installed with outlet side angled down or facing down.

## SWING CHECK VALVE



DIMENSIONS			
SIZE	L	H	W
1/2"	5.39	2.18	1.70
3/4"	5.39	2.18	1.70
1"	5.39	2.18	1.70
1 1/4"	6.31	2.80	2.33
1 1/2"	6.31	2.80	2.33
2"	6.65	3.28	2.30