



'the answer'
MECHANICAL filtration

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Evolution Aqua reserves the right to change specifications without notice



Dramatically improves your filter system

For more information on 'the Answer' and other products in the Evolution Aqua range contact us or visit:

www.evolutionaqua.com



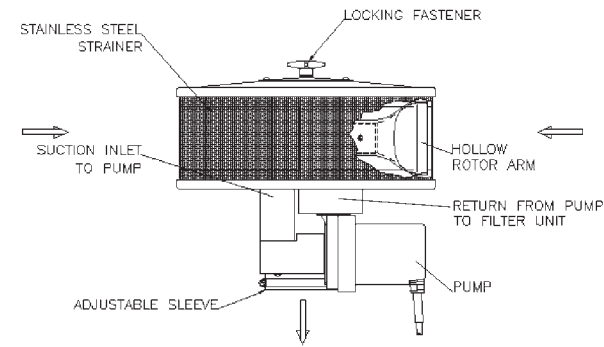
After four years of research and development, 'The Answer' was launched in June 2001 and has had a dramatic effect on fish keeping, at both commercial and hobbyist level, throughout the world. 'The Answer' is a mechanical, self-backwashing fine-screen filter, which is low maintenance and gives excellent water clarity and quality, whilst protecting the bio stage from unwanted solids.

The Filtration Process:

'The Answer' is designed to fit to exit pipe work within the primary settlement stage or prime mechanical filtration chambers, whether pump or gravity fed, from the pond. The water entering 'The Answer' generally comes from the bottom of the pond and contains dust, leaves and fish faeces, amongst other solids. At this stage, it is important to stop all 'mechanical' solids from entering the biological stage, the more mechanically clean the water, the more effectively the biological stage will work - hence the development of 'The Answer'.



All the water that passes through 'The Answer' is finely filtered. The pump that provides the power and cleaning action, draws filtered water from inside of 'The Answer'; it is then pumped into a hollow rotor arm. At each end of the arm, are nozzles angled at 45 degrees. Water is pumped through these nozzles and in doing so causes the arm to rotate. Water is forced out at high pressure against the inside of the screen continuously. This causes water to backwash through the screen to the outside. The result is that particles lodged on the outside, which are naturally trying to get through, are forced away and eventually settle at the bottom of the container. Once here, there is no way back and they can be sumped to waste. Therefore, 'The Answer' will run continuously without blocking, protecting the bio-stage and giving excellent clarity.



Main Benefits:

- Gives excellent water quality and clarity - therefore provides a healthier environment for your fish!
- Mechanical self-backwashing fine-screen filter stops 'mechanical' solids from entering the biological stage increasing the bio performance dramatically
- Gives low maintenance to bio stages
- Will run continuously without blocking
- Can be retro fitted to existing vortex / settling chambers

One important factor, which we have always advocated and has been followed by the majority of owners of our products, is the way we get the solids to settle out for easy sumping to waste.

The way we do this is perhaps better demonstrated by showing how we retrofit into existing systems, [see overleaf](#).



Contact our Sales Department Direct now for further information on 'The Answer' and other products in the Evolution Aqua range:

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Retrofitting:

Note the slide valve, which can be fitted inside or outside the chamber if space allows. This means that water can be discharged without wasting good water contained in the bio stage.

The important part here is the change we make to the inlet. An elbow or elbow spigot or specially made insert (contact us for details) is placed in the inlet pipework.

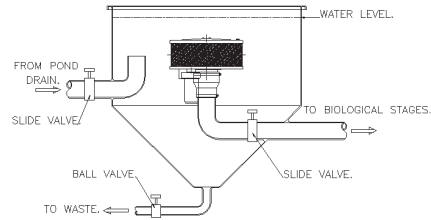
A vertical pipe is inserted into the elbow to bring the water in vertically, level or slightly higher than the middle of 'The Answer'. This has two effects, it stops the spin of the water caused by the tangential entry and secondly it creates a downward flow of water towards the screen of 'The Answer'. This effect means that every time a particle is removed from the screen, instead of hitting it immediately after the pulse emitted by the arm has passed, it drops down slightly. This removing and dropping of the solids terminates when they reach the lower surface of the unit into what is effectively dead water. Once here, there is no way back and they drop motionless to the bottom of the tank where they can be sumped to waste. If the vortex action were allowed to continue, all the fine matter which 'The Answer' stops from passing through, rather than settle out, would be agitated and in suspension of the entire volume of the vortex. It is this alteration to a vortex that gives at least 40% of 'The Answer's' effectiveness.



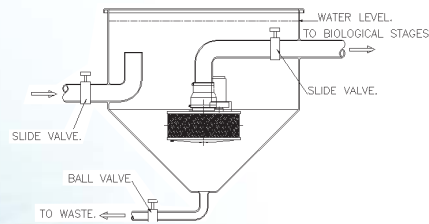
A typical Retrofit

The vertical pipe must never be at water surface level or close to it in case of evaporation of water from the pond. This will cause the flow of water to stop. It will also impede the purging of the bottom drain lines if it is set too high. It should never be less than 150mm from water surface level.

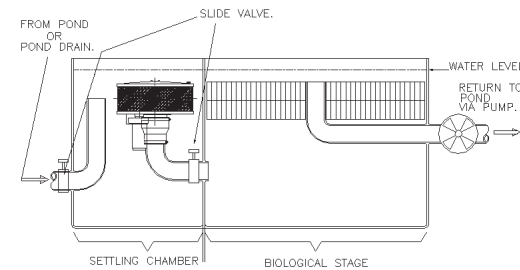
Typical Vortex with Central Exit



Vortex with sidewalls



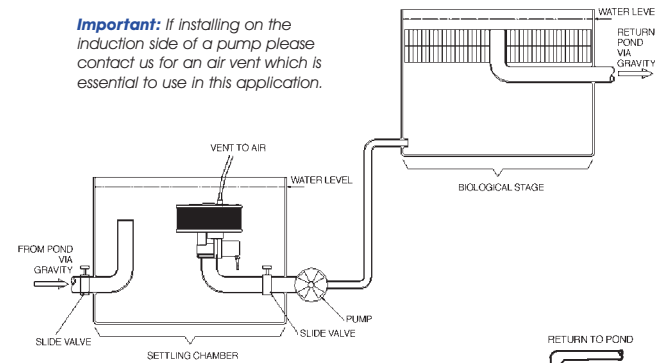
Gravity fed



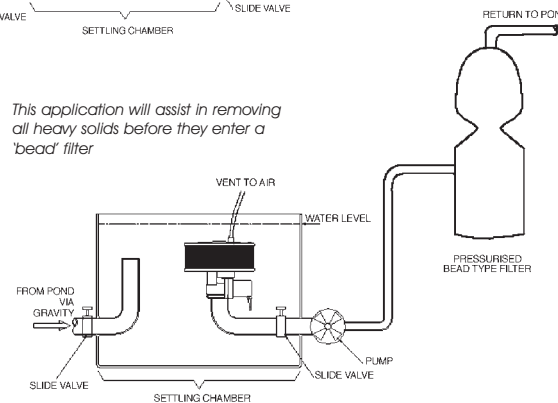
Again our product can be fitted easily, pipe is brought from the outlet to the centre, elbowed down and 'The Answer' fitted upside-down where it works exactly the same as in the first example. Again the inlet is changed to give the upward flow of water, which in turn flows downwards to the screen.

Pumping direct from 'the Answer':

Important: If installing on the induction side of a pump please contact us for an air vent which is essential to use in this application.



This application will assist in removing all heavy solids before they enter a 'bead' filter



There are numerous ways as shown to fit it. Even systems with no pipework and transfer weirs can be adapted easily to accept 'The Answer'. Weirs are sealed up and pipe fitted through existing walls, the only criterion is space.

For the 410 model - the unit measures 410mm wide and 340mm in depth. The unit must be totally immersed in water to be completely effective (the pump immersed as well, if mounted upside down).

Therefore as long as the container is sufficiently wide enough to allow the inlet pipework to come alongside 'The Answer', plus 50mm either side for passage of waste matter, the retrofit can be achieved.

The smallest container for 'The Answer' 410 would therefore be 620mm diameter (if the inlet pipe was 110mm). There must be a minimum of 250mm below 'The Answer' to allow settlement in the still water beneath it.

If no space is left for settlement, the action of 'The Answer' backwash will cause debris to be whipped up and could increase the maintenance schedule.

'The Answer' is guaranteed for 5 years and each model of unit has a maximum flow rate. If these are exceeded, the cleaning action is weakened because the pressure of entry water reduces the power of the water being sprayed out from inside to keep the screen clear.

People who haven't got the physical space in their chamber to fit 'The Answer' can either purchase a container big enough and fit it in-line, in front of their existing tank / vortex or purchase one of our tailor made prime tanks designed to house 'The Answer'. The benefit apart from being able to use our filter, is the old redundant container can be used as additional bio filtration therefore increasing the potential. This is ideal for a new build system or system that is due to be upgraded or replaced due to age.

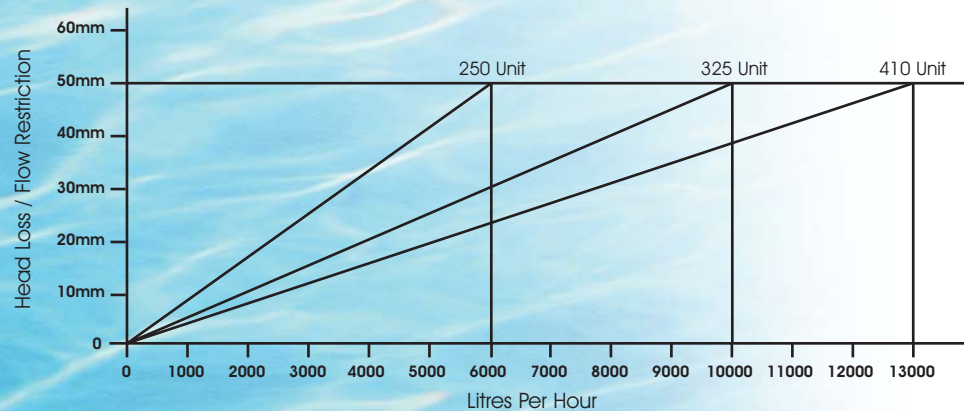
Removable Screens

'The Answer' range now includes removable screens for ease of maintenance. Evolution Aqua will also be supplying a wider range of screens to suit different flow rates and systems.

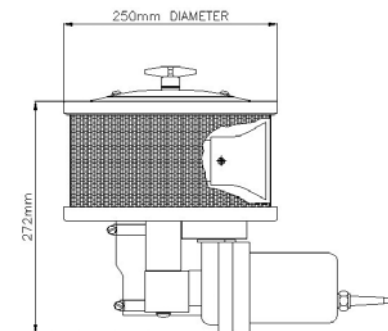
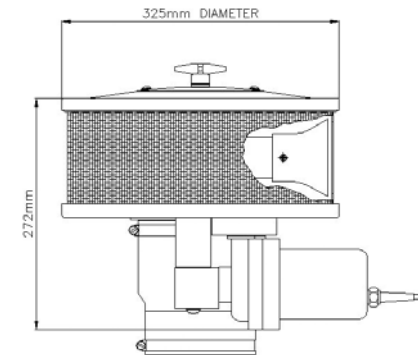
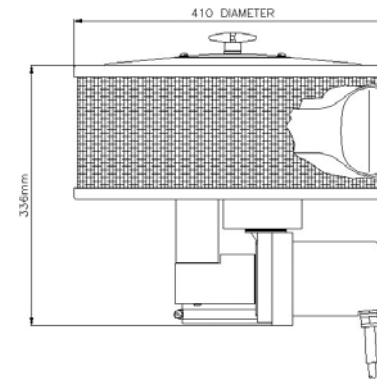
Expected Head Loss / Flow Restriction:

Every filter system experiences some head loss / flow restriction through its inter connecting pipe work. The chart below will show the extra head loss / flow restriction that can be expected after fitting a new or recently cleaned 'Answer' into the system i.e. on a gravity fed system with a flow rate of 10,000 litres per hour a 325 'Answer' would cause the end bio chamber to drop 50mm lower than its pre 'Answer' level. These restrictions may increase indicating a need to clean the screen after time.

Some filter systems may need adapting by lowering transfer weirs to compensate for this unavoidable head loss.



the range



Models

410

410mm diameter
336mm deep
100 micron screen
Max flow rate 13,000 litres / 2,863 gallons per hour

325

325mm diameter
272mm deep
150 micron screen
Max flow rate 10,000 litres / 2,202 gallons per hour

250

250mm diameter
272mm deep
200 micron screen
Max flow rate 6,000 litres / 1,321 gallons per hour

Micron Definition:
1mm = 1000 micron