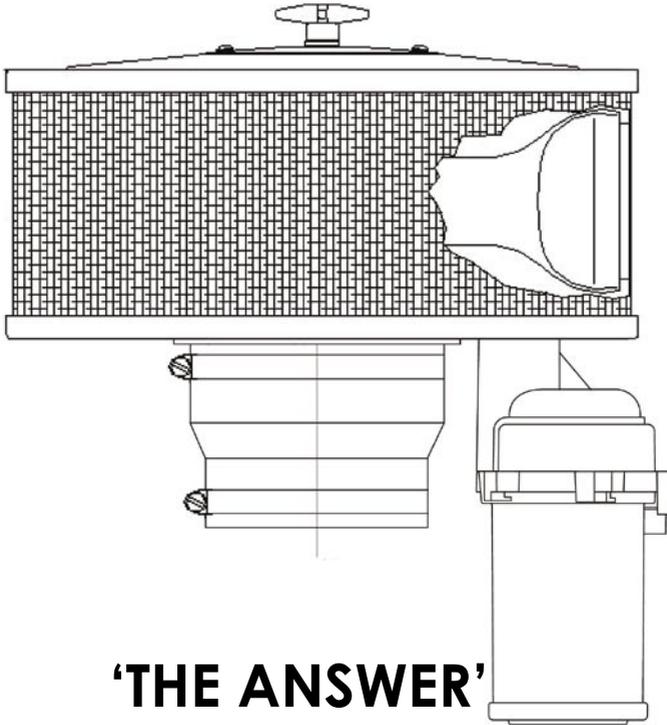


# Installation & Operating Instructions

Note: to prevent damage, do not attempt to operate this unit before reading the manual thoroughly



## 'THE ANSWER' 410, 325 INT (UK)

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## INTRODUCTION

'The Answer' is the result of 4 years of hard work and development by a Koi enthusiast from Southport, England, called Nick Jackson.

Like all other Koi enthusiasts around the world Nick became increasingly frustrated with the endless amounts of algae, dust, solids and fish waste escaping his mechanical filtration stages and entering his biological filtration stages of his Koi pond.

This led to stopping the system and cleaning out the biological stages, which was both labour intensive and resulted in a severe loss of biomass. After every clean out, the bacteria in the biological stages needed to regroup and take hold again via the fluctuating water quality readings of the nitrification process.

This same problem faces Koi keepers and garden pond keepers all around the world, especially in the summer months when extra feeding takes place and algae blooms make the pond even dirtier.

There have been many attempts to rectify this situation such as filter brushes, screens, sand filters and other such ideas. To date none have been even mildly successful.

'The Answer' has been designed and developed specifically to

address this age-old problem. Like all ingenious ideas 'The Answer' is simplicity itself. There are now 2 different models, all function the same, designed the same but cater for different sized ponds and flow rates.

### 'The Answer' 410 Filter Unit

150/200 micron\* screen.

#### **Maximum flow rate -**

13,000 litres/2,863 gallons per hour

**Voltage -** 240 Volts / 50 Hz

**Wattage -** 270 Watts

**Diameter:** 410 mm

**Depth:** 400 mm

### 'The Answer' 325 Filter Unit

150/200 micron\* screen.

#### **Maximum flow rate-**

10,000 litres/2,202 gallons per hour

**Voltage -** 240 Volts / 50 Hz

**Wattage -** 200 Watts

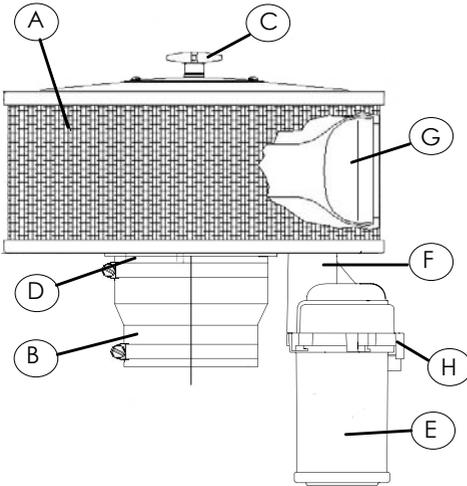
**Diameter:** 325 mm

**Depth:** 370 mm

\*Actual screen size is 150 micron unless otherwise stated on the Answer box.



'The Answer' without its screen



'The Answer' Components

## OPERATION

There are several ways 'The Answer' can be installed into the mechanical stages of filtration but it is first best to explain the operation in detail.

'A' is a reinforced stainless steel screen, which only allows particles of less than the screen size to enter the inside of the unit.

'B' is an adjustable sleeve, which attaches to the base of the unit and then on to exit pipe work.

'C' is the locking fastener. This is used to bleed the unit and also to remove the screen for cleaning.

'D' is a spigot, which allows 'the Answer' to be mounted.

'E' is the pump itself (backwash pump), made and designed especially for the Answer units.

'F' is the return line from the pump.

'G' is the hollow rotor arm which is almost the same length as the inside diameter of the unit. It is connected to the pump outlet and the water leaves via the two jets at each end of the rotor arm. Once the unit is started the rotor arm begins to rotate and the powerful exit jets force water from the inside of the chamber against the inside of the stainless steel screen. This constant action prevents any solids from sticking to the screen on the outside of the unit. Instead the solids are dislodged from the screen and settle out at the bottom of the chamber, which houses the unit.

'H' is a locking screw, which is used as a security lock so that you can not dismantle the pump when it is running.

## ON OPENING

On opening the packaging you will find the following: -

1. Stainless steel filter
2. Rubber sleeve
3. Backwash pump

2 is already connected to the filter.

3 needs to be connected and locked with the locking screw 'H' that is already screwed into the pump.



## CONNECTING THE PUMP

Take the pump out of the box. Remove the pump from the plastic bag and remove the locking screw H from the pump.

Carefully remove the elastic bands from the pump housing whilst holding the coloured rotor in place, to ensure that the rotor does not fall out from the unit. You are now ready to fit the pump.

Turn 'the Answer' unit upside down (fig. 1).

Holding the coloured rotor in place and turn the pump upside down (fig. 2).



Fig 1



Fig 2

Place the pump into position (fig. 3 & 4).



Fig 3



Fig 4

Turn the pump clockwise and lock it into place (fig. 5).



Fig 5



Fig 6

Turn the unit, the right way up, place in the locking screw 'H' from the top and then secure it in place, with 2-3 turns, by using a pozidrive screwdriver. You are now ready to install your filter.

### **The process is quick and simple.**

The sleeve is connected to the relevant exit pipe work in the prime mechanical container and tightened fully to give a watertight seal using a screwdriver (not provided). Check also the connection of the sleeve to 'The Answer'. Please ensure that the pipe work is inserted fully into the sleeve until it makes contact with the spigot on the base of the filter and then lift it up with 1" or 25 mm.

**Installation and operating instructions of the pump connection. Read instructions carefully before attempting installation.**

Attention: Thermal protection. In order to help ensure your pump's long life and prevent possibility of damage, it is fitted with an automatic thermal overload protection. This switches off the pump if it overheats. If this occurs,

switch off the power at the mains supply to the pump. Check for the cause. Usually it will be debris blocking the inlets of the pump or obstructing the impellor. Remove the obstruction and allow approximately 15 minutes for the pump to cool down and automatically reset. Then switch on the pump again. **Note: you must switch off the mains supply before the pump will reset.**

The pump does not use oil or grease for lubrication and can be used safely in ponds containing fish or plants. The motor consists of a sealed stator and water-cooled rotor. All electrical components are isolated from the water.

### **WARNING: SAFETY AND ELECTRICAL CONNECTIONS.**

1. The pump is supplied with 10m of 3 core electric cable which is permanently connected and sealed to the motor. The supply cable cannot be replaced. If the cable is damaged, the pump should be discarded. The plug supplied with this product is not waterproof and must be housed in a dry weather-proof enclosure fitted with a 3 or 5 Amp fuse. The installation must conform to the regulations of the local electricity authority which could include the use of plastic or metal conduit to protect the cable. The pump is designed to be permanently wired to the mains supply in a dry weatherproof enclosure through a Double-Pole Switched Fused Spur

with a minimum contact gap of 3mm (dissconnector) to BS 3676 fitted with a 3 or 5 amp fuse.

2. A 10mA or 30mA Residual Current device (RCD) must be fitted to the mains supply.

3. **WARNING:** This appliance must be earthed and it essential that the connections are made using the following code

Brown - Live

Blue - Neutral

Green/yellow - Earth

The brown lead should be connected to the live terminal which may be marked with an 'L' or coloured brown or red. The blue lead should be connected to the neutral terminal which may be marked with an 'N' or coloured blue or black. The Green/Yellow lead should be connected to the earth terminal which may be marked with an 'E' or coloured green or green/yellow.

4. If an extension cable is required this should be connected to the end of the pump cable using a weather-proof cable connector. The joint must be positioned in a suitable dry housing. The extension cable should be of 3 core 0.75mm<sup>2</sup> polychloroprene rubber insulated cable (ref: HO5 RN-F) and permanently wired to the mains supply with a 3 or 5 Amp fuse.

5. The pump cable (and extension cable) should be positioned and adequately protected against

damage especially where contact with gardening equipment (lawn mowers, forks etc.), children and domestic animals may occur.

6. Consult a qualified electrician or local authority if in any doubt about wiring to the mains supply.

### IMPORTANT

**1. WARNING:** always unplug or disconnect all appliances in the pond from the electricity supply before putting your hands in the water whilst equipment is being installed, repaired, maintained or handled.

2. Do not use the supply cable to lift the pump or answer unit, as this may cause damage

3. Do not operate or leave the pump or answer unit in freezing conditions.

4. Do not allow the pump to run dry.

## INSTALLATION SECTION

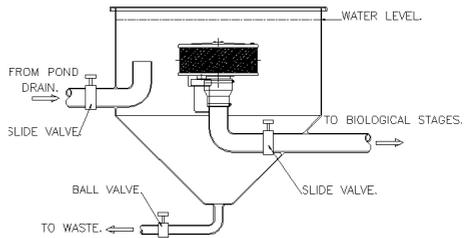
### 1. FOR KOI POND SYSTEMS CURRENTLY IN THE DESIGN AND PLANNING STAGES.

In these instances we recommend using a Nexus specifically designed to house 'The Answer'. The advantages of this are:-

**A.** Good settlement allowing 'The Answer' to perform to its maximum.

**B.** The Nexus is very easy to maintain with 'the Answer' fitted into the central chamber.

### 2. FOR EXISTING FILTER UNITS.



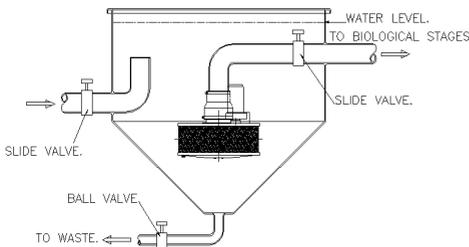
#### a. Typical vortex-style filtration with prime unit having a 'central' exit to the next stages.

The installation here is simple; the central exit pipe can be fitted with a slide valve inside (or outside) the vortex as shown. This allows for quick and easy discharge of the chamber without wasting good water contained in the next stages. Also, it prevents dirty water from entering 'The Answer' from the bio stage when emptying and cleaning the prime tank/vortex. It is also vital to have a slide valve prior to the bottom drain line entering the vortex.

**Important. It has been discovered during trials of prototypes that the tube entering the prime vortex unit MUST be extended upwards by fitting a 90-degree elbow and a short piece of pipe (as shown on previous page).**

This allows the water to enter the

container level with the centre of the screen (upright position) thus creating extremely efficient settling out of all debris. As such the spinning inside the vortex is stopped rendering it a catchment tank. If the spinning were allowed to continue, fine debris would not be allowed to settle and would remain in suspension potentially causing an overload to the screen and subsequent decrease in performance over an extended period of time. This modification should also be done in any prime container, whether it is a round, square or rectangular tank. In this installation the vertical exit pipe from the vortex may have to be reduced in height to ensure the unit sits completely below water level in normal running. We suggest



the unit is located as near to mid-height in the vortex as possible. This although not being critical gives better performance of the unit. N.B. What is important is to have the inlet pipe vertical and level with half way up the screen of the unit as shown above. If 'The Answer' is fitted upside down, the inlet pipe must be brought up vertically, but NOT too close to water surface level as this reduces pressure in the pipe for line purges (150mm below

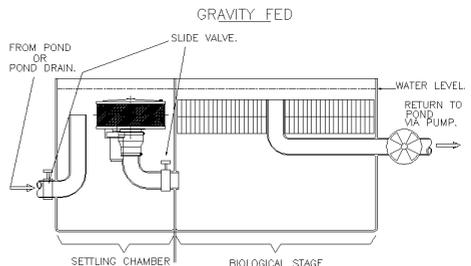
the water level is sufficient).

Once the unit is installed, open the slide valve from the bottom drain line and allow the vortex to fill to normal level. The Answer pump is now switched on to let the air purge out.

**N.B. check that the arm is rotating by feeling the screen for pulses of water from the screen before leaving the backwash pump running.**

**b. For vortex units with 'side wall exits'.**

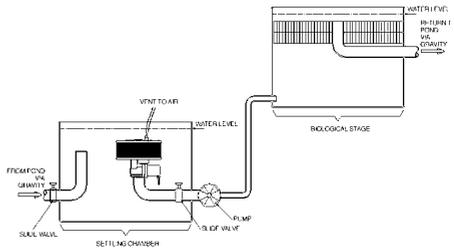
This is a little more complex as the outlet tube has to be extended and brought downwards centrally into the vortex itself as illustrated. Again a slide valve can be fitted inside the vortex chamber. In this installation the unit is installed 'upside down'. If run in this position, the unit still needs bleeding as described before. Care must be taken when fitting extra pipe work that air locks are not created. Bleed screws can be fitted to bends in pipes if they create sites for trapped air.



**Call your dealer for any queries on inlet pipe work conversions.**

**c. For box-type filters either pump or gravity-fed.**

This installation is self-explanatory as the diagram illustrates, again a slide valve is recommended here. Fitting the unit to the induction side of the main circulating pump is less preferable than what we have described. If the unit is fitted to a system directly before a pump, extra special care must be taken with the cleaning maintenance discussed later. This is because, a slight blockage of the screen will allow the pump to literally suck in the screen causing the rotor arm to stop spinning.

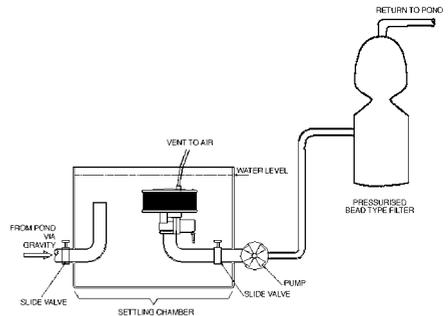


'The Answer' on a pond for the first time. Be prepared for very large amounts of debris to be collected for discharge, especially in the first week or two of running. The unit will not allow most pond particles to pass. Mature systems, which appear to be clear before installing this unit are in fact, 'not so mechanically clear as previously believed' - as the unit will prove!

**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.



In view of this, do be prepared to make discharges of the prime unit to waste regularly as the unit is continually clearing all previous debris out of the system. Once 'The Answer' has done it's job in clearing the pond of the solids build-up from the existing water, it will then be able to operate with normal day-to-day feeding etc. Discharges will not be needed so often once the system is under control.

Another point should be mentioned here to those fitting

A minimum of 250mm is needed below 'The Answer' to allow good settlement, otherwise debris will be held in suspension due to the action of the rotor arm if the unit is too close to the bottom of the prime settlement tank.

## MAINTENANCE SECTION

### Maintenance of 'The Answer'

Cleaning of the container, which houses the unit depends on the volume of the container in question together with the amount of waste collected, this varies dramatically from pond to pond. How often you choose to discharge the container itself should be determined by your own experience of your own system.

Occasionally, in cases of high stocking density, some customers have noticed a loss of performance of the filter, indicated by a slight head loss in the end bio chamber or a build up of waste matter around the screen. This is caused by a build up of bio film and can be remedied easily. (See cleaning section). The stainless steel mesh can be scrubbed gently from time to time with a cleaning brush (nylon not metallic) or rubbed with a damp cloth. A garden hose with a high pressure nozzle is also a very effective method of completely cleaning the screen.

**Please Note: Pay special attention to the cleaning section at the end**

### of this booklet.

**Important. Never run the unit with the main pond circulating pump turned off, this could draw contaminated water from the first bio chamber thus soiling the inside of the unit. On installation and every occasion that water is lowered below the screen of the unit, manually check by feeling for a pulse that it is operating correctly - never presume so.**

'The Answer' should only be fitted in the 2 horizontal planes as shown earlier. It is recommended NOT to fit it on its side where avoidable because settlement is not as easily achieved and the debris stays in contact with the screen for prolonged periods of time.

### Maintenance of the Pump

The pump has been designed to allow fast and easy maintenance. As with all pumps of this type, occasionally it will become necessary to clean the rotor.

Always unplug or disconnect ALL appliances in the pond from the electricity supply before putting your hands in the water or starting maintenance.

1. Remove the locking screw from the pump body.
2. Firmly rotate the pump out of its location and remove.

3. Pull the rotor assembly out of the motor body.

4. Wash out all of the components in clean water. Do not use detergents or other chemical cleaners.

5. Replace the rotor assembly into the motor body and reassemble the pump and the locking screw.

### **ALL YEAR PUMP CARE**

A quick daily check should be carried out to ensure that the pump is performing satisfactorily.

Once a month, remove and clean the pump in accordance with the general maintenance notes. Depending on pond water conditions, cleaning may be required more frequently. Once a year, completely disassemble the pump including the rotor assembly as described in the general maintenance above.

### **TROUBLESHOOTING**

In the event of the unit blocking causing the prime vortex to overflow or the bio-chambers to empty, please check the following:

-

1. Check power supply to pump by feeling pump body (it will vibrate if running).

2. Consider prolonged build up of waste on screen and treat as described later.

3. Check for air locks inside the

unit and new pipe work installed to fit it.

4. Make sure that you have not overloaded the prime with too much waste matter. This has happened to over enthusiastic keepers doing demos at home and putting in a full bucket of solid waste to see what it will handle. Be realistic, the unit will handle the dirtiest pond but there is a limit. The flow rates quoted for each 'Answer' model are a maximum flow rate per hour in average pond conditions and may need to be reduced in dirty conditions until the filter has had time to remove the majority of the solids from the water, this improvement period may take several weeks.

5. Make sure the boot is fitted properly and not leaking in dirty water causing the unit to block from the inside.

6. Remove the lid of the unit and manually check the rotor arm is spinning freely inside and not stuck by an obstruction.

7. If none of the above resolves the problem ring Evolution Aqua for further support.

### **CHECKLIST ON INSTALLATION**

1. Make sure you have not created any obstructions or air locks in the pipe work you have altered to accept 'The Answer'. We suggest running your altered system for

a few minutes with 'The Answer' removed to check for any of the above problems.

2. When fitting the unit to your exit pipe work, ensure a good watertight seal and that the sleeve has not become pleated or crimped.

3. Alter whatever entry pipe work you have as previously described, making sure the flow is coming in vertically and at least level with the centre of 'The Answer' screen creating a downward flow of water towards it. This is crucial for good immediate settlement of the finer particles it removes.

4. In whatever catchment tanks you use, ensure an adequate area below 'The Answer' of dead water to allow settlement. N.B. a small box filter with 100mm or 125mm of space between the base of 'The Answer' and its bottom floor is inadequate. We suggest a minimum of **250mm**.

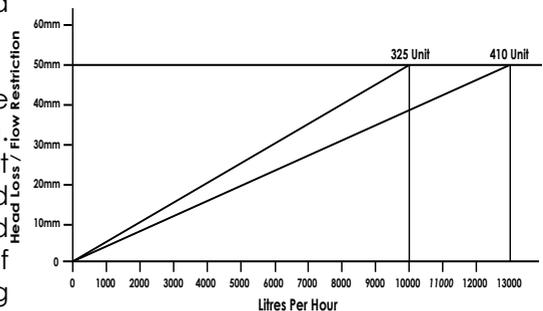
5. Never run the unit without the main circulating pump running. Never drop the prime tank without closing the slide valve described before. Both of the last 2 could cause interior contamination of 'The Answer' due to back flushing of waste from the first bio tank.

6. Never run more than the recommended maximum flow rate for each unit through your main circulating pump.

7. The head loss that may be expected through our unit is shown below. Exit pipe work in bio chambers can be shortened accordingly if they are running currently at virtually water surface level.

### 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. (See cleaning section).



### CLEANING 'THE ANSWER'

Whilst 'The Answer' is a self-cleaning mechanical filter, it has always been advertised as

'truly low maintenance.' That title means that it will need some, albeit infrequent cleaning so that it carries on working at 'day 1' performance levels. The cleaning consists of a 15-minute treatment of the screen and will need to be carried out once a decline in performance of the system has been experienced. There is always a slight head loss when running 'The Answer' in a system. This will vary according to flow rates and is covered in more detail, re: the graph on the previous page. If this head loss starts to increase and affects the running of the system, generally it is an indication that this quick cleaning process needs to be performed. The cause is a build up of bio film, which grows on every surface in a pond system and has the effect of gradually closing the holes in 'The Answer' screen. The frequency of cleaning will start to decrease as the pond becomes cleaner and the TSS and BOD start to drop within the pond, reducing the growth of biofilm on the screen. Generally, the first cleaning will be required after 2 to 3 months in normal conditions. Subsequent treatments will become less frequent.

## Methods of cleaning

Weekly general maintenance that most 'koikeepers' tend to do, could include hosing the screen or giving it a wipe or a light brush to remove any dirt that has accumulated. Once this build up becomes

more intense and the time delay between these types of cleaning decreases, a 15-minute special treatment is needed. This can be done using a cleaning fluid that we have tested and recommend due to its efficiency and results. It can be bought in a slightly different form at most good hardware stores worldwide (for example B and Q). It is sold as 'caustic soda' (soda lye), which is a granular form of sodium hydroxide. It is normally sold at 30% concentration, which is relevant to the preparation of it prior to cleaning. Always follow the instructions on the packaging. The required cleaning solution should be 15% strength and so a 1:1 mix with water would be necessary in the examples above. Make sure that 'soda crystals' (sodium carbonate) are not bought by mistake as this substance is totally ineffective. Once the correct strength fluid is mixed the cleaning is carried out as follows. You will require about 300 ml or a cup full.

**Note: -Sodium hydroxide is safe in low levels for koi ponds. It is also used in the aquaculture industry as a pH buffer, but we suggest the less contamination allowed to be mixed with pond water, the better.**

## Cleaning 'The Answer'

**Turn off the relevant pumps, UV's etc. including 'The Answer' pump.**

Close all valves going to, and from your primary tank, or isolate the filter chamber containing 'The

Answer' unit. If 'The Answer' has been fitted the normal way up and is easily accessible we suggest only removing the screen to clean. If the unit is upside down or difficult to access, we suggest removing the complete unit for cleaning. The unit may be cleaned in position but we suggest care is taken to prevent the fluid entering the pond as it may affect your pH slightly.

## Removing the Screen

**Please note:  
Extreme care must be taken due  
to sharp edges.**

- Remove the locking nut from the top, anti clockwise. Take care not to unscrew it too fast and drop it into the chamber.
- Remove lid.
- Remove rubber seals & screen.
- If need be remove the rubbers from the screen, especially if the cleaning fluid is going to be used.



- Brush screen with cleaning fluid using a soft uncontaminated natural bristle brush.
- Allow liquid to penetrate screen for 10 minutes minimum, reapply with fluid and wait a further 5 mins (15mins in total).
- Whilst waiting, check spray nozzles for blockage, or foreign

bodies. If any problems, note position of spray heads, remove with cross head screwdriver. Backwash with hose and rinse to ensure clean. **Replace in same direction as removed.**

- After a 15 minute minimum standing time, rinse the screen thoroughly with hose or jet wash, (avoiding grass areas).
  - Replace the rubbers to the screen and return to the main housing, checking the rotor arm moves freely and make sure the screen mesh has not been damaged whilst cleaning.
  - Refit the lid and re-tighten the locking nut. (The locking nut will reach a positive stop, do NOT attempt to tighten beyond this point).
  - Turn on 'The Answer' pump, and make sure there is a pulse from the screen. Then turn off.
  - Open all the isolation valves and turn on all the equipment that had been turned off.
- Turn back on 'The Answer' pump.

**PLEASE NOTE:  
Care must be taken not to distort  
the screen, when removing and  
replacing.**

***Top screw, which is used for  
bleeding in up-right position, also  
for removing lid and screen.***

## HEALTH & SAFETY

For Product Safety: When using any cleaning agents, ensure you refer to all the instructions and safety recommendations supplied with the manufacturer of the cleaning products.

## ANSWER GUARANTEE

**This Evolution Aqua product comes with a 2 year warranty, which is valid from date of purchase. Proof of purchase will be required.**

If the pump, excluding the Rotor Assembly, becomes unserviceable within 2 years of the date of purchase it will be repaired or replaced at our option free of charge, unless in our opinion it has been damaged or misused.

Liability is not accepted for damaged due to accident, improper installation or use. Liability is limited to replacement of the de-



fective parts. This guarantee is not transferable. It does not affect your statutory rights.

To obtain the benefits of the guarantee, firstly contact Evolution Aqua service department who may request that the pump is sent along with proof of purchase

directly to the address below or other when instructed to you.

Repair works under guarantee will be performed only by our house or a firm, duly authorized by us.

Claims for damages on the transport shall only be recognized if the damages is stated and confirmed by the carrier. Only then can we claim for compensation from the carrier.

Evolution Aqua reserve the right to change this product specification without prior notice.