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Pond pumps, filtration and lighting made easy

Everybody loves the sound of moving water in their garden but with so many pumps and filters to choose from, where do you start? It can seem hard when you are faced with such a huge selection but it can be easy to choose when you understand what each one does. Pumps move water. Filters clarifiy water that is supplied to them by a filter pump. UV filters (these should properly be named UV clarifiers) help to prevent water turning green.

Pond pumps

The pump is the beating heart of your water feature. There are two main types of pond pump. The first is a fountain pump and these are made to pump already clean water through a decorative fountain attachment. The motor itself is not designed to move dirty water or sediment so the inlets to the pump are relatively small. Some may also have a small sponge inside. Fountain pumps are cheaper than filter/ waterfall pumps because they are built to do less strenuous work. If a fountain pump is used to power a filter, it will tire quickly and eventually break.

FOUNTAIN PUMP

FILTER/WATERFALL PUMP

Fountain pumps are great for

- Running a fountain in a clean pond
- powering small pond side ornaments
- oxgenating small ponds by creating surface movement

The second type is a filter pump or waterfall pump. These are usually larger than fountain pumps and are designed to push water through a pipe to either a filter or a watercourse. They have more, larger inlet holes than those found on fountain pumps because their job is to accept dirty water and send it to the filter to be cleaned. Most filter pumps can pass through solids of up to 8mm without struggling. They have strong internal parts and can handle the pressure of pumping water from the pond to a filter or waterfall above the ground. Some can pump up to a height of many meters. They are more expensive than a fountain pump with a similar flow rate because they are designed to do a different job and cope with more stress.

Filter / waterfall pumps are great for

- Sending dirty water to a filter to be cleaned
- Pumping uphill to supply water to a waterfall
- Very large fountain displays
- Circulating large volumes of water

Flow rates

The next step is to work out what rate of water flow you will require. If you are using the pump to run a filter then the minimum flow rate should be twice your pond's volume per hour. For example, if your pond is 3000 litres then you will need a minimum flow of 6000 litres per hour (LPH). A slightly over sized filter will work just fine and need cleaning out less often.

If you want to incorporate a waterfall into your pond then you will need a minimum of 100 litres per hour for every 1cm width of the waterfall. For example a waterfall ending with a 30cm wide shelf will need to be supplied by a pump with a minimum flow rate of 3000 litres per hour.

Always remember that the higher above ground you pump, the more the flow will reduce. The rate this happens varies between pumps so check what flow rate they will give at varying heights. Measure from the water level of the pond to the highest part of your waterfall and check the flow rate at this height rather than the maximum your pump is capable of.

Pond filters

Pond filters can be divided into two main categories. The first are box (gravity fed) filters. These filters must be situated above the ground as they are open topped boxes with a lid. The water enters the filter through a pipe connection and then flows via gravity through the filter media and back out of a hole near the bottom of the box. If the filter foams become blocked over time, the box may overflow. Gravity fed box filters are often relatively inexpensive as their construction is simple.

Box filters are popular for small ponds with few fish.

Box filters are...

- not sealed units so can't be dug into the ground
- relatively cheap due to simpler design
- maintenance heavy compared to pressure filters
- great for small ponds with low stocking levels

The second type of filter is called a pressure filter. These get their name because they are sealed and can be positioned lower than ground level. Pressure filters are great for all kinds of pond and they can be partially buried and disguised more easily. They have fittings for three pipes. The first is an inlet for water coming from the pump. The second is the outlet where water is returned from the filter to the pond or waterfall. The third fitting is for waste water when cleaning the filter foams.

Most pressure filters have a ring of sponges inside which can be cleaned by turning a valve to divert water to the outlet and then pulling a handle to squeeze the foams out. The benefit to this system is that is does not require disassembling the filter and removing the foams. All the cleaning is done using pressure from your pump without even getting your hands wet!

Pressure filters are...

- Easy to clean and maintain
- Able to be dug into the ground and disguised
- Built to be positioned as far from the pond as you need (e.g in a garage or shed)
- Great for ponds of all sizes
- The most popular pond filter for all of the above reasons

Filters are recommended for a certain pond size. You can easily work out your pond volume using the guide in the article 5 steps to building a flexible liner pond.

UV or not UV?

That is the question! A UV (ultraviolet clarifier) is a special type of light that many filters include or may be added separately. They use very little power and are designed to control green water algae.

They do this by passing water in close proximity to a light of a particular wavelength. This causes single celled algae in the water to clump together to be removed by the filter. It is more cost effective to buy a filter with a built in UV than to add one on separately. When you buy the correctly sized pump, filter and UV for your pond and stocking levels, you are guaranteed to have clear water all year round.

Pond lights

Pond lights can be positioned underwater inside the pond or around the edge. They use LEDs or halogen bulbs to give your pond a completely different look after dark. Pond lights can be purchased singly or in sets of three or more. They use a transformer to provide mains electrical power. The transformer must usually be positioned out of the water but each light unit has a considerable length of cable so that you are not limited with design.

Some pond lights come with different coloured lenses so that you match your pond with other colour schemes in the garden. Most lights are best fitted towards the surface of the pond pointing slightly downwards to avoid startling the fish. You may wish to illuminate the whole pond but always leave at least one third in partial darkness. This is so that your fish can hide if they need to and will help keep them stress free and safe from predators.

Other things to consider

Now that you know what options are available and can easily decide which system is best for you. You may want to plan how to disguise the pump and filter if you want a natural looking pond. This can easily be done with a little careful planning and attention to detail. Pond pumps come with 10 metres of electrical cable as standard but UV clarifiers and lights may come with less so always check the individual product descriptions before you buy and always consult a qualified electrician before starting to build your pond.

Once you have finished, Its time to relax and enjoy your beautiful new pond. It will bring new life to your garden from pollinating insects to birds and mammals. A well designed and maintained pond is a focal point like no other and will bring joy to everyone that encounters it.