

▶ installing an efficient system

In order to keep your pond clear and healthy, you will need to install a system incorporating a pump, filter and a UV clarifier. Depending on the size of your pond and the type of water features you want to incorporate, there are a number of different combinations that will fit your needs. The following section makes it easy to build your own backyard oasis with examples of complete systems, information on getting started and handy reference charts.

▶ here are some examples:

1200 gallon pond system

DynaMag 750 Pump – flow @ 2 ft. high approx. 650 gph

UV1 Clarifier – Max. flow 900 gph

PF1 Gravity Flow BioFilter – Max. flow 500 gph
Use 1" inside diameter tubing to connect all components.

Flow control valve



About 150 gallons are diverted to fountain or waterfall

Restrict flow to UV clarifier and filter to about 500 gph

DynaMag 750

1800 gallon pond system

DynaTec 2250 Pump – flow @ 2 ft. high approx. 2000 gph

UV1 Clarifier – Max. flow 900 gph

PF2 Gravity Flow BioFilter – Max. flow 750 gph
1 1/4" and 1' inside diameter tubing to connect these components.

Use 1 1/4" inside diameter tubing to connect these components



T-Fitting

DynaTec 2250

2500 gallon pond system

OFX4000 Pump – flow @ 2 ft. high approx. 3500 gph

PUV2500 Pressure Filter With Built-In UV Clarifier – Max. flow 1250 gph
1 1/2" inside diameter tubing to connect these components.

Use 1 1/2" ID tubing



T-Fitting

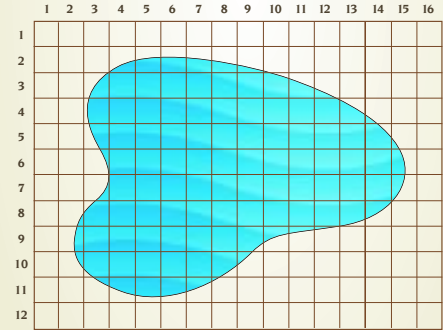
OFX4000



► to figure area and volume

This grid may be used to determine the surface square footage and the volume which you will need to determine the size of your pump.

1. Measure the length and width of your pond, and sketch the approximate shape on the grid. Each square represents 1 square foot.
2. Total the squares for your square footage.
3. Multiply square footage by the average depth (ft.) This is your cubic footage.
4. Multiply cubic footage by 7.5. The result is your liquid volume in gallons.



The pond sketched into the grid is approximately 105 sq. ft with an average depth of 1 1/2'. It will contain 1182 gallons of water.

UV1 Clarifier



PF1 Biofilter



Use 1" inside diameter tubing to connect all components

Back to pond

Extra flow is diverted directly to waterfall or stream



UV1 Clarifier



Use 1" ID tubing to connect clarifier to filter

PF2 Biofilter



Back to pond

Flow Control Valve

Adjust flow control valve so that flow to UV clarifier and filter is about 750 gph

Reducer



Reduce 1 1/4" tubing to 1" ID tubing

Extra flow is diverted directly to waterfall or stream



PUV2500 Pressure Filter



Back to pond

During backflush mode, dirty water can be discharged to garden

Adjust flow control valve so that 1,250 gph is discharged from filter

▶ guide to building your own system



- 1. How many gallons your pond holds** (see “to figure area and volume” on page 13).
- 2. Choose the proper size pump – three considerations:**
 - a. The 50% circulation rule – choose a pump that circulates a minimum of 50% of the pond volume per hour.
 - b. Determine the height and width of desired waterfall spillover (see page 17).
 - c. Choose a pump large enough to power your filter and UV clarifier (see page 17).
- 3. Measuring flow** - An easy way to check flow volume: simply time how long it takes (total seconds) to fill a 5-gallon bucket. Divide 3,600 by the total seconds, then multiply result by 5.
Example: $3600 \text{ (seconds in an hour)} \div 15 \text{ seconds (fill time)} \times 5 \text{ gallons (bucket size)} = 1200 \text{ gph (flow rate)}$
- 4. Choose biofilter type and size** - Gravity Flow or Pressure Filter (see “keeping your pond clean” on page 22 for more information on filter types).
- 5. Choose the proper size UV clarifier** (see chart on page 15).
- 6. Choose the proper hose diameter** - Use the largest inside diameter that equipment can accommodate to connect equipment. Equipment inlet/outlet sizes are listed right on the packaging. If you are in the pre-planning stages, visit our Web site at www.tetra-fish.com for a complete listing of all TetraPond equipment specifications and capacities.
- 7. Determine hose length** - An easy way to determine length of tubing is to use a string to consecutively link the equipment (pump, filter, clarifier, etc.), follow the terrain and make the most direct path. Measure string for length. Always purchase an extra foot or two.
- 8. Determine if flow control valve, T-fittings and/or reducers will be needed** (see “tying it all together” at right).

▶ tying it all together

These essential items are readily available at your local hardware store or water garden center.

Tubing

Flexible, kink-resistant tubing available in a variety of diameters to connect pump, biofilters, UV clarifiers, waterfalls and other water features.



Hose clamps

to secure your hose connections.

Teflon tape

To ensure a good seal on threaded connections.



T-fitting

To divert water flow to a waterfall or piece of equipment.

Reducer fitting

To connect hoses of different inside diameters.




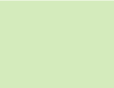



























Flow control valve

Adjustable valve used to increase or reduce water flow volume.

► matching the right equipment


Use this handy reference chart to help you match the proper pump to the proper filter/UV clarifier for your pond. Although your pond application may vary, this will give you the guidelines and ranges to help you make the combination that's right for you. If you are matching a pump with a flow greater than the flow of the other components, a control valve is recommended to reduce flow, or use in conjunction with a T-fitting to divert excess flow to a water feature.

		RECOMMENDED PUMPS							
									
GRAVITY FILTER & UV CLARIFIER COMBINATIONS	Recommended Pond Range	DynaMag 500 500 gph max	DynaMag 750 750 gph max	DynaTec 1100 1100 gph max	DynaTec 1500 1500 gph max	DynaTec 2250 2250 gph max	OFX2000 2000 gph max	OFX3000 3000 gph max	OFX4000 3870 gph max
PF1 Filter & UV mini Clarifier Filter: max flow 500 gph UV Max. flow 330 gph	100-660								
PF1 Filter & UV1 Clarifier Filter: max flow 500 gph UV Max flow 900 gph	660-1200								
PF2 Filter & UV1 Clarifier Filter: max flow 750 gph UV Max. flow 900 gph	1200-1800								
PF3 Filter & UV2 Clarifier Filter: max flow 1000 gph UV Max. flow 2200 gph	1800-2400								
PRESSURE FILTER COMBINATIONS									
PRF1500 Filter or PUV1500 *Filter: Max flow 750 gph	300-1500								
PRF2500 Filter or PUV2500 *Filter: Max flow 1250 gph	1500-2500								
PRF4000 Filter or PUV4000 *Filter: Max flow 2000 gph	2500-4000								

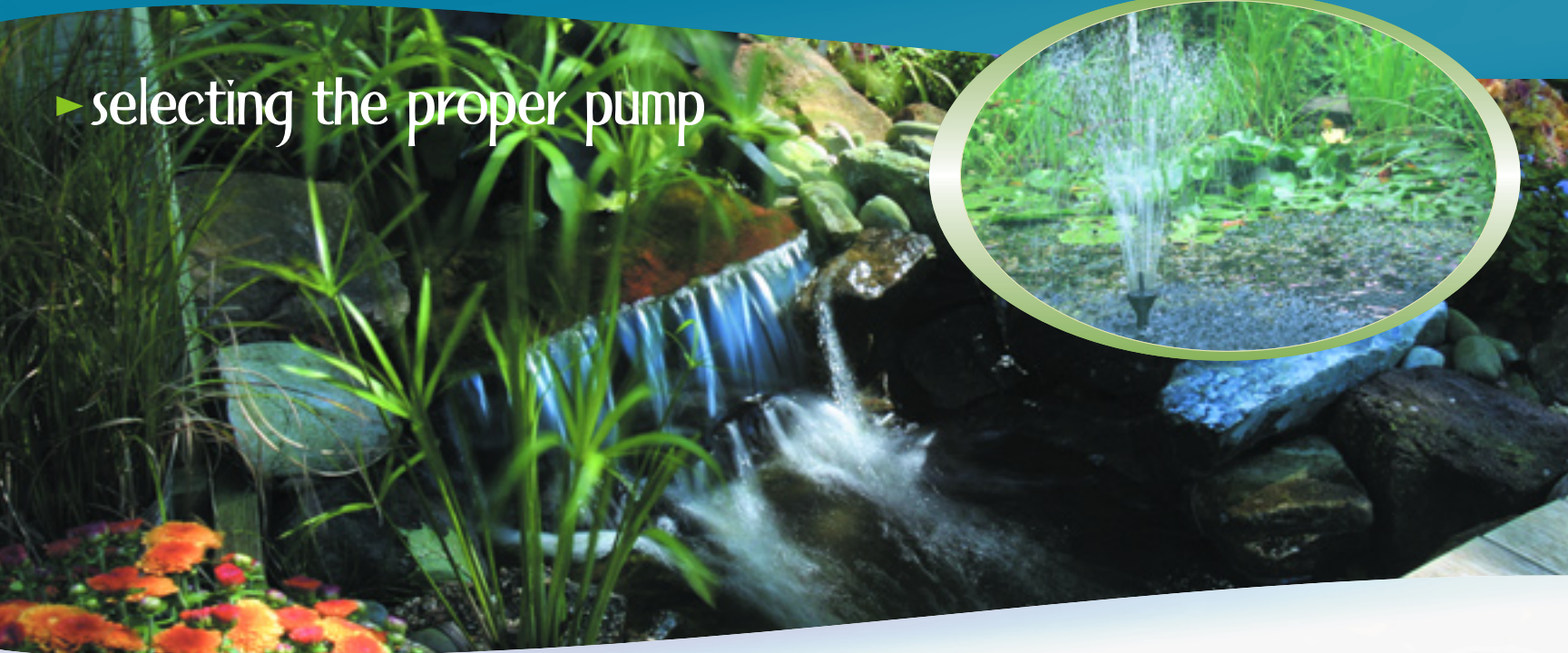
*Expect approximately 40% flow loss through the pressure filter.

 No flow control valve needed

 Use the DynaMag flow control valve with these combinations

 Use an auxiliary flow control with these combinations

▶ selecting the proper pump



The importance of the right pump

The pump is one of the most important equipment purchases you will make for your water garden. It is the heart of the pond, circulating water to the filter and keeping the ecosystem healthy. Because it runs constantly, it must be both dependable and energy efficient.

Choosing the correct pump size

The pump size you choose (*pumping capacity in gallons per hour or gph*) is based on the size of your pond, your filter capacity (*see pages 20-22*) and your desired waterfall's size and appearance. Using the 50% circulation rule, the pump should circulate the entire volume of the pond at least every two hours. So, if you have a 1000-gallon pond, you need a pump that will discharge back to the pond at least 500 gph. When in doubt, purchase a slightly more powerful pump. You can always slow or divert the flow of a pump, but you can't increase it (*To determine pond volume refer to page 11*).



pumps for waterfalls ◀

Water flow and head pressure.

To choose the proper pump for a waterfall, you first need to understand pump head height. This is the water pressure generated by a pump. The maximum pumping height is the height a pump will raise water straight up resulting in zero gph of water flow at the top. As the height of any pump discharge increases, the flow will decrease.

Calculating your pump size.

To calculate the pump size for your waterfall, decide the width of the spillover you want and determine the vertical distance from the waterfall to the pond surface. Every inch of spillover width requires about 100 gph of water flow at the height of the waterfall.

See flow charts on packaging for water volume flow specifications at different pumping heights.

	DynaMag 250	DynaMag 500	DynaMag 750		DynaTec 1100	DynaTec 1500	DynaTec 2250		OFX 2000	OFX 3000	OFX 4000
Max. flow gallons/hr.	250 gph	500 gph	750 gph	Max. flow gallons/hr.	1100 gph	1500 gph	2250 gph	Max. flow gallons/hr.	2000 gph	3000 gph	3870 gph
Pond size	Up to 500 gal.	Up to 1000 gal.	Up to 1500 gal.	Pond size	Up to 2200 gal.	Up to 3000 gal.	Up to 4500 gal.	Pond size	Up to 4000 gal.	Up to 6000 gal.	Up to 8000 gal.
Maximum pumping height	3.6 ft.	7.8 ft.	9.5 ft.	Maximum pumping height	14 ft.	17 ft.	16.5 ft.	Maximum pumping height	6.8 ft.	12.8 ft.	17.8 ft.
Energy consumption 	15 watts	50 watts	75 watts	Energy consumption 	106 watts	138 watts	190 watts	Energy consumption 	115 watts	240 watts	260 watts
Energy cost per month*	\$.90	\$ 3.00	\$ 4.50	Energy cost per month*	\$ 6.36	\$ 8.28	\$ 11.40	Energy cost per month*	\$ 6.90	\$ 14.40	\$ 15.60

*Based on average U.S.A. Residential rate of \$0.0833 Kilowatt hour rate. Source: Energy Information Administration (Nov.2002). Local rates may vary.

► DynaMag™ series

Reliable magnetic drive technology

Like all TetraPond pumps, the DynaMag series was designed by water garden experts from the ground up. They are a dependable, economical choice for the small to mid-sized pond. All DynaMag pumps are protected by a two-year warranty and come complete with fountain assembly, including an adjustable stem, flow diverter outlet, and spray and bell pattern heads.

DynaMag 250

DynaMag 500

DynaMag 750

2-Year
Limited Warranty



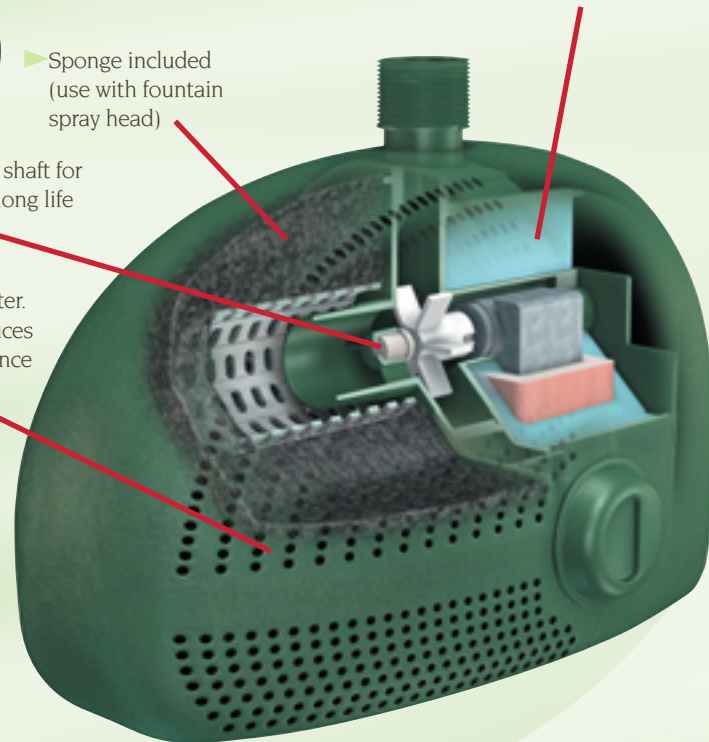
► Low energy consumption.
120 VAC 60 Hz. UL
& cUL approved

► Epoxy encapsulated.
Protects motor from water
intrusion & overheating

► Sponge included
(use with fountain
spray head)

► Durable ceramic shaft for
low friction and long life

► Snap-on-and-off pre-filter.
Large surface area reduces
clogging and maintenance



► DynaTec™ series

High performance pumps engineered for continuous use

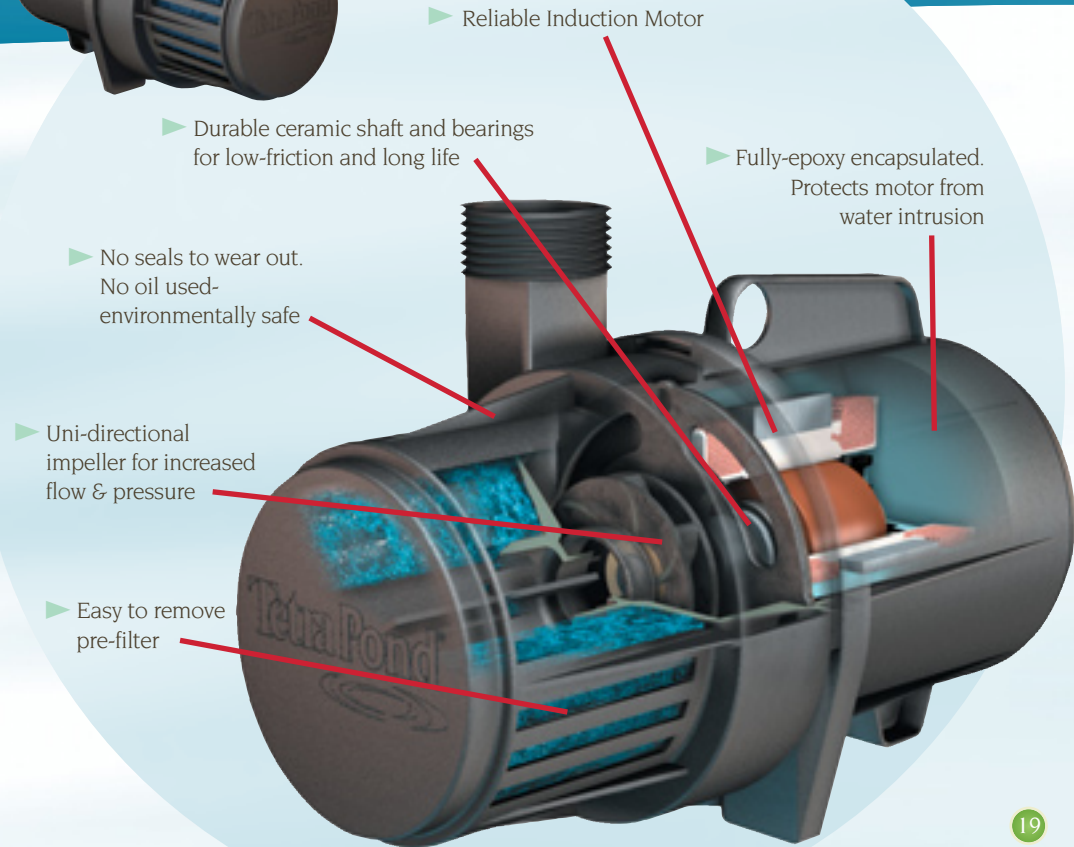
TetraPond DynaTec models are high performance pumps ideal for larger ponds, as well as waterfalls, streams and large fountains. Engineered with proven European asynchronous impeller technology, DynaTec pumps provide superior head height and flow. All DynaTec pumps are warranted for three years.

DynaTec 1100

DynaTec 1500

DynaTec 2250

3-Year
Limited Warranty



► Reliable Induction Motor

► Durable ceramic shaft and bearings for low-friction and long life

► Fully-epoxy encapsulated. Protects motor from water intrusion

► No seals to wear out. No oil used - environmentally safe

► Uni-directional impeller for increased flow & pressure

► Easy to remove pre-filter

The OFX pump's innovative impeller design sends debris directly to your pond's external filter.

▶ OFX series

The debris-handling pumps

TetraPond's OFX Open-Flow Debris Handling Pump is a revolutionary new concept in pumping. Most pumps contain a pre-filter to trap debris. The OFX models instead have an innovative cage design with large holes throughout the surface that allow debris up to 3/8 inch in diameter to pass through the pump.

The debris goes to the specialized impeller, which forces it to the pond's external filter where it is easily removed. This serves to clean the pond and reduce pump maintenance.

OFX pumps are powerful enough for waterfalls or streams, yet they are extremely energy efficient and economical to operate.

OFX 2000 • OFX 3000 • OFX 4000

3-Year
Limited Warranty



▶ Rugged debris-handling impeller can pass 3/8" gravel without damage to blades.

▶ Ceramic shaft & bearing—low friction for long life.

▶ Reliable disc motor technology. Only one moving part. No magnet to degrade.

▶ Multi-directional outlet avoids kinked hose.

▶ Motor protected against water. No seals on the rotating parts to wear out or leak. Fully encapsulated in epoxy which prevents motor failure.




▶ GP-125

125 gph Statuary & Fountain Pump



Ideal for pond-side
statuary and
fountains

- Use 1/4", 3/8", 1/2" ID tubing (adapters included)
- 2-Year limited warranty
- Reliable magnetic drive technology
- Energy efficient
- 115V / 60 Hz. UL & cUL approved
- Pre-filter sponges

GP-125	
Max. flow gallons/hr.	125 gph
Maximum pumping height	34 in.
Energy consumption 	8 watts
Energy cost per month*	\$.48

*Based on average U.S.A. Residential rate of \$0.0833 Kilowatt hour rate. Source: Energy Information Administration (Nov.2002). Local rates may vary.

Winter Island Pond De-Icer ◀

- Maintains a small ice-free opening in pond surface, allowing harmful gases to escape.
- Provides lifesaving drinking water for birds.
- Measures 16 1/2" wide and 2" high.
- Works effectively at temperatures as low as 0° F (-18° C).
- Comes with 20-foot power cord. UL and cUL listed.
- Operates at only 24 watts.
- Engineered for pond use.

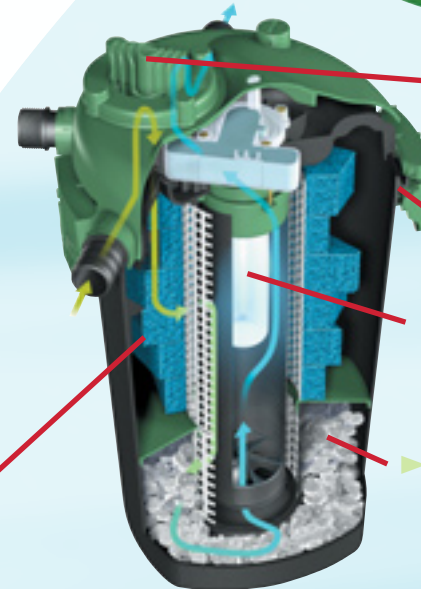
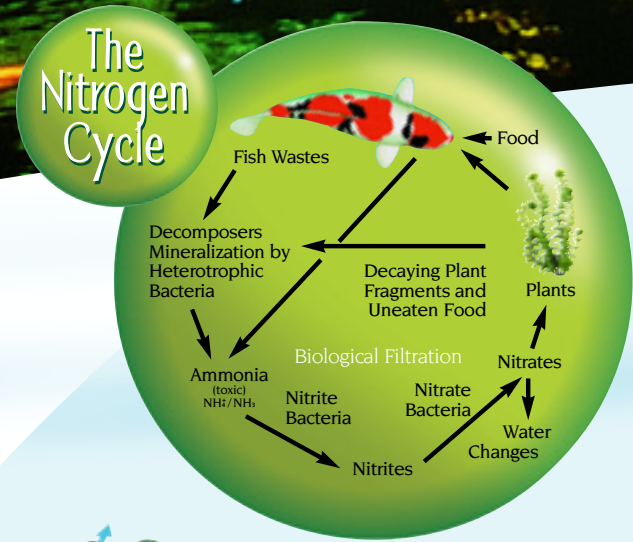


► keeping your pond clean

Filtration is an essential part of a healthy water garden, removing impurities from the water, helping to preserve aquatic life and enhance your environment. There are two basic filtration methods: biological and mechanical.

Mechanical filtration uses foam filters to physically trap dirt and debris. Pressure filters can accommodate larger ponds and come with the option of a built-in UV clarifier.

Biological filtration uses natural biological processes to improve the water. They create an environment for beneficial bacteria to colonize. This beneficial bacteria converts harmful ammonia from waste products into nitrates, which are relatively harmless to fish and beneficial to plants. The best pond filters offer a combination of mechanical and biological filtration.

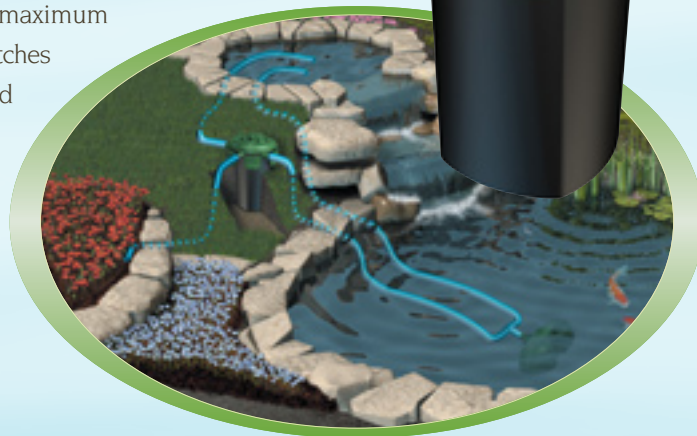


- Easy one-step back-flush valve reverses flow for cleaning sponges and bio-media
- Robust latches and o-ring seal for leak-free performance
- Built-in GreenFree™ UV clarifier (some models). Non-UV units can be upgraded with UV kits
- Bio Filtration using Mini Bio-ring media to convert harmful ammonia into relatively harmless nitrates

▶ ClearChoice™ Pressure Filters

For clear and healthy water

New from TetraPond! The remarkable ClearChoice pressure filter provides mechanical, biological and UV clarification — all in one rugged, efficient unit. Specially designed for maximum ease-of-use and convenience. Oversized latches enable easier opening and closing of lid when cleaning. Location of key features on top of unit allow easy access after pump is buried for concealment. Tough plastic material holds up underground. It's the ClearChoice for clear and healthy water.



the little extras ▶



Skimmer & Pond Nets

Use to skim leaves and debris off pond surface and to remove string algae. Deeper net is great for retrieving fish as well as leaves and debris.

Laborett Testing Kit

Kit tests for pH, nitrites (NO₂), general hardness (GH), carbonate hardness or alkalinity (KH) and ammonia (NH₃).



Model	PRF-1500 (non-UV)	PRF-2500 (non-UV)	PRF-4000 (non-UV)	PUV-1500 (with UV clarifier)	PUV-2500 (with UV clarifier)	PUV-4000 (with UV clarifier)
Pond size	1500 gal.	2500 gal.	4000 gal.	1500 gal.	2500 gal.	4000 gal.
Height	16.5"	20"	23"	16.5"	20"	23"
Diameter	15"	15"	15"	15"	15"	15"
UV strength	–	–	–	9 watts	18 watts	18 watts

► ClearChoice™ Gravity Flow Biofilters

TetraPond's *ClearChoice Biofilter* is a study in efficient design.

PF-1 ClearChoice Biofilter (for small ponds)

Cleans water gardens up to 1200 gallons.

Maximum flow, 500 gallons per hour

PF-2 ClearChoice Biofilter (for medium ponds)

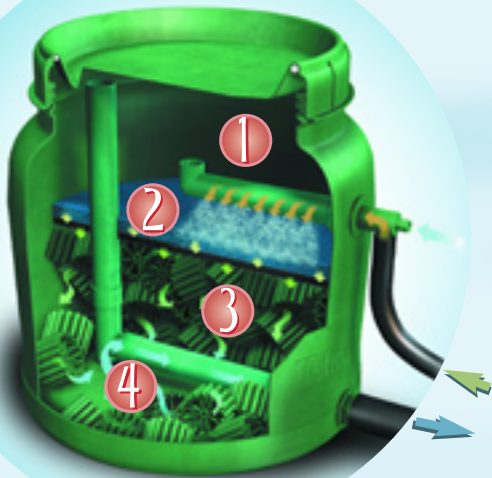
Cleans water gardens up to 1800 gallons.

Maximum flow, 750 gallons per hour

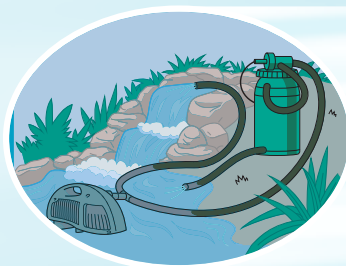
PF-3 ClearChoice Biofilter (for larger ponds)

Cleans water gardens up to 2400 gallons.

Maximum flow, 1000 gallons per hour



- 1 Intake** — At the intake stage, the Trickle Flow spray bar disperses pond water slowly and evenly.
- 2 Mechanical filtration** — Suspended debris is then removed by filter sponge pads during the mechanical filtration stage.
- 3 Biofiltration** — For biofiltration, water trickles over Bio-Ring media, which provide extensive surface area for beneficial bacteria to thrive. There, the bacteria convert ammonia to nitrites, then nitrates. The Venturi inlet aerates water to enhance the bioactivity.
- 4 Discharge and nitrate removal** — During the discharge and nitrate removal stage, purified water is discharged to the pond where aquatic plants can remove nitrates.



► Biofilter Positioning

Note: The discharge from Tetra biofilters can be routed to the waterfall pond or into the water stream. Because the water flows by gravity out the bottom of the biofilter, it must be positioned higher than the waterfall. If this is difficult to achieve, consider a flow control valve and a "Y" or "T" connector in your tubing or use the pump diverter, pumping a portion of the water to the biofilter and the rest to the waterfall. You may also want to use two separate pumps, one for the waterfall and one for the biofilter.

► fighting green water

The most common complaint of new and experienced pond enthusiasts alike is green water. Green water is caused by blooms of single-celled algae, which not only cloud the water and obscure fish viewing, but also rob the water of valuable oxygen and release harmful pollutants. These organisms are so tiny, they pass through even the finest filter.

► GreenFree™ UV Clarifiers

TetraPond's dependable clarifiers use ultraviolet light to destroy the reproductive ability of suspended algae. Dead algae will clump together into particles large enough to be removed by filtration, leaving the pond cleaner and clearer. GreenFree Clarifiers usually remove heavy algae blooms within five days and keep the pond algae-free. They are easy to conceal, durable and install in minutes. For maximum operating efficiency, replace the UV bulb every spring, at the start of the pond season.



Model	UV Mini	UV 1	UV 2	UV 3
Max. flow gallons/hr.	330 gph	900 gph	2200 gph	4400 gph
Pond size	660 gal.	1800 gal.	4400 gal.	8800 gal.
Energy consumption	5 watts	9 watts	18 watts	36 watts



Aqua-Zyme®

Full-season water clarifier containing natural beneficial bacteria and enzymes that consume organic matter in the pond.



AquaRem®

Remedies cloudy and discolored water by clumping water contaminants so they can be removed by the filter.

