

# Installation, Operation and Maintenance Instructions

## Important

- To prevent injury to personnel and damage to the machine, please read these instructions before operating the CleanStation™.
- Upon receipt, inspect for obvious defects that may have occurred during shipping. Report any damage to the carrier and PM Technologies immediately.
- **Always wear gloves and safety goggles when operating your CleanStation™.**
- Your CleanStation™ is designed to remove WaterWorks™ soluble support material from FDM® parts; if used for any other purpose, the warranty is void.

The tank and lid get hot after extended operation. Use caution to avoid burns.

## Installation

### Drain Connections

Facing the rear of the machine, the drain is located at the left rear of the unit (see Figure 1). A Ø1-inch pipe coupler is provided for the main drain. A Ø1.5-inch pipe coupler is provided for the over flow drain. ( Drain and fill lines are designed for use with 1 and 1.5 inch EPDM hose.) These connections must be secured with appropriately sized stainless steel hose clamps.

A shutoff valve is not recommended for either the drain or overflow lines. If one is installed, make sure the valve is open at all times while operating the CleanStation™.

**Caution:** drain hoses may be under pressure when in use and must always be restrained.

### Water Supply Connection

The Inlet for the water supply is located at the rear of the unit (see Figure 1). A Ø1.5-inch pipe coupler is provided for the water supply.

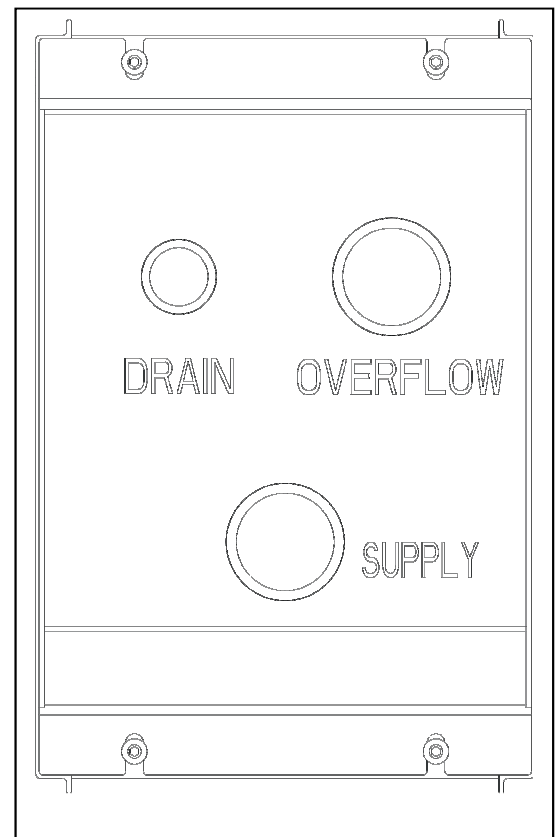


Figure 1. Plumbing Connection Panel

**Power requirements**

The CleanStation™ XL Plus operates on 240-volt 3-phase, 3 wire with a ground no neutral, 51FLA, 70-amp service.

**Operation**

**Adding water to the tank**

The Fill Valve is located on the Valve Control Panel at the front of the unit behind the right door (see Figure 2). To add or fill the tank with water, turn the Fill Valve to the “On” position.

**IMPORTANT:** Never leave the Fill Valve unattended. Turn the fill valve to the “Off” position when not in use. In the event of overflow, the water will drain down the overflow, but it may not keep up with the rate of fill.

Fill the tank until the water is about 3 inches from the top of the tank.

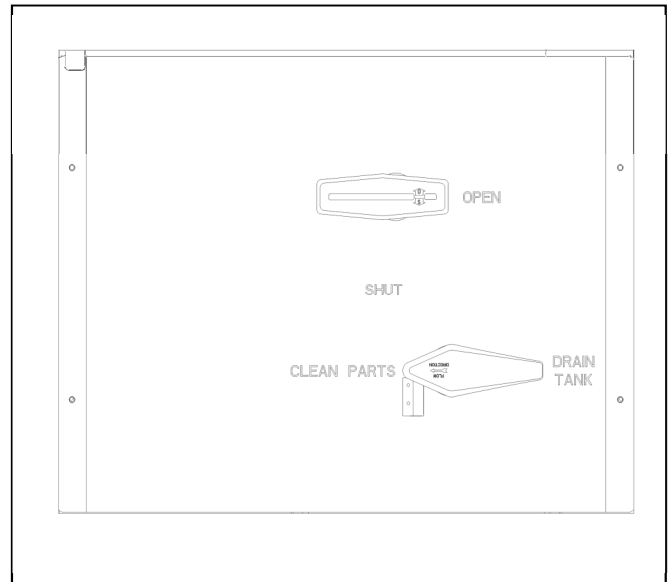



Figure 2. Valve Control Panel


**Note:** There is a low level cut-off switch approximately 3 inches from the top of the tank. The machine will not operate if the solution level falls below this switch.

**Running the machine:**

The Electrical Control Panel is located at the front of the unit behind the left door (see Figure 3). It contains the Selector Switch, and the temperature controller. **IMPORTANT:** Make sure the Selector Switch and Control Valve are both turned to “Clean Parts” mode marked with matching green circular labels before cleaning parts (see Figure 2 and Figure 3).

Turning the selector switch to "Clean Parts" powers the controller. The Controller is preset to run for four hours and heat the water to a constant 150° F. When the Controller activates, it will display the tank temperature for 15 seconds and then display time remaining. To display the current water temperature, press and release **SET** on the controller. (See Figure 5) The **OFF** that is seen when pressing and holding **SET** is the low temperatures set point and must remain off to avoid damaging the machine.

Press  to start the pump and heater.

Press  to stop the pump and heater.

**WARNING:** turning the pump on and off more than 6 times in an hour may damage the pump motor.

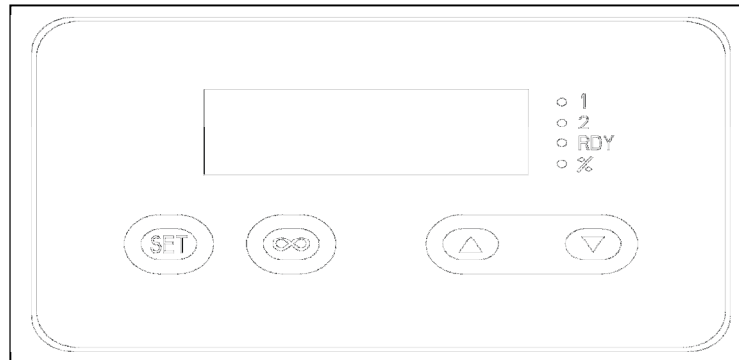













Figure 5. Controller Detail

To set the temperature to a lower or higher setting, follow this procedure:

- press  to start the machine.
- press and hold  and use  or  to select the desired temperature.

To set the timer to the desired run time, follow this procedure:

- Hold the  for 2 seconds. When *OPER* is displayed release the . Press  to display hour *hour* and minutes *min*.
  - Press and Hold  while using the  and  keys to adjust the desired run time.
- 3) Press  to exit the menu.

The controller is preset to run for four hours. Support removal typically takes less than two hours, but variables such as warm up time, the relative freshness of the Soluble Concentrate solution, and part geometries will often increase your post processing time. Batch processing will not increase any individual parts post-processing time.

After the timer is set, start the pump and heater by pushing the down arrow key on the controller. The up arrow key stops the pump and heater.

**IMPORTANT:** To power off the CleanStation™ at any time, turn the Selector Switch to the “Off” position.

Once the CleanStation™ is running, it will continue to run until the timer counts down to zero, or until the Selector Switch is turned to the “Off” position, or until the water level drops below the minimum level. Then, the system shuts off automatically.

It is recommended that the lid be closed while the CleanStation™ is running. This helps to reduce the amount of water lost to evaporation.

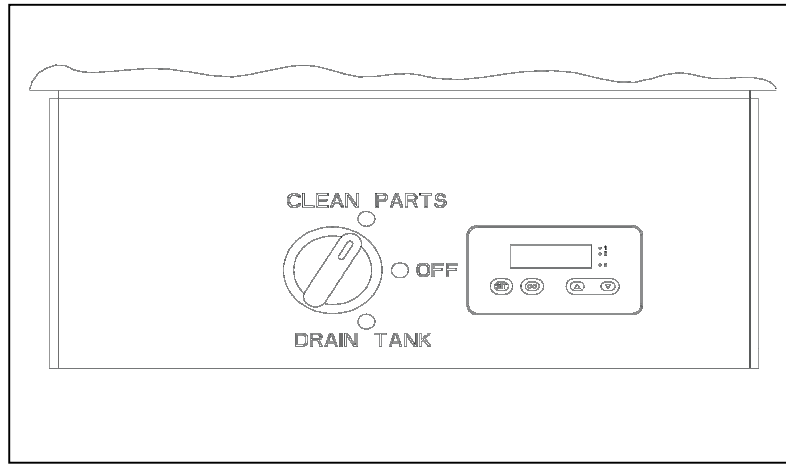


Figure 3. Electrical Control Panel

### Variable Flow Feature

To prevent damage to thin walled or fragile parts, the machine is plumbed with an internal diverter system that allows users to reduce primary manifold flow rates of up to 50%. (Figure 4.) “The “Shut” position is the normal operating position where 100% of the pumps flow is channeled through the multi-level manifold. The “Full” position represents a full safe reduction of flow rate. This position will bottom out against a hard stop to prevent excessive pump cavitation.

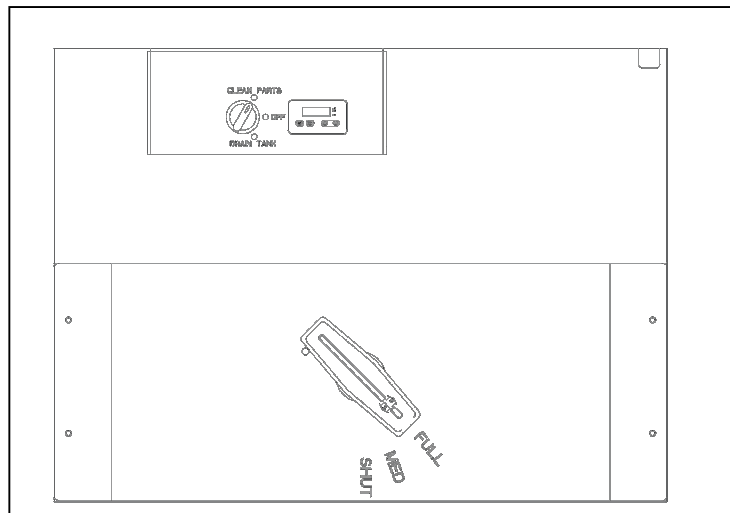


Figure 4. Flow Reduction Valve

## Adding the Soluble Concentrate

Fill the tank with fresh water using the Fill Valve. Turn the Selector Switch and Control Valve to “Clean Parts” mode marked with matching green circular labels. Push the down arrow key on the controller to start the pump and heater. Once the water rises to 150° F, add the Soluble Concentrate. This procedure flushes the pump (see Maintenance section).

**IMPORTANT:** Always wear gloves, safety goggles, and other personal protective equipment when handling Soluble Concentrate. Always add the Soluble Concentrate to the full and heated tank of fresh water. Always follow the instructions on the bottle.

Add nine (9) bottles of the powdered concentrate into the tank while the pump is recirculating the water. Most of the concentrate will dissolve in 3 to 5 minutes.

When operating your CleanStation, check the tank periodically for evaporation. If the water level drops 3 to 4 inches below the top of the tank, add more water. When replacing water lost due to evaporation, it is not necessary to replenish the Soluble Concentrate.

## Adding and removing parts

**IMPORTANT:** Always wear gloves when adding or removing parts from the tank.

Open the lid and latch it in the upright position. Hoist the basket by the ring bolts if necessary. Parts may be run with or without the basket.

**Note: special care must be taken not to block the drain on the bottom of the tank. One user running the machine with a large flat model without the basket experienced catastrophic failure when the model was sucked over the drain, momentarily starving the pump and flashing the circulation heater chamber into steam. This is very bad. Your machine will make unusually loud and scary noises and someone will be very unhappy to receive the very large repair bill.**

Parts may also be removed using large stainless steel or plastic tongs. Do not use aluminum tongs.

Rinse parts with water until surface does not feel slippery. Dry parts with paper towels or let air-dry.

## Disposal of Soluble Solution

Cleaning times are faster with fresh cleaning solution. Change the solution whenever the water gets to be a dark, coffee color or cleaning times become noticeably longer.

### Method 1: Dilution

The active ingredient in Soluble Concentrate is Sodium Hydroxide, making it essentially a highly alklyn, very powerful soap. Used solution is typically disposed of by pouring it down the drain. The solution is highly corrosive to ferrous metals as well as brass and copper. If only to protect your plumbing, a 5-to-1 dilution is required to reduce the pH to typical wastewater standards. (pH 9 or below)

### Method 2: Neutralization

An alternative method to dilution is neutralizing the Ph content with malic acid. Add 100-ounces of malic acid to the tank before draining. Litmus paper or an alternative Ph indicator can be used to determine if the Ph value of the solution is within acceptable wastewater standards.



The Stratasys soluble solution is specially formulated to be safely disposed of by standard wastewater disposal procedures. PM Technologies and Stratasys cannot anticipate local, state or international regulatory statutes. PM Technologies and Stratasys recommend that disposal procedures be verified by the proper authorities in your region. PM Technologies and Stratasys cannot be held liable if the solution is not disposed of properly.

#### 1. Draining the tank

**IMPORTANT: The tank pumps down at roughly 50 gallons per minute. Unless equipped with an optional drain restriction valve, you are probably going to need a chemical resistant vessel to drain into. Also, make sure the end of the drain pipe is securely restrained.**

First, set Control Valve to “Drain Tank” mode marked with matching blue circular labels before draining the tank (see Figure 2 and Figure 3).

Next, set selector switch to “Drain Tank”; this powers the pump and begins draining the tank. When the tank is emptied as much as possible, turn the Selector Switch to the “Off” position.

The Control Valve may be harder to turn when switching from “Clean Parts” to “Drain Tank” mode if the valve has not been used in a while. This is due to the cleaning solution crystallizing on the ball valve causing extra friction. Once the valve is turned, the water lubricates and frees up the valve.

If neutralizing the bath with malic acid, there may be a filmy residue remaining in the tank. Wipe this up with paper towels and dispose of it.

## Maintenance

### Flushing the pump

The CleanStation™ requires very little maintenance. We recommend flushing the pump each time the tank is emptied. To flush the pump, follow the procedure outlined in “Adding the solution concentrate” on page 4. Filling the tank with fresh water and heating it up to operating temperature while the pump is running before adding the new concentrate, will rinse the pump seals and help to inhibit build up on the impeller.

For technical support call: 763-425-1383 ext.303

If your CleanStation is no longer under warranty, there may be a charge for these calls. Customers will be made aware of these charges at the time of call.

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## Warranty

PM Technologies warrants that the CleanStation™ part cleaning system will be free of defects in materials and workmanship for a period of one year from the date of shipment. If the product proves defective during the warranty period PM Technologies will:

- Provide telephone or email support to diagnose and troubleshoot the issue.
- Exchange defective components for appropriate replacement parts. Note: customer pays for shipping.
- Provide additional remote support to assist with the installation and/or repair.

Under this product warranty, the Customer must notify PM Technologies or its authorized service representative of the defect before the expiration of the warranty period. To obtain service under this warranty, the Customer must first contact PM Technologies Telephone Support personnel. Telephone Support personnel will work to resolve issues professionally and quickly, however the Customer must reasonably assist PM Technologies or its authorized representative.

In the event that remote support proves unsuccessful and further work is required, the machine may be returned to the factory for further service at the customer's expense.

All defective parts and assemblies become the property of PM Technologies. PM Technologies, at its option, may request the return of these parts.

Doing any of the following voids the warranty: 1) Any failure of the product due to negligence or misuse by the Customer. 2) Using the machine for anything other than its intended purpose or changing anything that results in a failure. 3) Changing any control parameter other than time and temperature (do not exceed 185 degrees). 4) Running the machine with its filter off. 5) Using chemicals that have not been pre-qualified by PM Technologies. The Customer is expected to follow the guidelines for operations stipulated in the Installation, Operation, and Maintenance Instructions.

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