



FILTRATION MADE CLEAR

Without a doubt filtration is one of the most important aspects of fish keeping but it is often misunderstood - sometimes with dire consequences. In a wild pond or river system filtration occurs naturally. Fish levels are controlled by the availability of food and oxygen. This is obviously not the case in an ornamental pond. Keeping fish is all about keeping water, if the water is right the fish will take care of themselves!

With good filtration it is possible to keep a large



volume of fish in good healthy condition.

The primary function of a filter is to control levels of harmful toxic waste. These chemicals are the result of the decomposition of fish solids, urine, uneaten food and dead plant material etc. If these chemicals are left unchecked they will build to dangerous levels and result in the death of fish. Nature has provided us with a way of dealing with this problem, it is known as the 'Nitrogen Cycle', it uses beneficial aerobic nitrifying bacteria to convert these chemicals progressively into less harmful ones.

Over the years koi keepers have used many different designs of filter and advice may differ greatly depending on who you ask. There are in fact many different types/methods of filtration but the main ones are separation, mechanical and biological. In large koi pond filters you will normally find these processes linked together to form a 'multi stage filter'.

Multi stage filtration

Separation or settlement This is usually the first stage of filtration and is where heavy sinkable solids are allowed to fall from suspension. The most efficient method of achieving separation is through the use of a vortex in which water is slowly spun or rotated, causing the heavy solids to gravitate outwards and downwards.

Mechanical extraction. This is where suspended solids are physically strained. The most effective method is to use filter brushes. Brushes have excellent straining properties, are easily cleaned and can provide added area for bacterial growth.

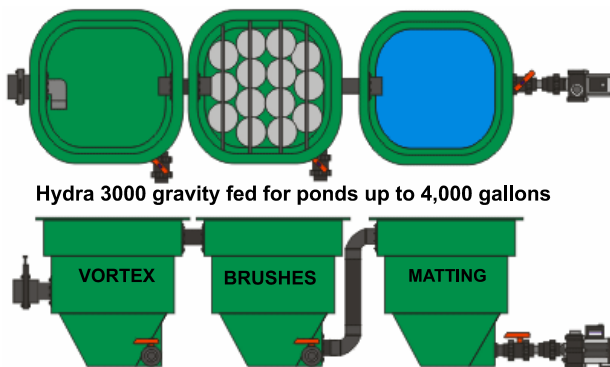
Biological filtration. Nitrifying bacteria lives on a media such as matting or gravel. As water passes through the media the bacteria converts the harmful chemicals into progressively less harmful ones. The bacteria present in filters occur naturally over a period of time, this means that a filter must be given time to mature properly,

sometimes taking several months or longer to become fully active.

When deciding on a filter for a particular pond several factors must be considered, pond size, water volume, eventual level of fish etc, etc. Normally about half the water volume travels through the filter per hour.

There are essentially two different types of filter - gravity fed and pump fed.

In a pump fed filter, water is pumped from the pond, flows through the filter and returns to the pond via gravity. Pump fed filters are easy to install but require a high level of maintenance, due mainly to the fact that pumps chew up solids, making the job of the filter more difficult. Because the filter has to be higher than the pond it can be difficult to disguise them. Pump fed filters are perhaps best suited to smaller koi or goldfish ponds.



Hydra 3000 gravity fed for ponds up to 4,000 gallons

The preferred option on 'proper koi ponds' is generally gravity fed. This method works in reverse. Water flows from the pond via a bottom drain, passing through the filter and finally pumped back to the pond. The pump does not come into contact with any solids so it requires no maintenance. The water is at the same level as that in the pond and this means the filter can be hidden away out of sight. There is often a reluctance to cut holes in liner, but they needn't be as the bottom drain is designed for this simple procedure. Although requiring extra work and expense at the installation stage there can be little doubt that gravity fed filters are the most efficient.

“There is no filter on the market today regardless of cost that can compare in efficiency.” Lee Calladine J.W.G.

Japanese Water Gardens stock the Hydra range of filters. Although very simple in operation these filters are the product of years of evolution, they have several subtle differences from other filters on the market today, making them much more efficient.

Hydra filters can be pump or gravity fed and can be configured to suit any size of pond. The layout can be altered to accommodate available space, for example an L shape or a tight triangle. They are very easy to install only requiring a level concrete base.

They are energy efficient and do not contain unnecessary mechanical components, which are expensive to purchase and run.

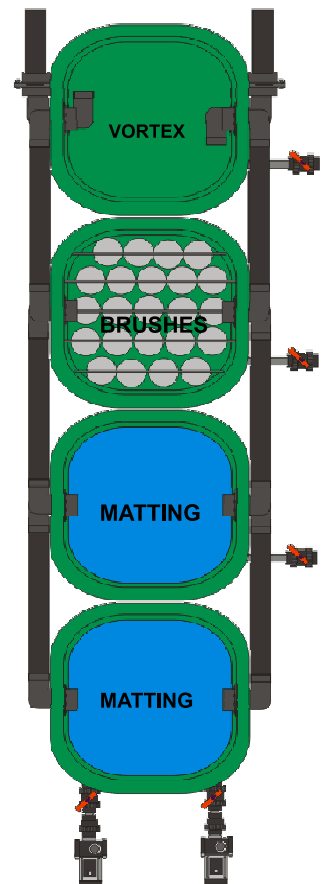
Efficiently simple-simply efficient

Hydra filters operate on the principle of protective chamber filtration. This quite simple means that the biological media never becomes contaminated with solids and therefore never needs to be cleaned, thus ensuring a highly active and efficient bacterial culture is maintained at all times.

Hydra filter matting is used as the biological media. It is manufactured exclusively for this purpose to exact specifications. It is produced by knitting together thousands of fibres which are of consistent length and thickness. This process produces a material with high surface area and an open uniform nature - perfect for nitrifying bacteria.

The chambers are manufactured from robust thermo plastic and have a lifetime guarantee.

There is no filter on the market today regardless of cost that can compare in efficiency. Single chamber systems start from £220



Hydra 6000 gravity fed for ponds up to 10,000 gallons

For further information. Regarding this feature.

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