

PONDMASTER® PRESSURIZED FILTER SYSTEM I N S T R U C T I O N S

FOR USE WITH MODEL NUMBERS: PUV-4000 – (UPC 05045), PUV-2000 – (UPC 05025), PUV-1000 – (UPC 05015), P-4000 – (UPC 05040), P-2000 – (UPC 05020), P-1000 – (UPC 05010)



HOW FILTRATION WORKS

Both biological and mechanical filtration are essential for every pond; without them, your fish would be harmed by ammonia generated from the accumulated fish waste. The beneficial bacterial bed that builds on the filter media nitrifies any ammonia in the pond making it a healthier environment for aquatic life. Mechanical filtration eliminates debris that is in suspension in the pond water, keeping it cleaner and clearer.

Biomechanical filtration depends on the establishment of a colony of bacteria on the surface of the media that converts dissolved toxic nitrogenous waste to harmless compounds. When the bacteria are given the proper environment, they grow in a thin biofilm on the surface of each piece of media. The larger the surface area of the media, the larger the bacterial colony.

The media must first establish itself to handle the load of dissolved ammonia. Depending on the water temperature, it can take 2-4 weeks for the filter to establish itself in the pond environment. The time required varies depending on climate, weather conditions, fish load, and feed rates. Until the colony has grown large enough, the pond owner must take care to monitor the levels of ammonia

and nitrates in the water and take appropriate measures to correct any dangerously high levels.

The ultraviolet clarifier/sterilizer (UV) produces a wavelength of light that inhibits algae from reproducing by damaging its DNA. It also kills parasites in the water. Please note UV light does not kill the string algae that cling to the sides of ponds. If your pond has string algae, you can add barley wheat, a natural way to solve this problem.

**WARNING! TURN OFF THE POWER BEFORE HANDLING OR SERVICING THE UNIT.
DANGER! NEVER LOOK DIRECTLY AT THE UV LAMP RAYS.**

CHOOSING THE CORRECT PUMP

The pump should be sized so that it can circulate the capacity of the pond in 1-1/2 hours. It should have a minimum head height of 10' and a maximum of 25'. The following matrix can be used as a guide in determining pump sizes.

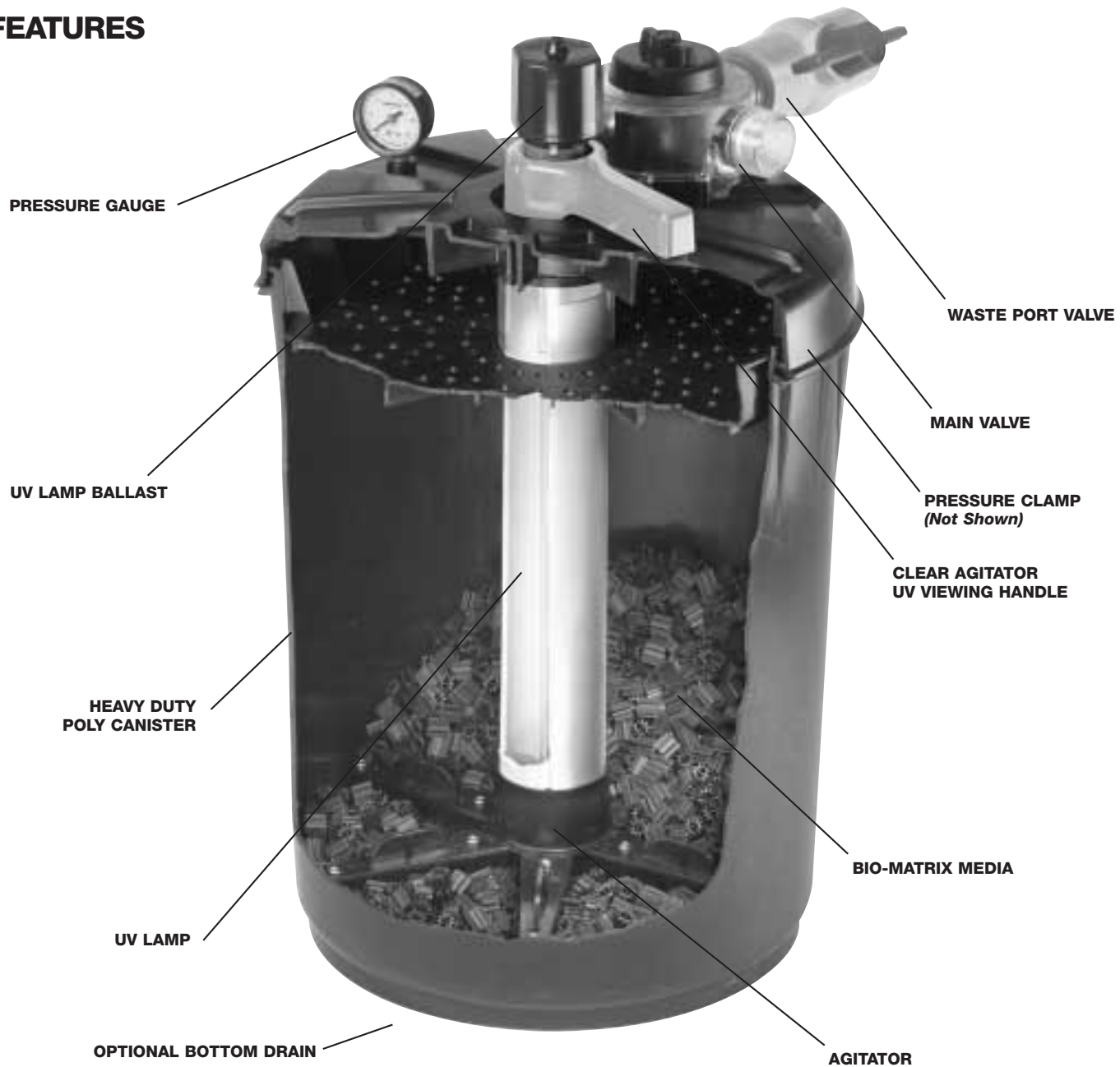
POND SIZE (GALLONS)	PRES. FILTER	PUMP (GPH)	HOSE SIZE (ID INCHES)
1000	P1000 or PUV1000	2000	1-1/2"
2000	P2000 or PUV2000	3000	1-1/2"
3000	P4000 or PUV4000	3000	2"
4000	PUV4000	4000	2"

CONSIDERATIONS: In all cases 1-1/2" or 2" ID hose, as noted, is used on the complete system. In computing this simplified matrix, we have factored in water flow losses due to friction, length of the hose run, and the difference in the height of the waterfall above the pressurized filter.

We recommend our Mag-Drive 2400, 3600, 5000 submersible pumps; our WFP2000 or WFP 3000 waterfall pumps; or our single-speed X-2520, X-4140, or X-6120 X-Series External Pumps.

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FEATURES



- **PRESSURE GAUGE** – Gives visual reference of filter pressure indicating time to backwash.
- **UV LAMP BALLAST** – Convenient ballast design can be removed for quick easy lamp replacement from top of the filter. Can be simply retrofitted to units without UV.
- **CLEAR AGITATOR UV VIEWING HANDLE** – Dual purpose clear handle manually activates agitator and also allows safe viewing and confirmation of proper UV lamp status.
- **MAIN VALVE** – Unique, patent pending 3-way main valve offers run, backwash, and rinse settings. No other unit has rinse cycle available.
- **PRESSURE CLAMP** – Stainless Steel Pressure Clamp.
- **HEAVY DUTY POLY CANISTER** – Weatherproof canister can be buried for hidden installation.
- **WASTE PORT VALVE** – Convenient ball valve directs waste water into garden when rinsing or backwashing.
- **UV LAMP** – Efficient, UV clarifier utilizes a long, slim lamp that allows the water to pass closer to the lamp giving more contact time with the rays.
- **AGITATOR** – Unlocks waste from media saving the amount of water discharged during backwash and rinse cycles using a low-pressure pump.
- **OPTIONAL BOTTOM DRAIN** – Optional field installed bottom drain available.
- **BIO-MATRIX MEDIA** – Reusable media affords maximum surface area for beneficial bacterial growth.

FILTER OPERATING INSTRUCTIONS

FILTER LOCATION

The filter should be located at the highest point of elevation around the pond. This is usually near the waterfall. The mound of earth that creates the waterfall is a useful feature to hide the filter. It is important to mount the filter at the highest elevation because then only one check valve is needed and, if there is a bottom drain installed, it will help gravity drain the filter. It is recommended that the filter be buried at least half way into the ground. Dig a hole and bury the drum. Leave the rim at least 2-3 inches above the ground. Position the filter so that the piping connections and unions, control valve, and winter drain (if installed) are convenient and accessible for operation, service, and winterizing (if needed). For best results, a bottom drain is recommended. This can be purchased from your dealer (Danner Item #15010). Mount bottom drain according to the instructions that are included with the kit.
(See Page 7 for typical installation diagrams)

OPERATION

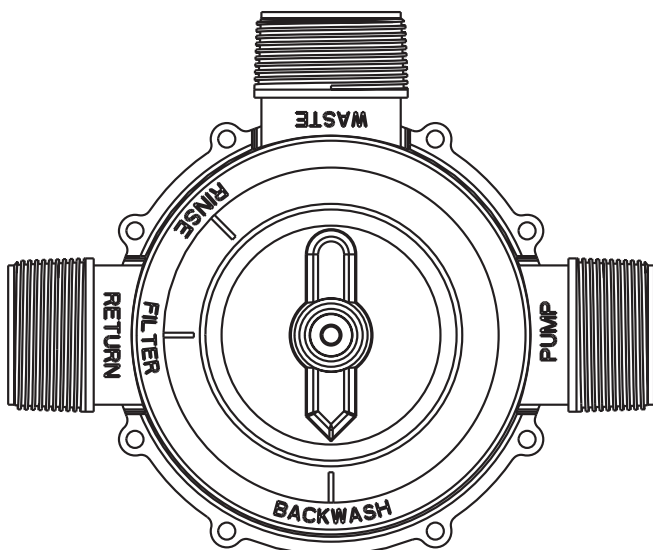
Normal filter operation should be at 0-3 PSI on the gauge. If it reads more than 3PSI, the filter needs to be backwashed. It should be backwashed once a week regardless of the gauge pressure. **Waste port valve must be open anytime you open or close the main valve.**

BACKWASH

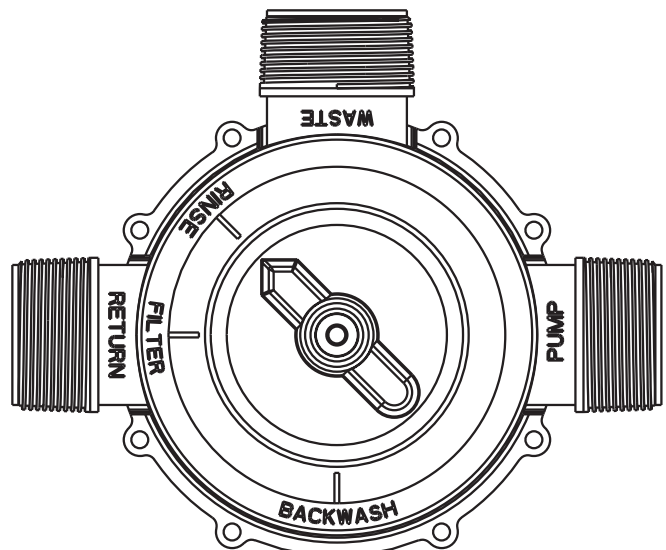
1. Open the safety ball valve that is mounted in the **WASTE** line.
2. Rotate the main valve knob to the **BACKWASH** position. The pump may be running during this operation.
3. Turn the agitator handle left to right and repeat approximately 10-20 times until the water comes out of the waste line nearly clear.
4. If the agitator handle becomes difficult to move, turn the main valve to the **RINSE** position to clear the accumulated debris from the agitator mechanism. Then, return to the **BACKWASH** and continue moving the handle to clear out the remaining debris.

RINSE

- The rinse operation works the same as the backwash except the water goes through the filter in the opposite direction to help remove any clogs inside the filter.
1. Rotate the main valve knob to the **RINSE** position.
 2. Open the shutoff valve at the **WASTE** line.
 3. Turn agitator handle left to right approximately 10 times.
 4. When the water comes out nearly clear, rotate the main valve knob to the filter position, and then close the shutoff valve on the waste line to resume filtering. The gauge should read 0-2 PSI normal filter pressure.



Backwash Position



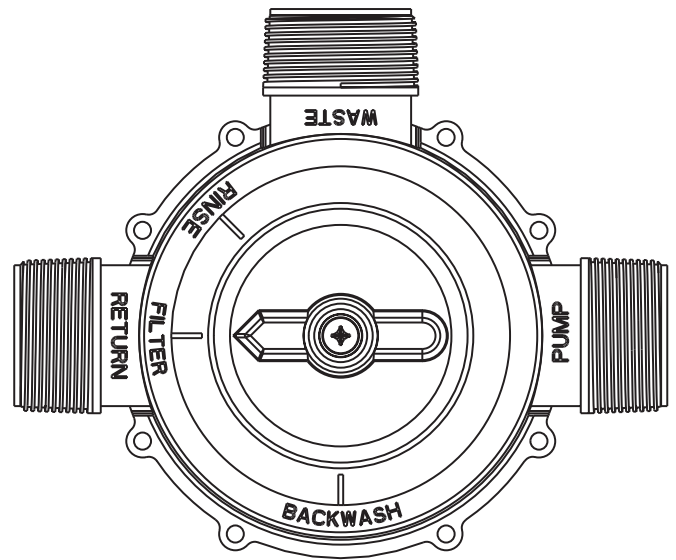
Rinse Position

FILTER OPERATING INSTRUCTIONS CONTINUED

FILTER CLEANOUT

At the end of the season the filter can be cleaned and winterized. If you backwash regularly, or have a bottom drain and/or non-freezing conditions you may never need to do this.

1. Pull out the plug and remove the UV ballast by unscrewing it. Pull the unit straight out being careful not to break the UV lamp.
2. Remove the quartz sleeve. To remove the sleeve for cleaning, take a kitchen knife or thin screw driver and pry between the rubber flange and tube adapter.
3. Remove the three hoses from their respective ports. **(NOTE: If a flexible hose is used, you may not need to remove them from their ports).**
4. Remove the clamp ring by unscrewing the T-handle.
5. Pull up from side to side, pop off the main cover and then carefully pull straight up so not to break the UV quartz sleeve (unless it has already been removed - see 2, above).
6. Open the bottom drain (if installed). If there is no bottom drain, pump the water out of the drum. Use a Wet/Dry shop Vac with a strainer on the nozzle or submersible pump to remove the water from the drum. **DO NOT REMOVE THE MEDIA. DO NOT REMOVE AGITATOR.** Flush out the drum and bio-media with a garden hose.
7. **CAUTION: Water left in the drum in areas that freeze can expand and crack the drum.**



Filter Position

WINTERIZATION

It is necessary to drain the water from the drum in those areas that experience freezing temperatures in the winter. An easy way to empty the water is as follows:

1. Remove the UV ballast, lamp and sleeve (see UV section).
2. Insert a 1/2" diameter hose down the hole to the bottom of the drum.
3. Pour water into the hose and cap it off with your thumb.
4. Place the capped end of the hose lower than the filter to start the siphoning action that will drain the drum.

It is also a good idea to unscrew the pressure gauge in freezing climates.

FILTER ASSEMBLY INSTRUCTIONS

FILTER ASSEMBLY

1. Unpack the filter unit. It is completely factory assembled except for the UV models, which require installation of the UV lamp, sleeve and ballast.
2. Install the UV **after** the filter unit is in its final mounted location.
3. To attach the UV light assembly, **see Care and Operating instructions for UV Clarifier.**

FILTER HOSE HOOK-UP

1. Use Teflon tape on all threaded connections, and do not over tighten.
2. Connect 1-1/2" I.D. hose using a female 1-1/2" coupling, a 1-12" barbed fitting and a stainless steel hose clamp (not supplied). For easy removal of the hoses at a later date, we recommend using 1-1/2" unions on all three ports. They are available in pool supply stores.
3. Connect the hose from the pond pump to the valve port marked "**PUMP.**" We recommend using an inline check valve on this connection.
4. Connect the hose from the valve port marked "**RETURN**" to the waterfall or directly to the pond.
5. Connect the safety ball valve (included) to the port marked "**WASTE**". Connect the hose from the safety ball valve to an area where waste water can be discharged and not flow back into the pond, such as your garden or a dry well. This water is an excellent source of nutrients for your plants.

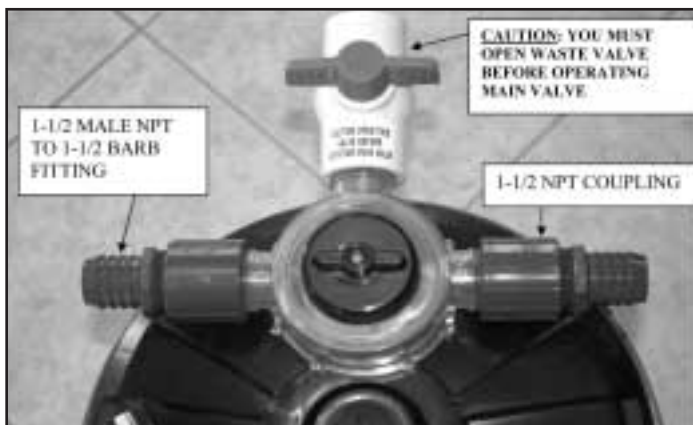
LEAK TEST/FUNCTION TEST

1. The waste port safety valve should be in closed position.
2. Turn the main valve selector to the **FILTER** position.
3. Turn on the pump and check the hoses and clamps for leaks.
4. Plug in the UV light if it is assembled within the filter unit. Look for visible light through the clear valve and agitator handle. The light coming through the clear plastic and handle is safe to look at. **Never look directly at lamp rays.**

REASSEMBLY ** (IMPORTANT) **

1. Make sure the drum O-ring and rim area are clean of all debris.
2. Place the cover down until the tube adapter comes in contact with the agitator shaft. The tube adapter and agitator tube key together. Rotate the agitator handle until the cover drops down. Push down the cover as much as you can.
3. Place the metal clamp around the filter assembly with the groove of the clamp going over the rim of the cover. Tighten the T-handle of the clamp while pushing down on the cover until it is snug.
4. **IF AGITATOR WAS REMOVED:** Place it back in **before** the media is put back in place. Be careful not to let media fall down inside the agitator tube.
5. Fill the drum half way with water. This allows the agitator to turn easily. The agitator can be reinstalled with the media in the drum by slowly rotating and pressing down. It will slowly seat itself down into the media only if partially filled with water.

Suggested Plumbing for 1-1/2" Flex Tubing



Suggested Plumbing for 2" Flex Tubing with Quick Connect Fittings

