



## C- Series

### Concrete Class I Wastewater Treatment Systems INSTALLATION & OWNER'S MANUAL

Model C-650

Model C-960

Model C-720

Model C-1100

Model C-850

Model C-1350

**Manufactured By**  
**PolyPure Systems, Inc.**  
**5610 N. US Hwy 287**  
**Alvord, TX 76225**  
**(940) 427-PURE (7873)**  
**[www.PolyPureUSA.com](http://www.PolyPureUSA.com)**



NSF/ANSI Standard 40-2023

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## INTRODUCTION

**PolyPure** models **C-650, C-720, C-850, C-960, C-1100 and C-1350** are certified based on provisions in ANSI/NSF Standard 40-2023 and are capable of producing an effluent which meets or exceeds the Standard.

Included in this owner's manual are PolyPure model numbers **C-650, C-720, C-850, C-960, C-1100 and C-1350** wastewater treatment systems.

State and/or local regulations govern the installation and use of individual aerobic wastewater treatment systems. All permits required by state and/or local regulations should be obtained prior to the PolyPure plant installation.

It is the responsibility of the **end user** (owner) to see that the PolyPure plant and associated auxiliary components are installed in accordance with all applicable laws, regulations and guidelines in effect in your respective state. Please consult your local regulatory authority prior to system installation.

### **POLYPURE® WASTEWATER TREATMENT SYSTEM PROCESS DESCRIPTION**

PolyPure series models of wastewater treatment systems are similar to large municipality sewage treatment plants. They use the activated sludge process to treat the wastewater. This type of treatment depends primarily upon the use of air that is introduced by air passing from the aerator compressor to two diffusers located in the forward section of the aeration mixing compartment.

Wastewater enters the pre-treatment tank. This anaerobic chamber allows larger solids to settle before the wastewater enters the aeration chamber. From here, wastewater enters the aeration mixing compartment.

The addition of air into the aeration compartment promotes the growth of aerobic organisms in much larger quantities than would occur naturally. These bacteria break down the organic solids in the wastewater.

From the aeration compartment, mixed liquid enters the settling or clarifier compartment from below a wall separation. No mixing occurs in this still zone where solids separate from the liquid and settle to the bottom of the clarifier and re-enter the aeration compartment. The liquid that separates from the solids in the clarifier continue to flow upward to the discharge pipe.


From the plant's discharge pipe, the final effluent then passes through a disinfection or chlorination device into the pump tank compartment for storage and contact mixing. The treated and disinfected effluent is then safely discharged, via an application pump, to a surface spray, subsurface drip, low pressure dose or absorptive mound disposal area.

The **PolyPure** models **numbers C-650, C-720, C-850, C-960, C-1100 and C-1350** are concrete tank configurations of up-sized dimensions, partitioned by internal dividing walls in the treatment plant. They are comprised of a pre-treatment chamber, an aeration mixing zone, a settling or clarifier compartment and a rear pump tank compartment.

The result of the PolyPure process is a clear, odorless effluent discharge, which meets and exceeds state and national water quality standards.


## DATA PLATES

The following data plates should be located on the aerator and audio/visual alarm:




**MODEL C-650 | CLASS 1 SIZE 650 GPD**

Certified to NSF/ANSI Standard 40  
Alarm Mute and Serial # located on side of box  
For service call your local service provider



5610 N US HWY 287  
Alvord, TX 76225

(940) 427-PURE  
PolyPureUSA.com



**WARNING!**  
Electrical Hazard  
Authorized Personnel  
Only

Non-Potable Water  
DO NOT DRINK

**POLYPURE**  
Systems, Inc.  
**MODEL: C-650**  
**SERIAL # C650-XXXX**

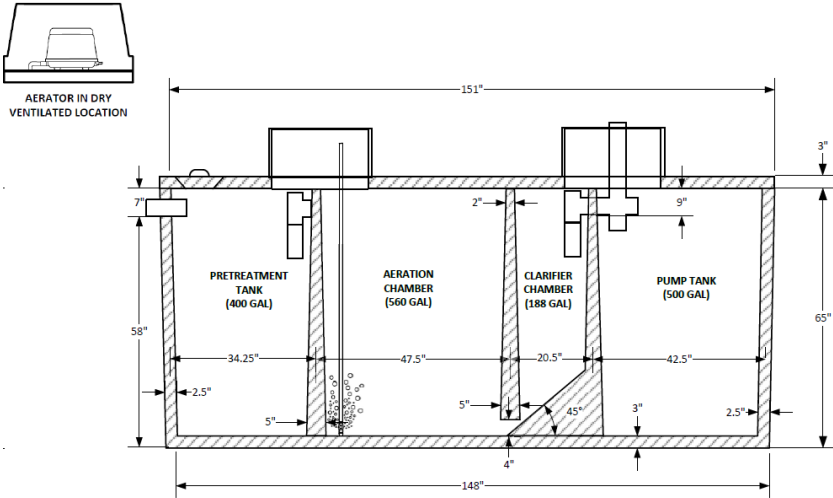
## SPECIFICATIONS

PolyPure 650 GPD, single family residential wastewater treatment system	
Treatment capacity/class	650 Gallons Per Day/Class 1
BOD Loading	650 GPD 1.6 lbs./day
Electrical requirements	115 Volts 50/60 Hz
Aerator	Hiblow HP100

## COMPONENTS AND MATERIALS

Tank Material	Concrete
Risers	2 - 24" Risers
Air Pump	Hiblow HP100 Linear blower
Electrical alarm and sensor	High water audible/visual
Diffusers	Dual Hiblow TP-250

## POLYPURE DESIGN DRAWING



Model	Capacity GPD	Trash Tank (Gallons)	ATU (Gallons)	Clarifier (Gallons)	Pump Tank (Gallons)	Hiblow Aerator	FujiMac Aerator
C-650	650	400	560	188	500	HP100	100RII
C-720	720	415	580	198	778	HP100	100RII
C-850	850	400	694	262	750	HP120LL	120RII
C-960	960	650	700	280	900	HP120LL	120RII
C-1100	1100	Separate	858	297	1096	HP150	150RII
C-1350	1350	Separate	1063	357	Separate	HP200	200RII

## POLYPURE PLANT INSTALLATION INSTRUCTIONS

1. Inspect entire treatment plant and components including in-tank PVC pipes.
2. Select location of plant site which is accessible to the home sewer discharge line, at least ten (10) feet from the home foundation, in an area that will not receive vehicular traffic. Prepare an excavation site by digging a hole at least one (1) foot larger than the treatment plant and a depth that will allow for sufficient coverage leaving approximately three (3) inches of the inspection port to extend above normal ground level. The depth of the plant will be controlled by the depth of the building sewer outlet line plus the amount of proper fall required from the building sewer outlet line to the inlet invert of the plant. The concrete tank is designed to support a maximum of 36" of backfill on top of the tank. The prepared excavation should have a solid, level bottom that will eliminate plant settling. Additionally, the bottom of the excavated hole should be free of rocks or sharp objects. Carefully backfill around the unit, compacting the soil as well as possible, leaving the inlet and outlet holes open for connections. Special care should be taken not to damage the tank or dislodge the piping. Backfill material should be void of heavy clay, large rocks or any type of material which might damage the tank or piping. **The unit must be anchored with sufficient methods to prevent tank flotation in wet conditions.**
3. Carefully lower the concrete treatment plant into the excavation. The inlet line should slope down toward the plant and the outlet line should slope down away from the plant. The plant should be level to within one (1) inch, edge to edge. PolyPure wastewater treatment plants should only be connected to properly trapped and vented plumbing systems in compliance with state and local plumbing codes.
4. Position the inlet and outlet lines and make the necessary connections. Clean-outs should be installed at building sewer tie-in and any changes in direction of flow. Attach the inlet piping to the treatment plant's inlet. Insert and glue the outlet piping into the plant's outlet.
5. Remove the treatment plant's top access port opening to the forward section of the aeration mixing compartment. Install the factory provided air diffusers by gluing a joint of 3/4" Sch. 40 PVC pipe (provided by others) to the 3/4" Sch. 40 PVC tee fitting in the center of the diffuser assembly. The 3/4" Sch.40 PVC pipe should be of sufficient length to allow the 3/4" pipe to extend through the treatment plant's top. Lower the air assembly through the access opening to the bottom of the aeration mixing compartment. Adjust the placement of the air diffuser assembly so that it is in the forward center of the plant's aeration mixing compartment about four (4) inches off of the wall. Fill the tank with water to the point of flowing discharge
6. The aerator compressor must be installed in a well ventilated, relatively clean and dry location. Install the aerator compressor on the treatment plant's tank top or at a remote location no more than seventy-five (75') feet from the treatment plant. The aerator compressor is supplied complete with all discharge fittings. Install 3/4" Sch. 40 PVC piping (supplied by others) between the aerator and treatment plant. A minimum of twelve (12) inches ground cover is recommended over the 3/4" Sch. 40 PVC air line.
7. The electrical control for the aerator compressor, visual and audible alarms for aerator failure and high water conditions are contained in a weather proof enclosure. It may be installed in any above ground area where the alarms are easily noticed by the occupants. It is recommended that the control box be at least twelve (12) inches above ground level and in view of the aerator compressor and other electrical components. All electrical wiring should be installed by a qualified person and must comply with local electrical codes.

8. Install electrical wiring (provided by others) to connect the aerator compressor, pumps and alarms to the electrical control panel. A minimum of twelve (12) inches of ground cover is recommended over underground electrical conduit and wiring.
9. The aerator compressors used on PolyPure wastewater treatment plants run continuously. They provide quiet, energy efficient operation. Once properly connected, the electrical control box is to be closed. Operate the aerator compressor by placing the on/off electrical circuit (provided by others) in the "ON" position.
10. Turn on aerator compressor and check all air piping and fittings for leaks. If a leak is detected, proper repairs should be made.
11. Carefully backfill all underground lines and the rest of the plant's excavation in a manner which will not cause damage to the completed installation. Riser extensions should be installed and sealed to be water-tight to prevent groundwater infiltration into the system.
12. The PolyPure system is now ready to receive incoming sewage.

## **POLYPURE PLANT START UP**

Initially the PolyPure wastewater treatment plant is filled with clean water, usually from the owner's water supply. As stated in the installation instructions, once all proper connections have been completed and it is filled with water and the aerator turned on, the system is now in operation. For the treatment plant to be biologically stable, it will take from four to sixteen weeks after first using the plant to develop a population growth of bacteria. It is these bacteria which make the treatment system operate.

## **OWNER MAINTENANCE CARE AND OPERATION INSTRUCTIONS**

PolyPure systems have been designed and built by **PolyPure Systems, Inc.**, to provide long term, reliable and affordable service. Our treatment plants will operate with a minimum amount of attention. If service is required, reference the system's DATA PLATES located on the control panel or aerator compressor for the plant's model number, the name, address and phone number of the local service person that can provide service. The following procedures should be performed on a routine basis to insure proper plant operation:

1. Check warning light and audible alarm located on the plant's control panel for air supply malfunction or in system high water indication. If an alarm on condition is observed, it is an indication of malfunction. First check the electrical circuit providing power to the system to ensure the circuit is closed. After a power outage, an alarm condition may exist. Should an alarm remain on for more than sixty (60) minutes after power is restored, you should call your local service provider to report the alarm.
2. Check the treatment plant for offensive odor. If present call for service.
3. Check and clean the air filter on aerator compressor. Rinse with warm water to clean if necessary. Make sure filter is dry and re-install on aerator compressor.
4. It is recommended that solids removal take place every two (2) to five (5) years. Determination of the need for pumping can be made only by a trained service person by testing the tank contents and/or effluent.
5. If equipped, check and adjust disinfectant as required.

**WARNING** - Tank flotation may occur whenever tanks are pumped, especially when the ground is saturated. Additionally, care should be taken not to damage internal component parts. A certified PolyPure service technician should oversee tank pumping.

## **OWNER'S RESPONSIBILITIES**

It is the *owner's responsibility* to operate the PolyPure wastewater treatment plant to the best of their ability. To keep maintenance to a minimum and ensure high effluent quality, the following items should not be permitted to enter the treatment plant:

1. Strong disinfectants or bleaches, other than small amounts used in day to day house cleaning and laundries. Low phosphate products should be used. Anti-bacterial soaps should be avoided.
2. Discharge from any type of water softeners.
3. Acidic products, coffee grounds, chemical wastes, paint or paint thinners, oils or grease, automotive fluids or any other toxins.
4. Disposable diapers, tampons, sanitary napkins, large quantities of paper products, tobacco products, or similar items. Home brewery waste, strong medicines and antibiotics.
5. Use of a garbage disposal is not recommended. Food waste represents additional loading to the aerobic treatment unit and will increase pump out intervals.
6. The PolyPure wastewater treatment plant is designed for the treatment of domestic wastewater and nothing else should go into it. During extended periods of intermittent or non-use, such as vacation time, the aerobic bacteria inside the plant will decrease due to no food in the form of incoming wastewater. The treatment plant will become biologically stable again soon after the resumption of normal loading. The aerator compressor should be left on during periods of vacation time. During extended periods of absolute non-use (3 months or longer) the aerator compressor should be removed, cleaned and stored with the compressor's inlet and outlet sealed. Additionally, the air line piping should also be capped to prevent debris from entering air distribution system. The PolyPure plant will not perform to its fullest capabilities if subject to hydraulic overloading. This condition exists whenever excessive water, above the plants designed treatment capacity, is allowed into the plant. Leaking plumbing fixtures or excessive water use may cause this condition. Hydraulic overload may also occur on wash days, when multiple loads of laundry are washed in succession. **PolyPure Systems, Inc.** is not responsible for the infield operation of our plants. The proper operation of this wastewater treatment plant depends upon proper organic and hydraulic loading of the plant. We cannot control the loading of substances in our plants that may upset its biological balance. We can only provide a complete owner's manual which outlines materials that should be kept out of the treatment plant. User operation instructions must be followed or warranties are subject to invalidation.

**WARNING** - Ants and rodents are destructive to the mechanical and electrical equipment on wastewater treatment plants. Care should be taken to prevent infestation of ants near the plant. Damage or destruction of mechanical or electrical equipment by ants or rodents is not covered under manufacturer's warranty. Any and all safety requirements such as the electrical wiring, blower operation or plant discharge concerning the owner, their families, friends, or guests is the sole liability of the owner (see warranty and service policy). The electrical control panel contains a schematic for the system. However, the electrical control panel is sealed and contains no user serviceable parts. Test and alarm silence switches are located on the outside of control panel.

**WARNING** - Service to the electrical control panel by non-qualified person may result in an electrical shock hazard resulting in serious injury or death. If service is required contact your local authorized installer representative or maintenance provider.

## **INITIAL SERVICE POLICY**

The local dealer/installer from whom you purchased your **PolyPure** wastewater treatment system is responsible for routine inspections for the first two years from the original date of installation. The plant will be checked for proper operation at each inspection. If a problem exists, service will be performed at no charge to the owner unless the required maintenance is not warranty related. These service call/inspections shall include at least six inspections over the two year period and shall include the following:

1. Adjustment of the electrical control, if applicable, and servicing of the mechanical component parts to ensure proper function.
2. An effluent quality inspection consisting of a visual check for color, turbidity, scum overflow, and an examination for odors.
3. Immediate notification to the owner/warrantee in writing of any improper observation which cannot readily be repaired. This notification will or shall advise said owner of the problem, if it is covered by warranty and estimated date for correction of said problem.

Pumping of sludge build up from the treatment plant, if necessary, **IS NOT INCLUDED** in the initial service policy.

## **EXTENDED SERVICE POLICY**

An extended service policy with terms comparable to those in the initial service policy is available. Contact your local dealer for price and details.

## **TROUBLE SHOOTING**

### **System has offensive odor:**

Check list and assure that no chemicals listed have been permitted to enter the system. Check for proper operation of the aerator including a restricted filter. Check for standing effluent that fails to run off, it is possible for standing effluent to become stagnant. Check to see if system has been pumped within the last five years. Check water level in system to ensure that level is not above the system baffle allowing solids to enter the clarifier chamber.

### **Aerator is not working:**

Check for proper wiring and connections. Check circuit breakers for failure. If the prior remedies are not sufficient, replacement might be necessary.

### **System is not aerating:**

Check aerator for operation. Check aerator filter element for restrictions. Check air lines and diffusers for proper connections or restrictions.

**System is not flowing properly:**

Check discharge point for restrictions. Check clarifier assembly for restrictions, this may be accomplished through the rear access port. If applicable, check chlorinator for restrictions. Check system for non-biodegradable items, if found, system will need to be pumped for proper operation in the future.

**Soil around system is settling:**

Settling is normal following installation. If settling occurs years after installation, have the system checked for structural integrity and correct if necessary.

**Audible/visual alarm sounds:**

Check water level. Verify that aerator is functioning. Check for dislocated air lines. If all appears normal, alarm may need to be replaced.

**Aerator is loud:**

Linear compressors are made to function quietly. If the following remedies do not correct the problem, the aerator may need to be replaced. Check for vibrations against solid structures. Check filter cover for proper torque.

## REPLACEMENT INSTRUCTIONS

**Treatment Unit Replacement:**

Should conditions necessitate the replacement of the entire PolyPure treatment unit, the procedure should be performed as follows:

- The existing treatment unit should be abandoned according to State and/or local regulations
- The new treatment unit should be installed according to the PolyPure Plant Installation Instructions

**Aerator Replacement:**

- Disconnect power supply to aerator
- Disconnect wires from the control box terminals and remove the rubber hose connections from the aerator
- Remove existing aerator
- Clean debris from compressor housing and take special care to ensure that debris does not enter the air line
- Install new aerator and reconnect wires to the control box terminals and reattach rubber hose connections
- Turn on aerator compressor and check all air piping and fittings for leaks. If a leak is detected, proper repairs should be made

**Pump Replacement:**

- Disconnect power supply to pump and alarm circuit
- Loosen union in tank and pull pump
- Remove existing pump and disconnect pump from supply wires in the junction box
- Install new pump

- Reconnect supply wires in junction box
- Place pump in tank and reconnect union
- Turn on pump and check all piping and fittings for leaks. If a leak is detected, proper repairs should be made

#### **Control Box Replacement:**

- Disconnect power supply to control box
- Remove wires from terminals taking special note of wire locations for reconnection
- Remove hardware securing the control box
- Remove existing control box
- Install new control box
- Reconnect wires taking care to ensure that wires are connected to the proper terminals
- Restore power and test control box for proper operation
- Seal conduits in box to prevent chlorine gas from entering the control box and damaging components

#### **Diffuser Replacement:**

- Disconnect union in tank and remove air line
- Unscrew diffuser bars from diffuser assembly
- Install new diffuser bars
- Place air line back in tank and reconnect union
- Check for air leaks. If a leak is detected, proper repairs should be made

## **REPLACEMENT PARTS**

Replacement parts may be obtained from your local installer or from

**PolyPure Systems, Inc.**  
**5610 N. US Hwy 287, Alvord, TX 76225**  
**Office: 940-427-PURE (7873)**  
**E-mail: [service@PolyPureUSA.com](mailto:service@PolyPureUSA.com)**

## LIMITED WARRANTY

**PolyPure Systems, Inc., PolyPure** (hereinafter identified as manufacturer) warrants each PolyPure wastewater treatment plant **to the original purchaser only** to be free from defects in materials and workmanship from the date of installation by an authorized dealer/installer for a period of two (2) years. Electrical controls, float switches and application pumps provided by the manufacturer are warranted for two (2) years. Concrete tanks are limited to two (2) years from date of installation. When properly installed and **registered** with the manufacturer, the manufacturer's sole obligation under this **limited warranty** is as follows:

To repair or exchange any components, F.O.B. factory, that in the manufacturer's judgment is defective, provided that said component part has been paid for and is returned through an authorized dealer, transportation prepaid. The warrantee must specify the nature of the defect in writing to the manufacturer. The **limited warranty** makes no provision for any informal dispute settlement agreement.

The **limited warranty** does not cover any PolyPure advanced wastewater treatment plant that has not been properly installed, damaged due to altered installation or improper wiring or overload protection, flooded by any external means, disassembled by any unauthorized person, filled with anything other than normal household wastewater, floated due to improper anchoring or damaged by an act of nature. The **limited warranty** does not cover damages or defects caused by ants, insects or rodents to any component part of the PolyPure wastewater treatment plant.

Recommendations for special applications will be based on the best available expertise of the manufacturer and published industry information. Such recommendations do not constitute a warranty of satisfactory performance. No warranty is made as to the field performance of any system.

The **limited warranty** applies only to the PolyPure wastewater treatment plant itself and does not include any of the purchaser's plumbing, drainage and/or disposal system, house wiring or the installation of the PolyPure treatment plant. Site specific designs of treatment and disposal systems, including treatment plant and disposal system sizing is not the responsibility of the manufacturer and is not covered by this **limited warranty**.

The manufacturer reserves the right to revise, change, or modify the construction and design of the PolyPure wastewater treatment plant, or any component part or parts thereof, without incurring any obligation to make such changes or modifications in equipment previously sold. The manufacturer also reserves the right, in making replacements of component parts under this **limited warranty**, to furnish a component which, in its judgement is equivalent to the part replaced.

To the extent that the **limited warranty** statements herein are inconsistent with the locality where Purchaser used the PolyPure system, the warranties shall be deemed to be modified consistent with such local law. Under such local law, certain limitations may not apply. For example, some states in the United States and some jurisdictions outside the United States may: (i) preclude the disclaimers and limitations of these warranties from limiting the rights of a consumer; (ii) otherwise restrict the ability of a manufacturer to make such disclaimers or to impose such limitations; or (iii) grant the consumer additional legal rights, specify the duration of implied warranties which the manufacturer cannot disclaim, or prohibit limitations on how long an implied warranty lasts.

In no event and under no legal theory, including without limitation, tort, contract, or strict product liability, shall the manufacturer or any of its suppliers be liable to the other party for any indirect, special, incidental, or consequential damages of any kind, including without limitation, damages for loss of goodwill, delays or damages caused by defective components or materials which cause losses incurred by interruption of service or any other kind of commercial damage, even if the other party has advised the manufacturer of the possibility of such damages.

