Installation Manual for the F-Line underground tank

1,500 litre
3,000 litre
5,000 litre
7,500 litre

Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

Tank Dimensions and inverts

With the tank you will have received one of three different shafts dependent on your order. Please note which has been received and refer to the relevant shaft in the grid below :

- VS20 – 235mm shaft and pedestrian lid
- VS60 – 635mm shaft and pedestrian lid - The overall height difference below is because up to 400mm can be cut off the 635mm shaft on site so as to achieve your exact invert level
- Driveable shaft & lid – Steel lid and shaft for vehicle loading

	1500 L	3000 L	5000 L	7500 L
Weight KG	80	170	250	310
Length	2400	2400	2960	3340
Width	1200	2400	2220	2310
Overall Height (VS20 – 235mm shaft)	1015	1015	1350	1415
Overall Height (VS60 – 635mm shaft)	1015 – 1415	1015 – 1415	1350 – 1750	1415 – 1815
Overall Height (Driveable shaft and lid)	1415	1415	1750	1815
Ground to Invert (VS20 – 235mm shaft)	320	320	345	310
Ground to Invert (VS60 – 635mm shaft)	320 – 720	320 – 720	345 – 745	310 – 710
Ground to Invert (Driveable shaft & lid)	720	720	745	710
Invert to Outlet	162	162	162	162

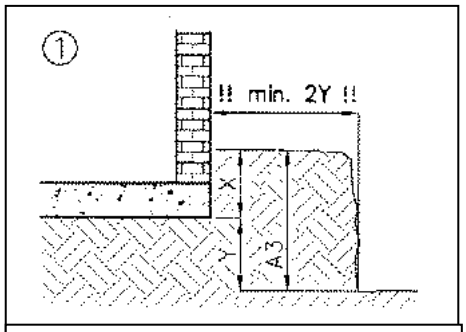
Excavation

	1500 L	3000 L	5000 L	7500 L
Length	2800	2800	3360	3740
Width	1600	2800	2620	2710
***Overall Height VS20**	1115	1115	1450	1515
***Overall Height VS60**	1115 – 1515	1115 – 1515	1450 – 1850	1515 – 1915
***Overall Height Driveable shaft & lid**	1515	1515	1850	1915

***The overall excavated height allows for a base of 100mm compacted aggregate**

Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

1. Location



Please refer to the table on Page 2. A3 relates to the 'Excavated Overall Height' dependent on shaft and tank type

1.1 Position to the building

- The excavation must not be within the minimum distance to the building. See Image 1.
- The tank may not be built over by any loads greater than vehicle loads.

1.2 Traffic Conditions

- Loading Class A15 e.g pedestrian or cyclist – The standard pedestrian lid is suitable.
- Loading Class B e.g car, minibus, max axle load of 2.2 tonnes – Vehicle loading shaft and lid required. Minimum distance from top of tank body to earth surface must be 600mm

1.3 Ground conditions

- The tanks may lie in ground water and / or surface water up to the top of the body of the tank. Please refer to the table below to see the maximum depth dependent on your tank and shaft type.

	1500 L	3000 L	5000 L	7500 L
Max water table depth (VS20 – 235mm shaft)	365	365	430	290
Max water table depth (VS60 – 635mm shaft)	365 - 765	365 – 765	430 - 830	290 - 690
Max water table depth (Driveable shaft & lid)	765	765	830	690

1.4 Hillside location

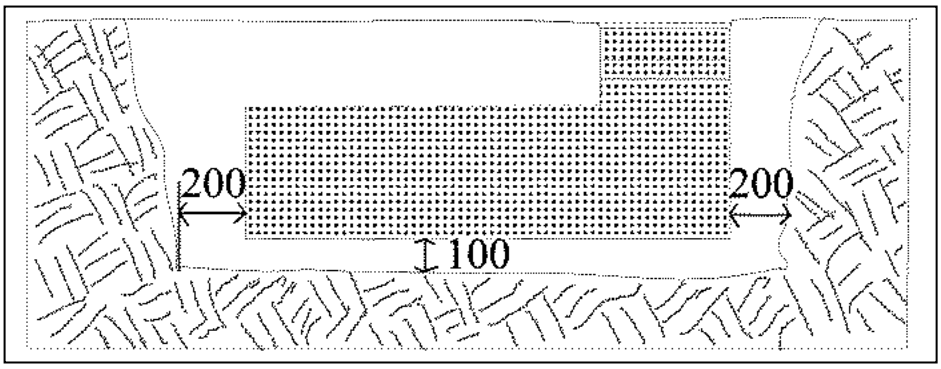
- The soil within the area where the tank is to be positioned must be checked for possible soil movement (DIN 1054 edition 1/2003, E DIN 4084 edition 11/2002) and if necessary will need to be secured with a supporting structure (eg retaining wall)
- Consultation with local authorities is recommended.

Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

1.5 Installation details

1.51 In clay ground conditions:

- The excavated area should be wide enough to allow the compression of the filling material (200mm) See Image below.



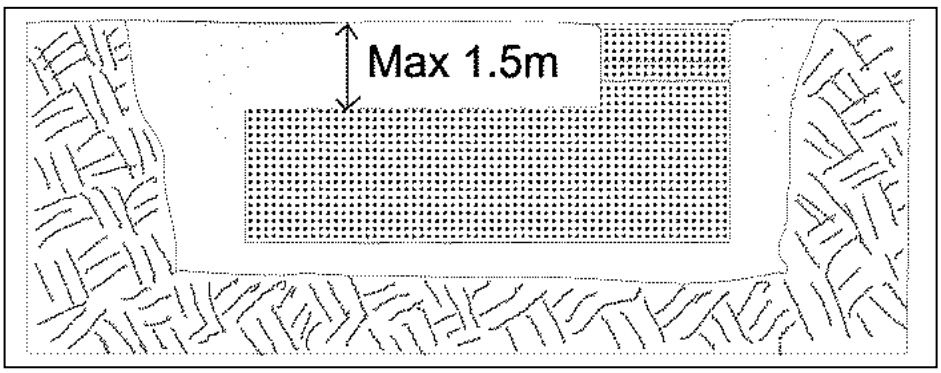
- With installations deeper than 1.75m (ground to base of tank) use 500mm width of the filling material.
- The tank should be covered with at least 300mm of filling material.

1.52 In loose ground conditions:

- Up to 1.75m depth of excavation use 200mm of filling material around the sides of the tank.
- With installations deeper than 1.75m use 500mm width of the filling material
- The tank should be covered with at least 300mm of filling material

1.6 Further criteria

- Existing pipelines, pipes, vegetation and other specifics must be considered so that damage or hazards will be avoided.
- The maximum soil coverage on top of the tank body is 1.5m
- If it is not guaranteed that the ground water level will remain below the permitted maximum level, a drainage system must be installed around the tank, which reliably drains the water. If a drainage system is not possible then contact your supplier about an alternative tank.



2. Installation

2.1 Backfill around and below the tank

- Backfill material around the tank has to be well compacted and permeable to water allowing close packing and no damage to the surface of the tank
- If the filling material contains sharp of sharp-edged components, the wall of the tank must be protected by a sandy coating.

2.1.1
- Gravel mixtures are the preferred filling material. The recommended sizes 8mm-16mm

2.1.2
- Concrete gravel with a particle size of up to 16mm is recommended for use in clay / loam soil conditions with ground water and high water table.
- When ground water and a high water table are present it is important to ensure good compaction when applying the filling material.

2.1.3
- Stone Chippings – crushed rock particles between 4mm and 16mm in size are suitable filling material. However due to the sharp edges the tank must be protected against damage, for example using a sand coating.

2.1.4
- Excavation – sand and gravel mixtures with mixed particle sizes is suitable as a filling material providing they meet the criteria listed under 2.1

2.1.5
- Top soil, clay, loam and other types of cohesive soils are not suitable as filling material.

2.2 Backfill on top of the tank
- Excavated soil or other material can be used if it is stable and permeable

2.3 Backfilling and compaction methods
- The backfilling and compaction methods to be used are described in Section 3 (Installation Instructions)

2.3.1
- Adding water to the filling material is not recommended as this will make the compacting unstable
- The base layer for driveable situations must use a grain size of 2/45

2.4 Pipes
2.4.1
- The feed pipe should be laid with a fall to the tank of greater than 1 degree
- Ensure that underground rainwater pipes come from sealed gullies (do not use open gullies)

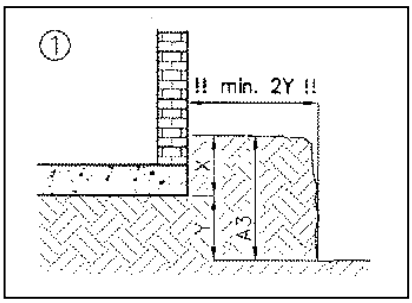
2.4.2
- The overflow pipe / drain pipe should have a deeper fall away from the tank than the fall from the feed pipe to the tank

2.4.3
- The service pipe is to be installed using the provided seals to ensure a tight fixture to avoid contaminants entering the tank. All electrical and other cables are laid through this service pipe back to the property.

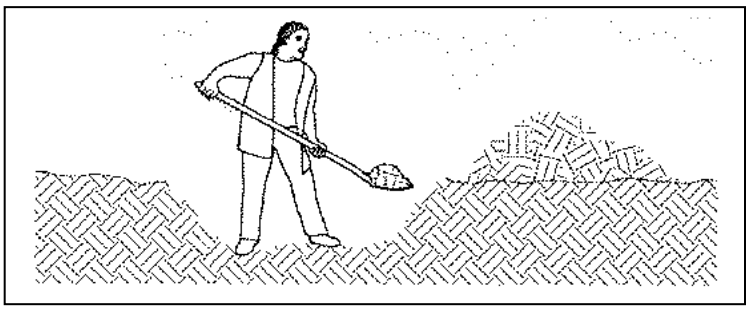
2.4.4
- The pipes must be laid in such a way to avoid frost damage.

3. Installation Instructions

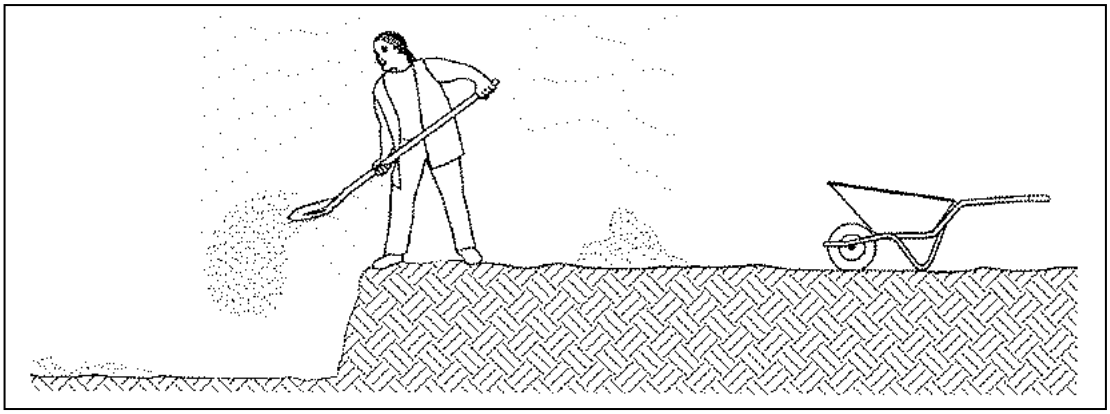
1. Establish distance from the property.



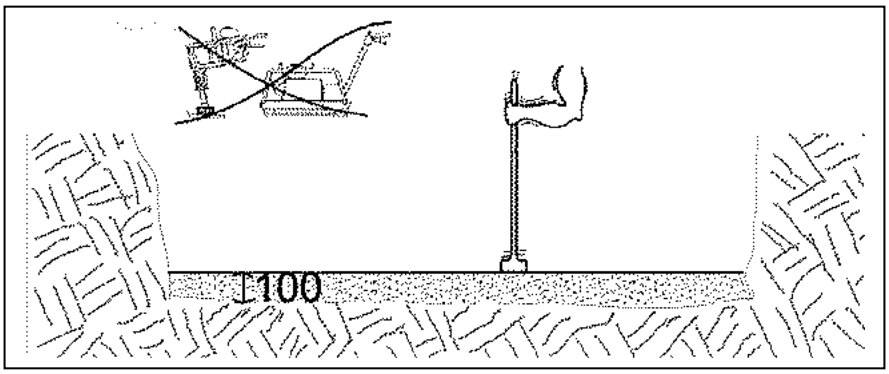
2. Dig hole



3. Lay 100mm base

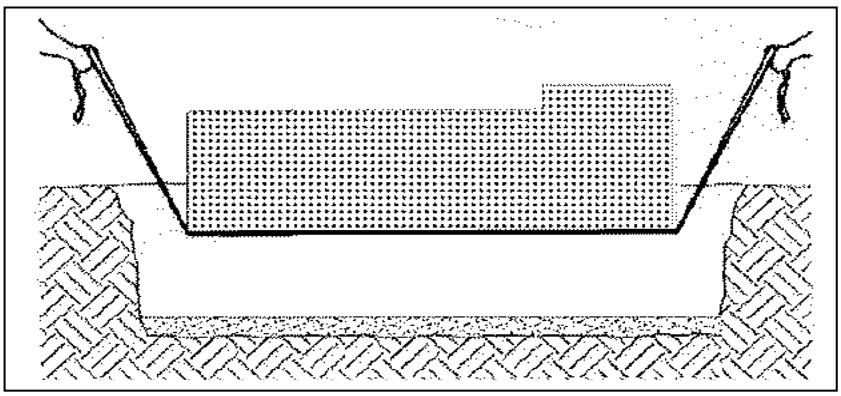


4. Compact the base by hand only. Ensure you have a level base.

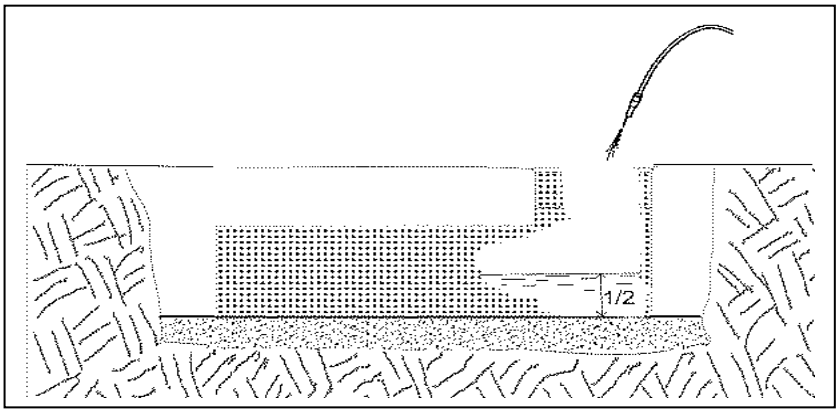


Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

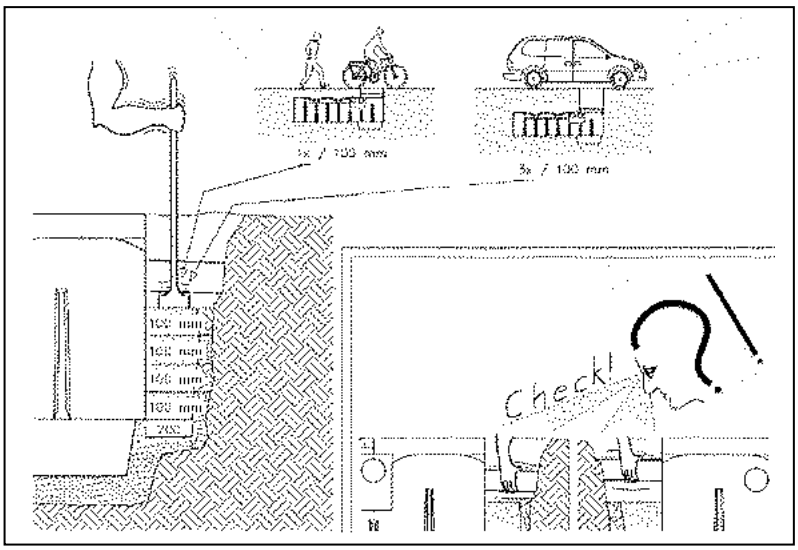
5. **Lower the tank carefully into the hole ensuring that you are achieving the necessary widths around the tank for the filling material.**



6. **Fill the tank with water up to half way**



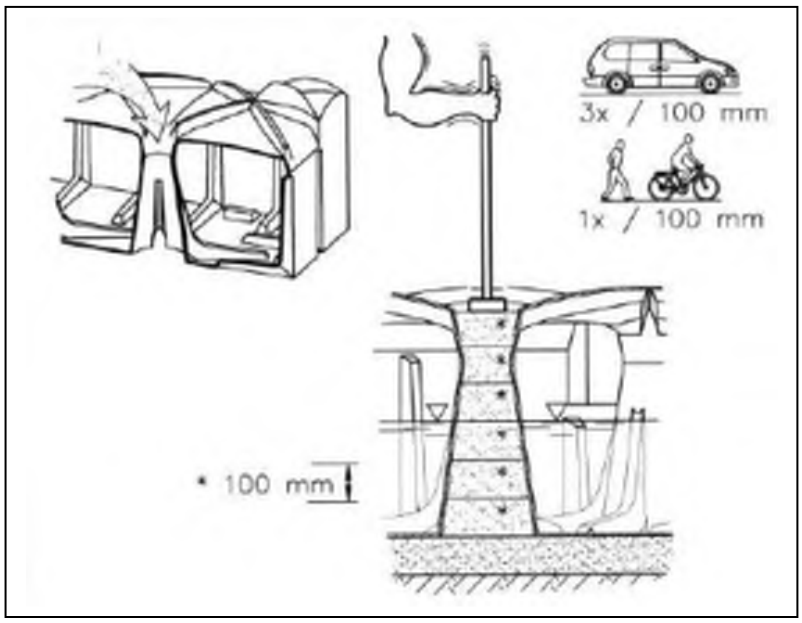
7. **Apply filling material**



- Do not use a mechanical whacker plate.
- Hand tap the material to compress it.
- Lay in 100mm layers for pedestrian install
- Lay in 300mm layers for driveable install
- Check to ensure the minimum width between the tank and excavation wall is correct (min 200mm)

Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

8. **Hand compress the filling material into the central columns**



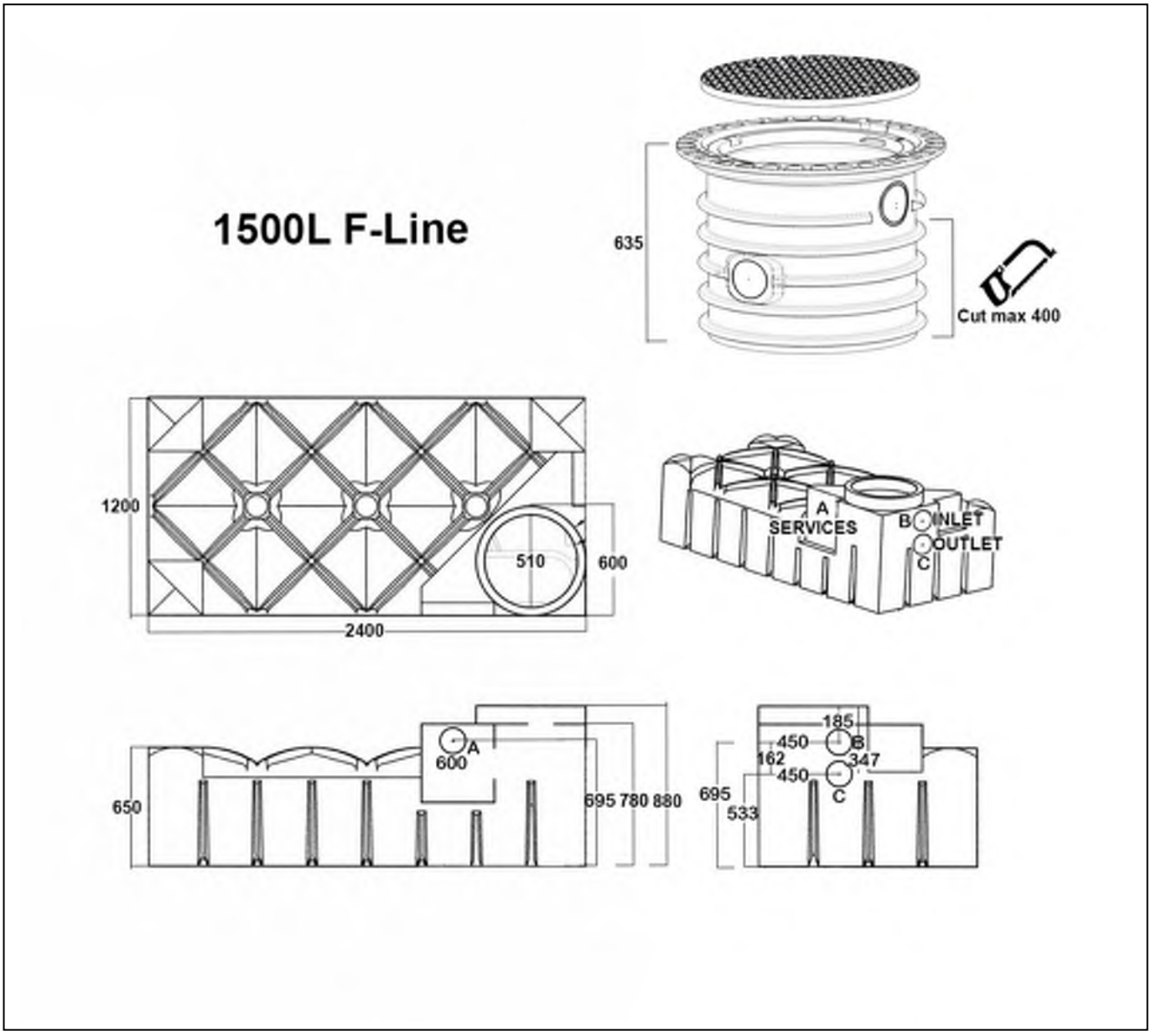
To link tanks together do the following:

- Drill a hole using a 127mm drill bit into a flat part of the tank at low level.
- Insert the supplied grommets (seals) into the hole.
- Feed a 4" pipe into the hole allowing at least 500mm to be inside of the tank.
- Use washing up liquid if necessary to assist with pushing the pipe through the grommet.

NOTES :

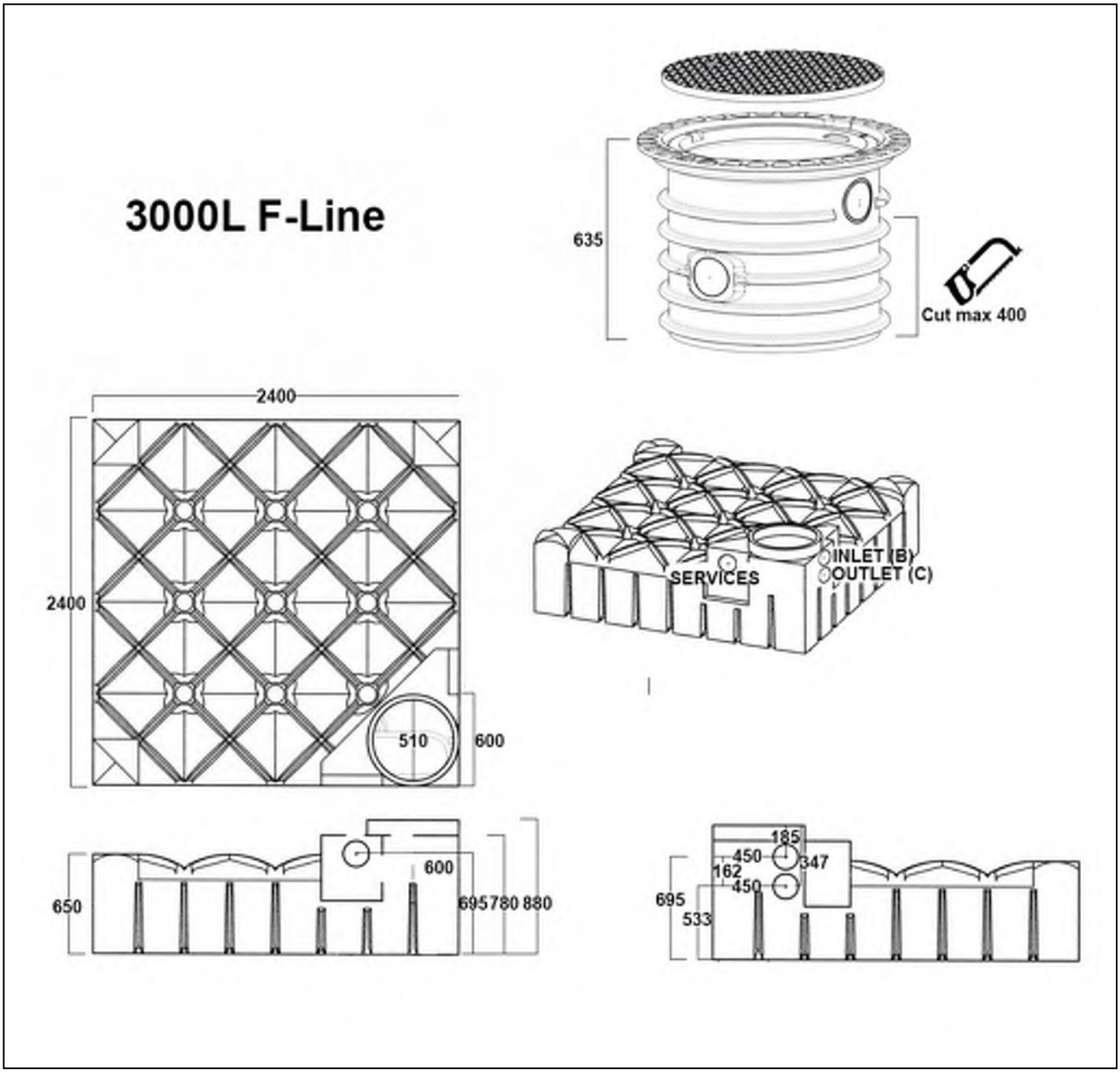
- **Please refer to the individual installations documents for the shafts, extension sleeve and driveable shaft and lid.**

Tank dimensions and hole positions

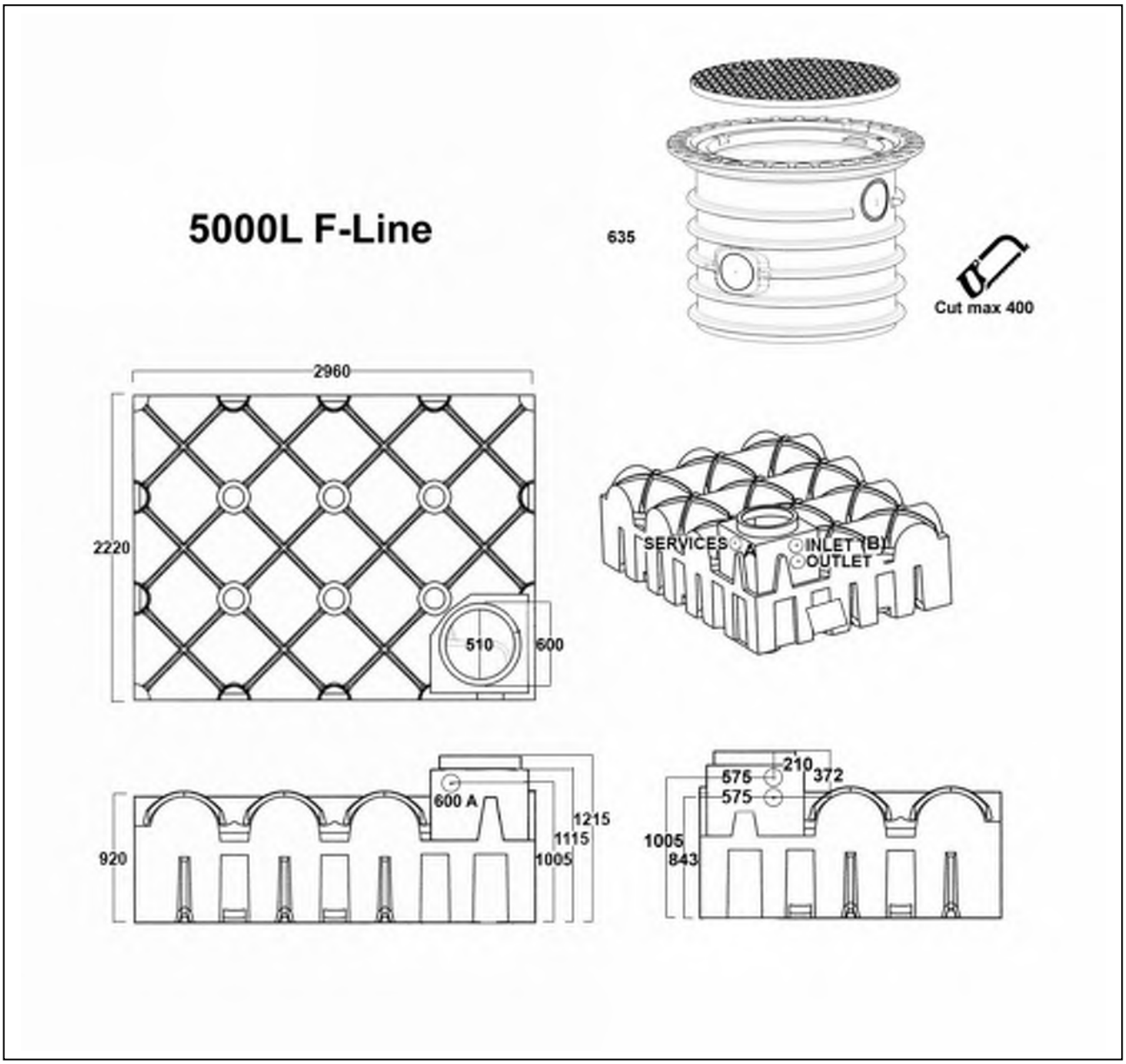


Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

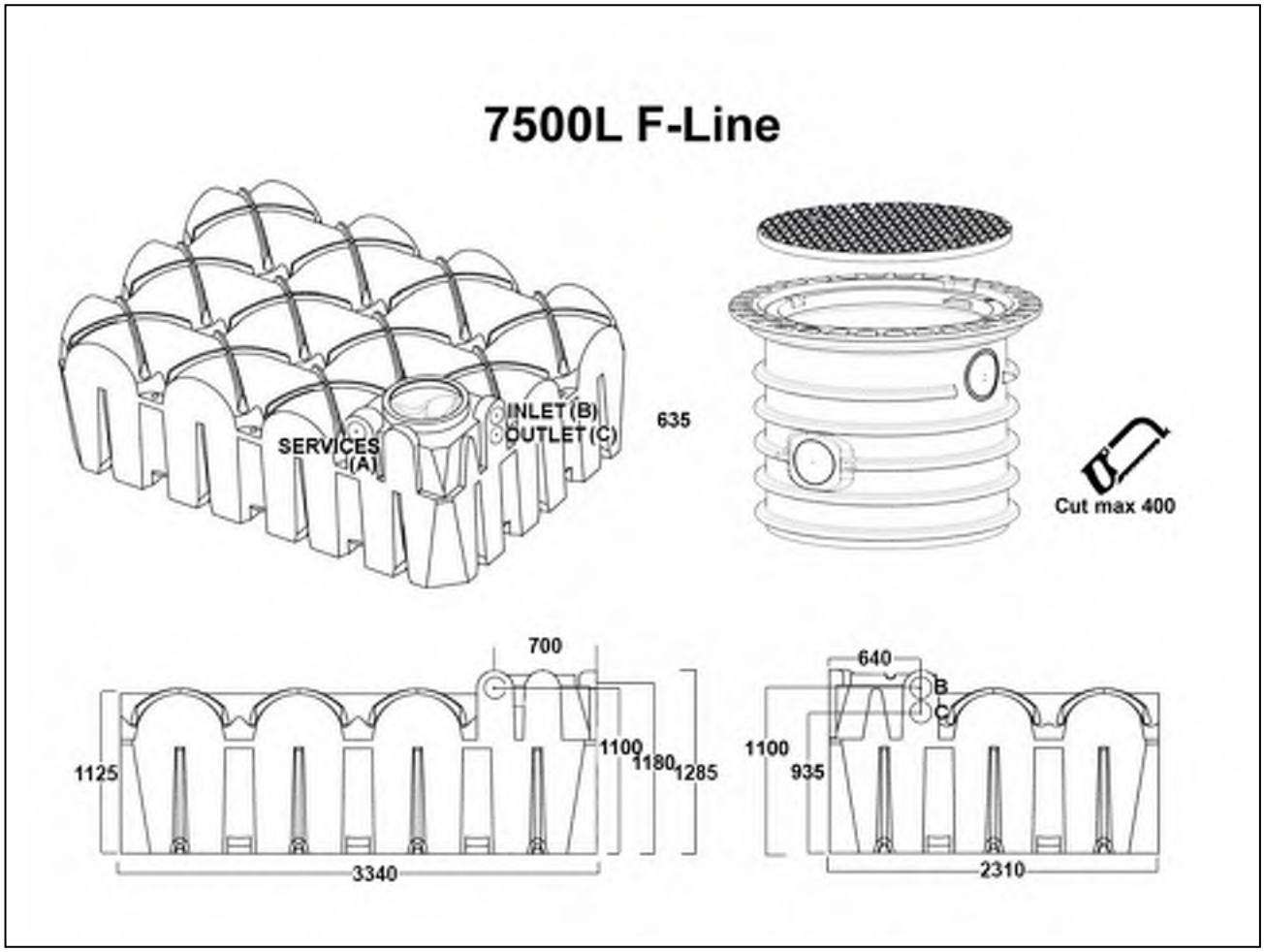
3000L F-Line



Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019



Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019



Rainwater Harvesting Limited, Unit A Harrier Park, Southgate Way, Orton Southgate, Peterborough, PE2 6YQ,UK
Phone +44 (0) 1733 405111 – Fax +44 (0) 1733 230996
Email : info@rainwaterharvesting.co.uk – Website : www.rainwaterharvesting.co.uk
25th April 2019

BUB V01

RWH-BUB03 & RWH-BUB03-R

RainBackup® in a Box

Plug-and-play mains water backup
for Rainwater Harvesting Systems

RainwaterHarvesting.co.uk

WHAT IS THE RAIN BACKUP IN A BOX?

BUB 03

BUB 03-R

This system ensures water will be available to appliances in times of drought when the Rainwater tank is empty. The system uses a level sensor inside the tank to open a solenoid valve within the control unit when water reaches a critical level.

When the water level drops (Fig1.1), the barrel on the level sensor switch will drop and trigger the PCB board to start the flow of mains water.

As the barrel on the level sensor switch raises and reaches it's highest point (Fig1.2), the PCB board allows 45 minutes of mains water restricted to 4 litres per minute (180 litres) to enter the tank.

U.K. Water Regulations require that rainwater cannot possibly flow back into the mains water supply. The **Rain Backup in a Box®** is fully WRAS Approved which confirms that it meets all water regulations.

Fig 1.1

For this reason all mains backup devices must have an air gap where the mains water flows into the rainwater tank. The air gap in this system is an anti-splash tundish and overflow incorporated into one; the transparent blue moulded part. The level sensor is provided with 20 metres of cable and uses a push connection under the right hand panel.

The **Rain Backup in a Box®** should be fitted inside the building where the occupiers can (when rainwater has run out) hear any mains water running from the solenoid valve. Wall mounting is with screws through holes in the back of the control unit.

The **Rain Backup in a Box®** is reliant on a constant power supply, as such we recommend at least one WC is kept on mains water to prevent any disruption in the event of a power failure.

Fig 1.2

WHATS IN THE BOX

KEY TO THE CONTROL PANEL & PIPE DIAMETERS

- A Multi-route anti splash tundish
- B 1" air gap
- C Solenoid valve
- D Mains in 15mm pushfit/copper
- E Mains to tank 32mm pipe
- F Overflow 32mm waste pipe
- G Floatswitch/level sensor connection
- H Power adapter 230v AC

BUB 03

BUB 03-R

TYPES OF SENSOR HOUSING

RWH-BUB 03: The level sensor is housed in the D Clip which is then slotted onto the D profile of the Vantage Filter inside the tank. The location of this housing can be adjusted on the D profile.

If you want to have additional capacity in the tank before the backup unit kicks in raise the housing unit so it is higher in the tank.

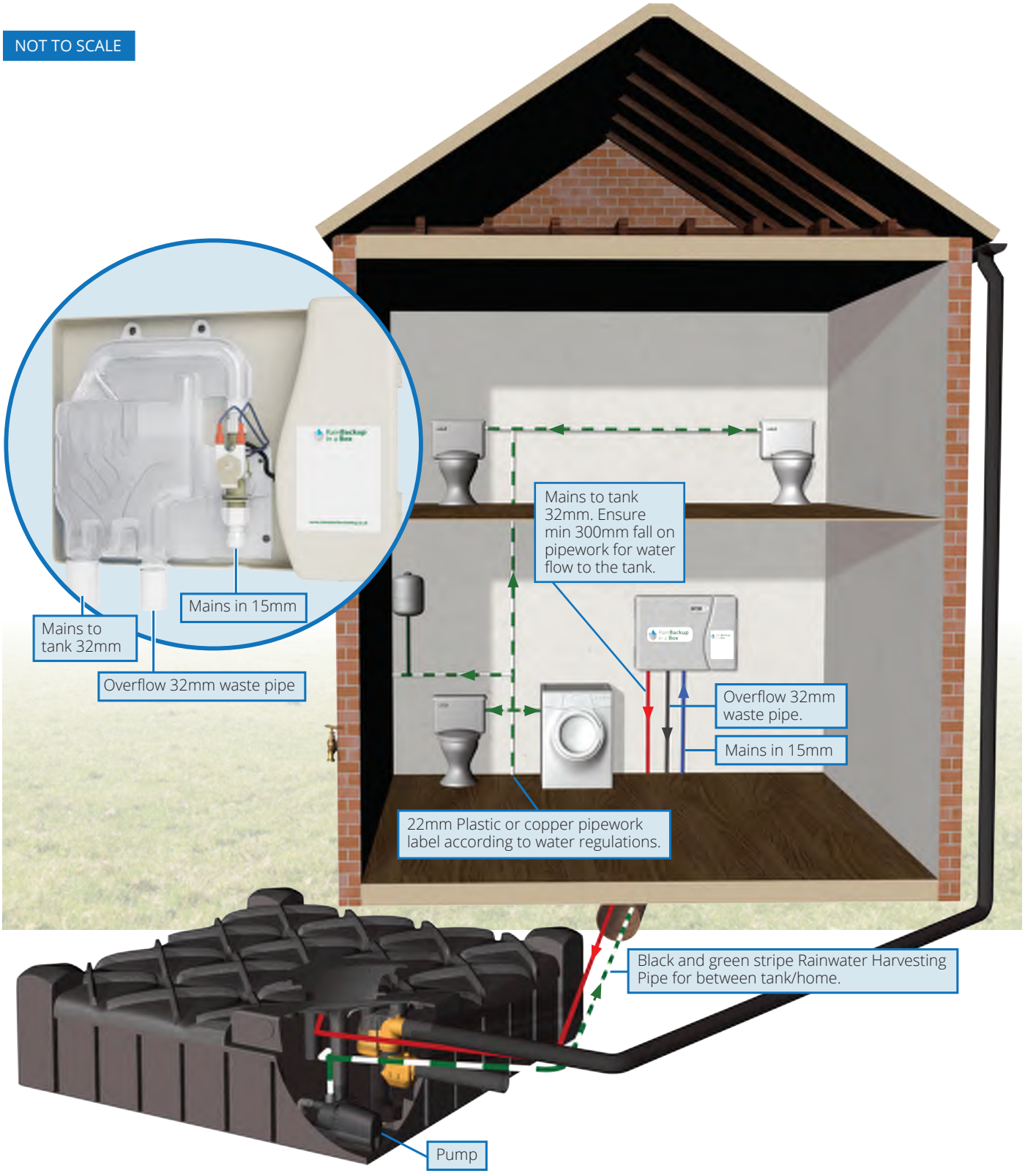
RWH-BUB 03-R: The level sensor is housed in a 110mm clip which you would then position around the 110mm pipe inside the tank. For use with all other filters.

Further installation guidance can be found online at:
www.rainwaterharvesting.co.uk

Please follow the instructions provided carefully. Not doing so could cause damage to the unit and invalidate the warranty. If you have questions or require assistance please contact one of our technical team.

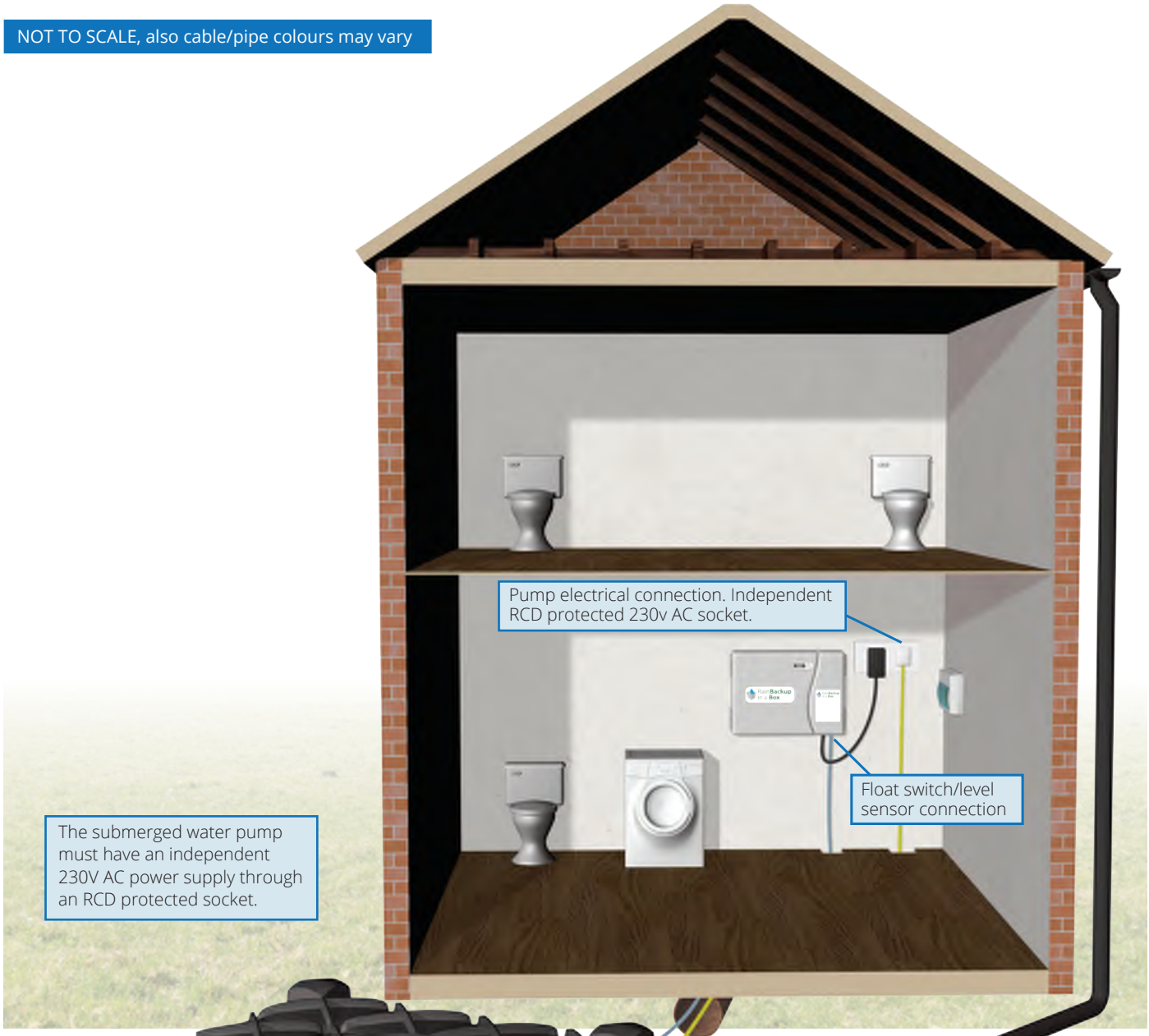
PLUMBING SCHEMATIC

NOT TO SCALE



WIRING SCHEMATIC

NOT TO SCALE, also cable/pipe colours may vary



Pump Power Cable. Separate 3 core armoured cable in ducting. Use waterproof connection box lid of the tank to power pump.
DO NOT RUN PUMP CABLE BACK TO HOUSE

Key

- float switch cable
- power cable for pump
- 12v power supply for the Backup in a Box

INSTALLATION INSTRUCTIONS

KEY TO THE CONTROL PANEL & PIPE DIAMETERS:

A 12v Power connection

B Level sensor connection

MAKE SURE THE FLOAT SWITCH IS CONNECTED BEFORE THE POWER IS SWITCHED ON

Connect the unit's 12 volt DC adapter to a 220V AC mains socket. Power should be maintained to the unit at all times.

These instructions assume the exterior tank is fully fitted to the specification of the instructions provided.

Rainwater should be taken from the roof surface, through a filter into an underground storage tank and a pump to take the rainwater through a separate pipe network for toilets, washing machine and outdoor use.

1) Locate the best position for the **Rain Backup in a Box®** unit.

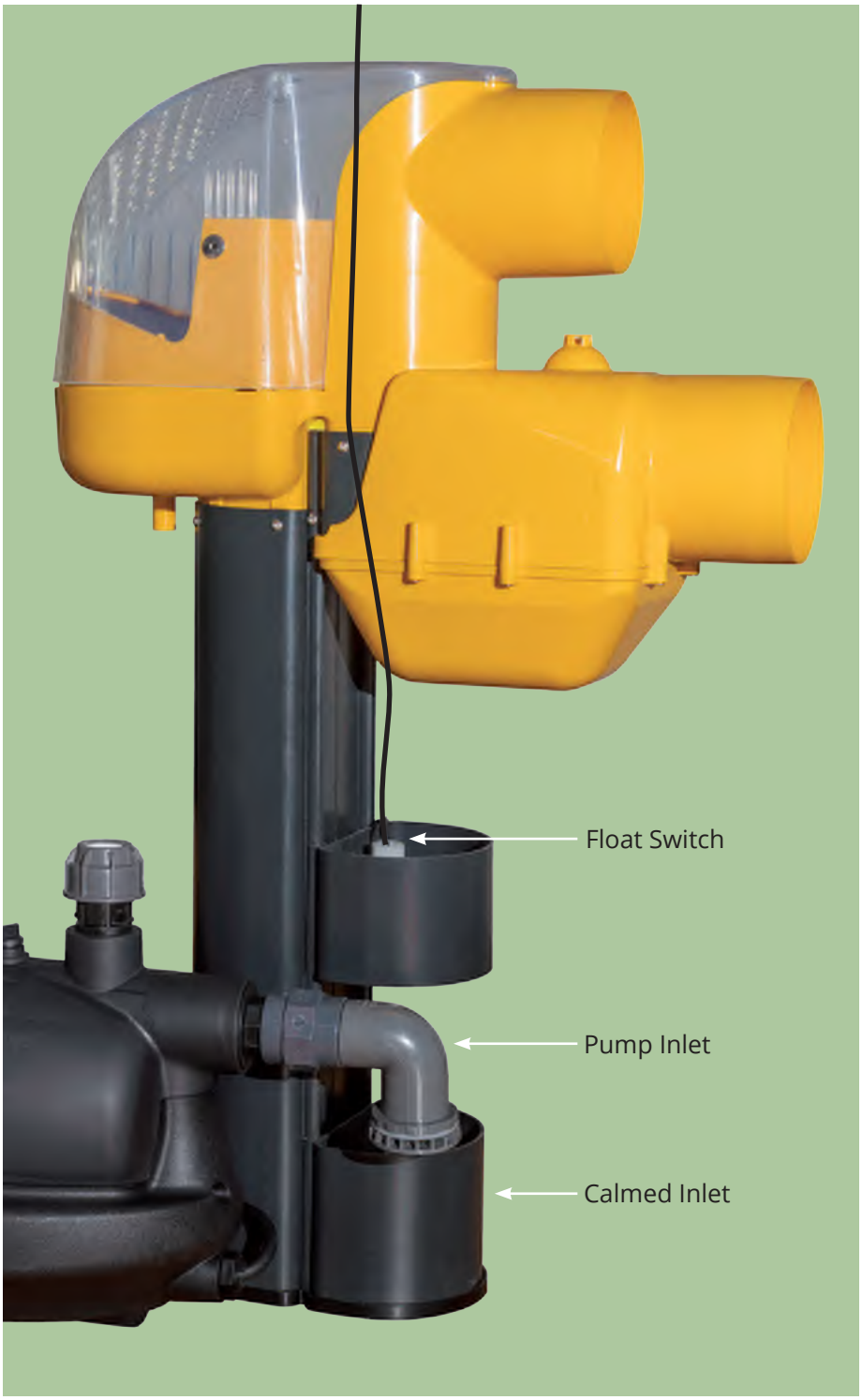
- Inside the building where the occupiers can see and hear it, accessible for occasional checks.
- Within a metre of a 220v AC wall socket for the 12v power connection.
- Accessible to a mains water pipe.
- Above the top of the underground storage tank so that the backup mains water flows by gravity.

2) The unit must be securely mounted flush to the wall and not angled in any way, thus avoiding the possibility of water escaping from the 1" air gap. Then pipe the mains water to the inlet at the bottom right of the unit into the solenoid valve.

3) Pipe the outlet of the tundish using 32mm waste pipe from the bottom left of the unit to the rainwater storage tank. **The first 300mm must be a straight fall**, with the remaining pipe having sufficient fall for the water to run under gravity to the below ground tank. Any angle close to the unit risks the water backing up and flowing back out of the tundish. In most installations this outlet can be channelled to the closest rainwater downpipe from the roof. This backup water supply does not have to be piped separately to the storage tank.

4) The overflow pipe in the middle of the Rain Backup in a Box should flow to the exterior through a pipe which offers no constriction. It is designed to avoid flooding of the house if the pipe from the tundish to the underground tank is blocked up, and to provide a visual alert to the building occupants. Run the overflow to the exterior of the building to discharge over the ground or gully.

INSTALLATION INSTRUCTIONS



5) The float switch comes preattached to a protective clip (see above "Types of Sensor Housing" to establish which housing you have) that easily fits to the filters downpipe, position the protective clip above the filters calmed inlet making sure it is above the pumps inlet to allow for maximum rainwater usage before the float switch is engaged or to your desired level (see image).

6) Channel the level sensor cable from the underground storage tank back to the control unit. Typically this is through a 4" (110mm) service pipe (not supplied) which also carries the mains electricity supply to the submerged pump (if so fitted), and the return pipe carrying rainwater from the storage tank via the pump back to the appliances in the house.

7) The installation is finished. Mains water will continue to flow into the storage tank until water reaches the level sensor. The system will then provide its first timed cycle.

8) Note that the flow rate from the control unit to the underground tank is restricted to 4 litres per minute, typically slower than the water flow out of the submersible pump. If you are watering the garden and the rainwater tank runs low it is possible that the pump will shut down due to absence of water, even if the backup mains is flowing. Some pumps need a mains electricity reset (turn switch off and then on).

9) Ensure the water flow is tested from the unit to the tank before the service pipe is covered to ensure there are no flow restrictions.

TROUBLESHOOTING

PROBLEM	PROBABLE CAUSE	REMEDY
Overflowing water from the control unit	Water not flowing correctly through the outlet	Ensure there is a 300mm fall from the bottom of the unit to the first bend. Ensure there is sufficient fall to the underground tank.
Water constantly flowing into the tank	Float switch fault	Confirm the float switch has been installed according to instructions. Disconnect the power and float switch from the control unit, then plug in the float switch and then power supply. If the tank is full the water should run for five seconds and then stop.
Nothing happening at all	Connections	Ensure the power supply is operational and the float switch is connected correctly.

For more information and assistance please visit www.rainhub.co.uk

WRAS APPROVED PRODUCT

WRAS Approval Number 2006006

Made in the UK

RainBackup® in a Box

Phone 01733 405111 Email: info@RainwaterHarvesting.co.uk RainwaterHarvesting.co.uk

HYD04 V01

INSTALLATION MANUAL

HydroForce™ Pumps Ltd

Series 4 Clean Water Pump

Non-return valve
Pressure-sensitive
Dry-run protected
Sealed electronic controls
Individually factory-tested
Twin chamber and pressure release gap

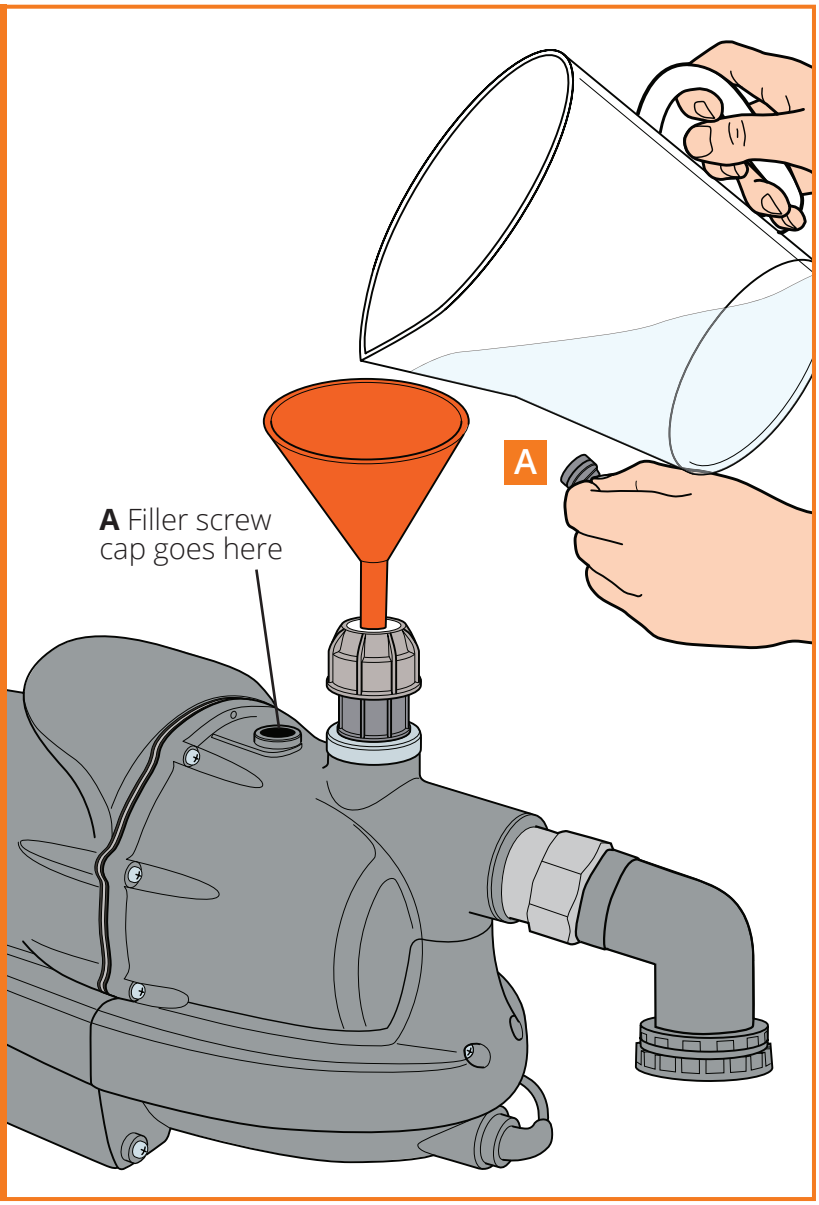
SAFETY MEASURES

Electric apparatus designed for use in water. Serious injury can arise if instructions are not followed carefully. The pump is not for use by anyone under the age of 16, nor for anyone who has not read these instructions. In the event of malfunction it is important to identify and remedy the causes before switching the pump on again; use the trouble-shooting guide.

- This pump can only be used to pump clean water. It is forbidden to pump oils, explosive or flammable liquids or water with debris particles bigger than 2mm.
- Danger of electric shock: Pump must be connected through an RCD protected mains electric socket to ensure electrical safety. Never install a damaged pump or one with frayed wires. Never use the power cable to support or move the pump; use the handle and the HDPE pipe when connected. Disconnect the pump from the power supply before any work. When handling the pump, while it is connected to the power supply, avoid all contact with water.
- Danger working over underground tanks: Take precautions to avoid falling into, or getting, stuck in, the opening to a tank.
- Danger of water pressure: ensure your face or body is not in line with the pump output when turning the pump on.

UNDERWATER INSTALLATION

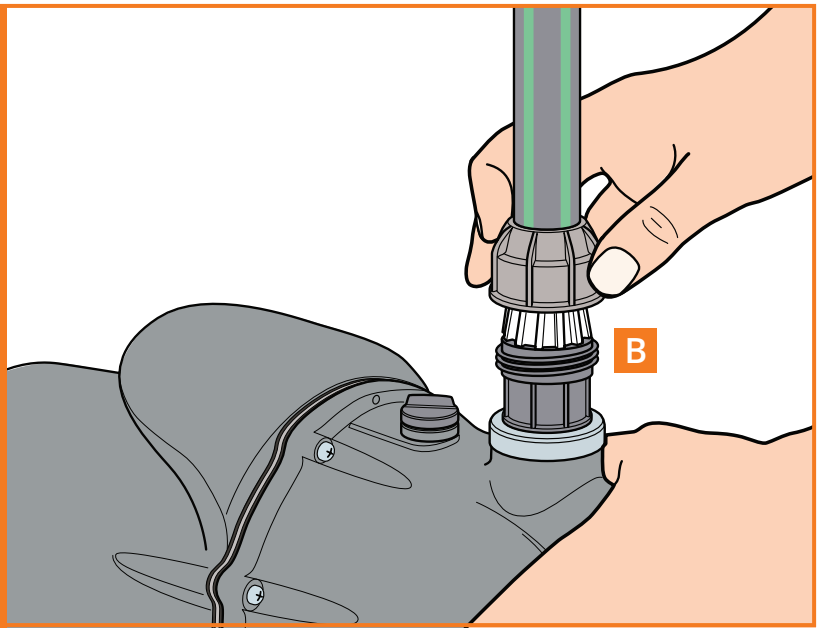
1



If purchased, connect the optional cartridge filter.

Remove filler screw **(A)**, fill with water (about 2 litres) to prime the pump, and replace tightly.

2

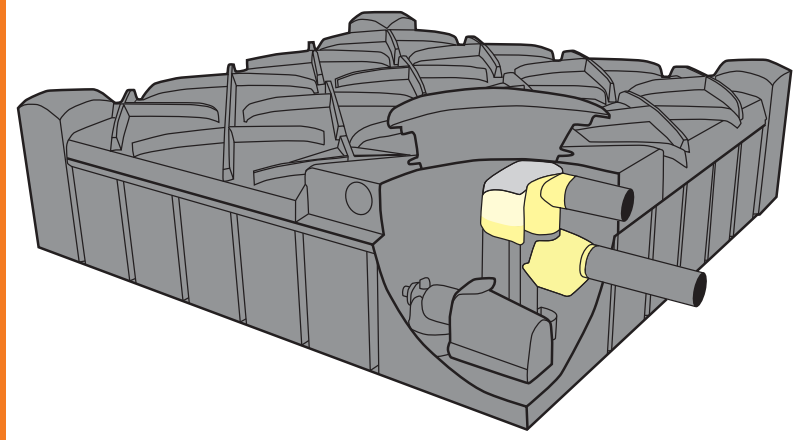


Connect output pipe into the outlet connector **(B)**.

Only cut pipe with pipe cutters and use provided inserts **(E)** in the pipe.

UNDERWATER INSTALLATION

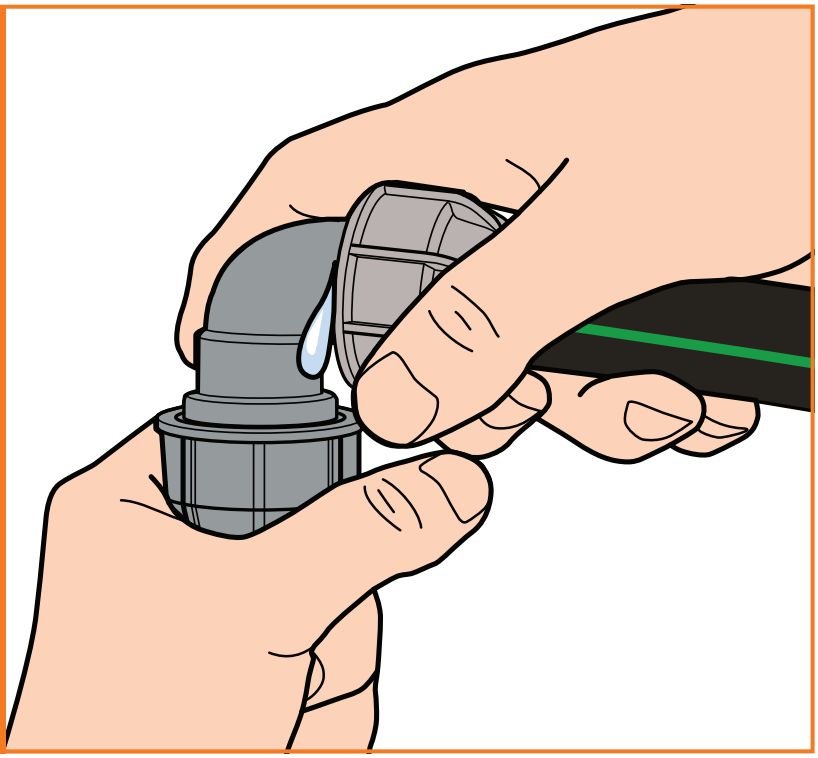
3



Ensure pump is seated level on the floor of the tank.

Take care to check that all the pipe connections are tight and that there are no leaks otherwise the pump will not be able to pressurise itself.

4



Turn pump on at the mains to ensure it runs and has no leaks at any of the connections, and turns off when all outlets are closed.

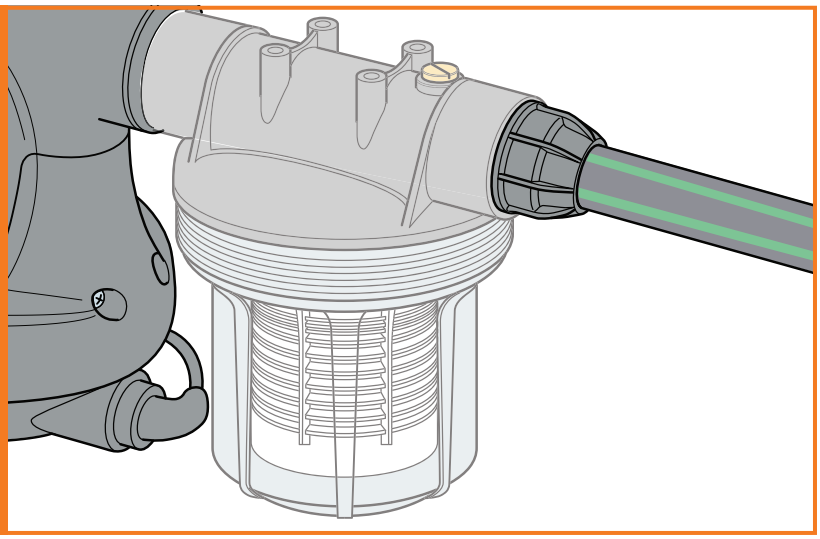
The pump can be left plugged in all of the time.

Complete Below Ground Installation

Complete Above Ground Installation

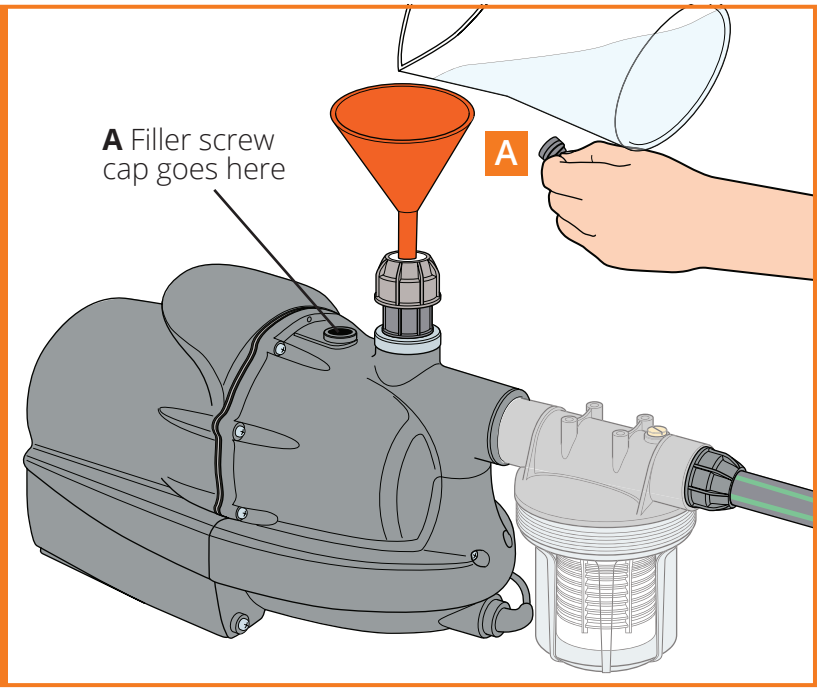
ABOVE GROUND INSTALLATION

1



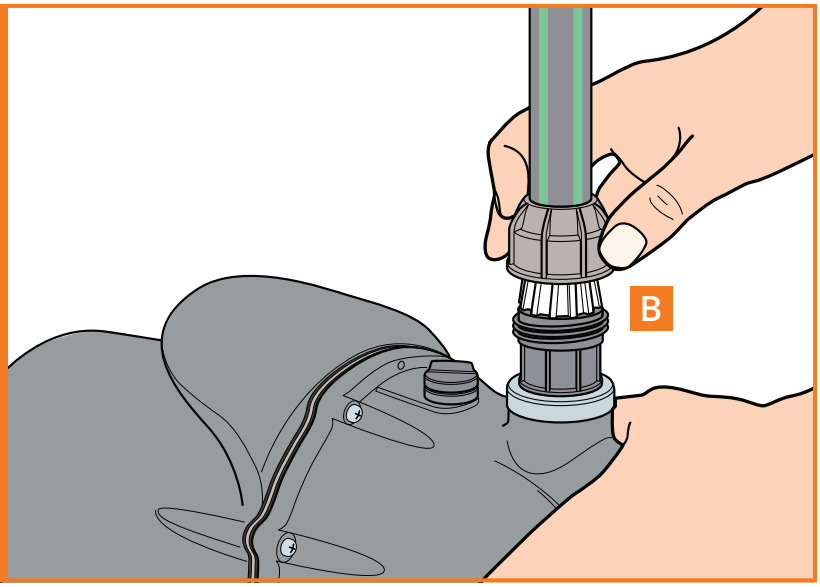
If being used, connect your input pipe and optional cartridge filter (neither supplied) to the pump inlet which has a 1" BSP male thread.

2



Remove filler screw **(A)**, fill with water (about 2 litres) to prime the pump, and replace tightly.

3

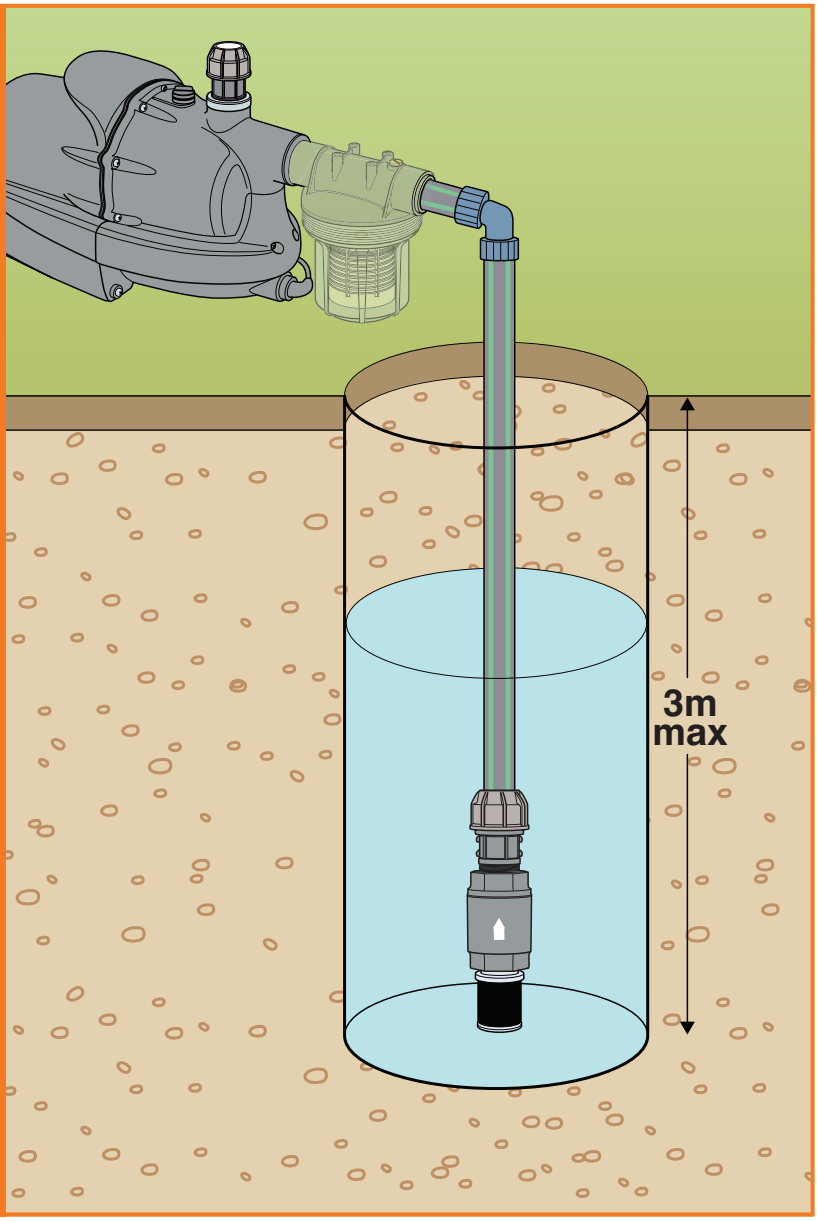


Connect output pipe into the outlet connector **(B)**.

Only cut pipe with pipe cutters and use provided inserts **(E)** in the pipe.

ABOVE GROUND INSTALLATION

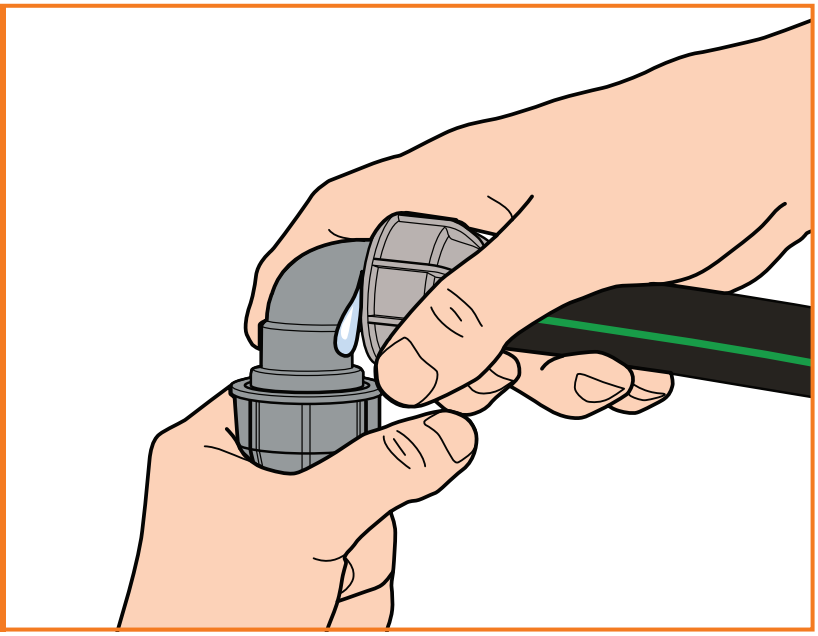
4



If the pump is drawing water from a lower level, fit a non return valve (not supplied) on the inlet pipe at its lowest point. Prior to first pumping, fill the pipe with water.

Use PTFE tape on all fixings. Maximum draw is 3 metres vertical.

5



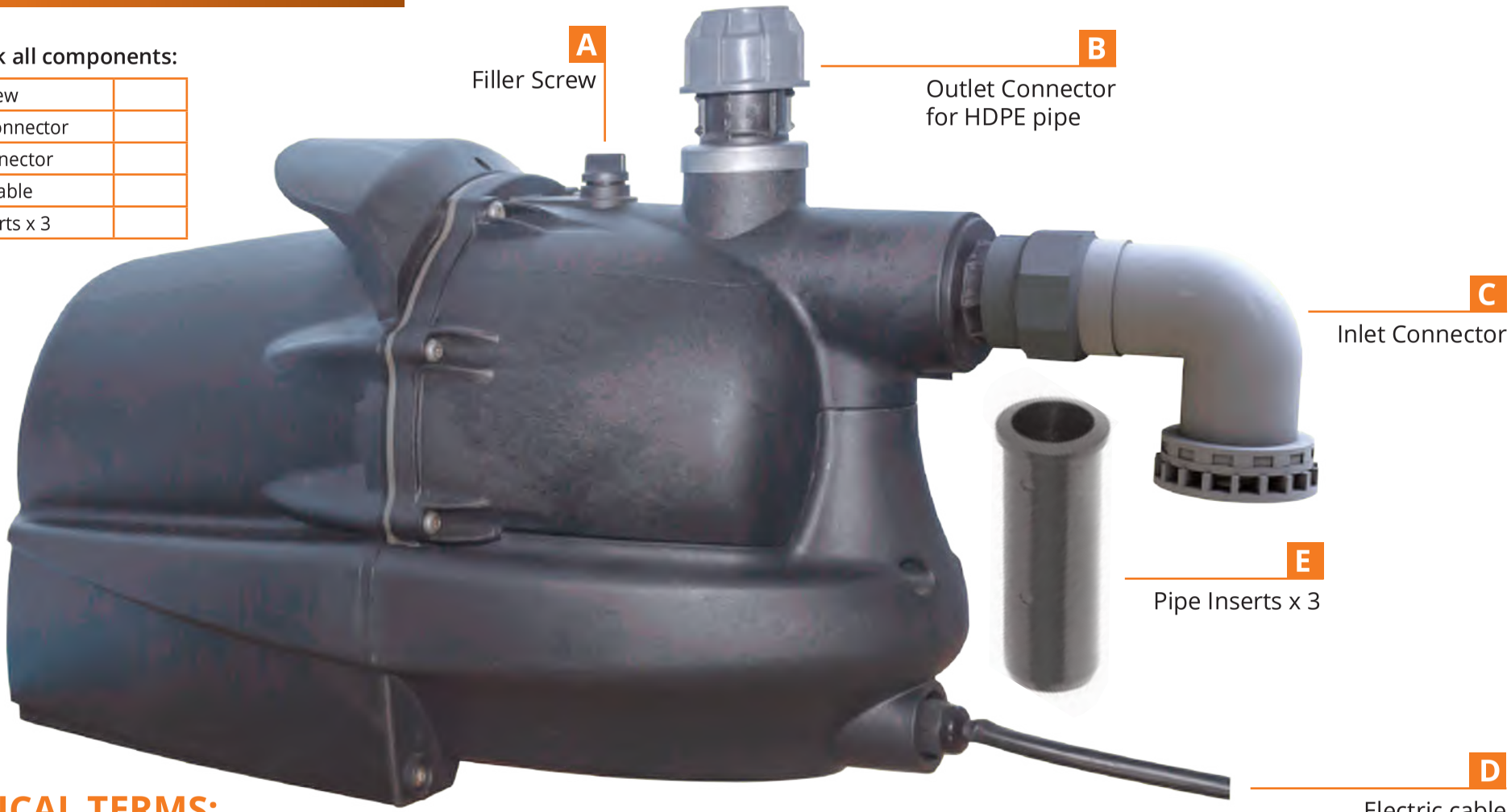
Turn pump on at the mains to ensure it runs and has no leaks at any of the connections, and turns off when all outlets are closed.

The pump can be left plugged in all of the time.

WHAT'S IN THE BOX?

Please check all components:

A	Filler Screw	
B	Outlet Connector	
C	Inlet Connector	
D	Electric cable	
E	Pipe inserts x 3	



TECHNICAL TERMS:

1. Priming: pump must have water in it before first start. Remove the filler screw, pour water into the body of the pump until full (about 2 litres) and replace the screw.

2. Dry run protection: pump will stop if no water pressure and is reset automatically (see specifications on back page). Also, as a failsafe, if the pump motor overheats the motor is turned off till it cools.

3. Pressure-sensitive: pump runs when water is demanded and stops when taps or appliances are turned off.

4. Reset: in rare cases disconnect the mains electricity and reconnect after 15 seconds to make the pump run again.

5. Hunting: pump turns on and off repeatedly due to a leak somewhere in the output piping. Check all connections for leaks and make sure they are tight.

6. Leak Protection: if the pump detects there is a leak or very slow flow (less than 8 litres a minute), it will go into a protection mode that can be reset by resetting the pump.

TROUBLE - SHOOTING

	SYMPTOM	PROBABLE CAUSE	SOLUTION
1.	Reduced water flow/pump pulsing.	Suction pipe, delivery pipe or inline optional cartridge filter obstructed. Restriction on the output.	Disconnect the pump from the power supply before any work. Remove obstructions, clean filter. Ensure the pump can deliver water at least 8 Litres per minute.
2.	The pump motor does not run.	No electric power being delivered to the pump.	Check the pump is connected to the power supply, fuse has not blown or RCD has not tripped.
		Pump has detected a leak and has gone into leak protection mode.	Identify where the leak may be originating from. Turn off the pump and seal the leak, with special consideration being taken to the underwater connections and reset the pump.
		Pump has detected a lack of water and has gone into dry run protection.	Reset the level of water in the tank, turn the pump off at the electrics for 15 seconds, turn on and try again. Make sure pump runs but then turns off when pressurised (see 4).
		Pump has overheated (thermal switch has tripped).	Unplug pump and leave to cool down for half an hour. Switch resets automatically as it cools.
		Pump repeatedly tripping RCD.	Disconnect and contact supplier.
		Non-return valve blocked.	Remove inlet strainer/filter, ensure pin inside the non return valve is free of debris and moves freely.
3.	The motor runs but no water is supplied.	Air inside the pump or filter body.	Prime the pump: remove the filler screw, pour water into the body of the pump until full (about 2 litres) and replace the screw.
		No water in storage tank.	Pump should have shut down; possible faulty flow sensor. Contact supplier.
4.	The pump does not stop after tap or appliances turned off.	Water pressure not being held.	Check all connections (including the underwater connection) are tight and that there are no leaks.
5.	The pump stops and starts intermittently.	Small leak in pipe.	Check all pipe work for leaks especially at pump outlet. All joins after pump should have PTFE tape, but not the joins at the inlet (risk of debris).

If trouble-shooting does not rectify the fault, please complete all the tests and solutions in the trouble-shooting table and prepare the following information before contacting your supplier.

1) Note the pump's type number and serial number on side of pump.
2) Was the pump primed before first use (black filler screw removed and body filled with water (about 2 litres) with a funnel)?
3) Is the water in the storage tank clean, is the optional cartridge filter on the input (small end) side of the pump clean and is water flowing?
4) If there is a garden tap connected to your HydroForce™, turn the pump switch on and open the tap. Check whether the tap flows readily and without hesitation. Leave the tap open with a hosepipe to a safe part of the garden or back into the tank for 1 minute. Note if the pump stops, if so, after how many seconds. If there is no garden tap do the same test by disconnecting the 90° elbow joint from the pump in the turret of the tank (be careful not to let washers fall into the water).
5) With the top of the underground tank open, turn off the tap. Count the seconds till the pump turns off; it should be between 2 and 10 seconds.
6) Check for any other reason why supply of water to the pump is restricted. Is the bottom of the tank very dirty? Could dirt be getting into the pump?
7) Shut off tap, observe pump stopping. Ensure it does not start again or hunt within 15 minutes.

Background to the workings of "pressure-sensitive" pumps:

Pump motor starts: Pump switches **on** when **i)** a drop in pressure is detected by the pressure switch in the bottom of the pump, i.e. when tap or appliances are turned on and **ii)** the non-return valve shows no water flow.

Pump motor stops: Pump switches **off** when no water flow is detected by the flow sensor in the non-return valve at the water inlet to the pump. This is the case when the tap or appliances are turned off and water flow stops. The pressure sensitive switch does not provide both the on and off functions. Both the non-return valve (with water flow detector) and the pressure-sensitive switch provide input to the logic of the printed circuit board (PCB). The thermal switch, which turns the pump off when temperatures in the motor stator is too high, is not connected to the PCB.

If you continue to have issues please consult our problem solving website at

www.RainHub.co.uk

SPECIFICATIONS

The HydroForce™ Series 4 is an electronically-controlled, pressure-sensitive, submersible, centrifugal roto-dynamic pump with no reciprocating parts.

Inlet port to the pump is 1" (25mm) male BSP.

Output Port: 1 inch (25mm) female BSP provided with push-fit connector for 1 inch (25mm) MDPE pipe (1¼ inch (32mm) connector option by special order).

Dimensions: L 565 W 185 H 260 mm.

Weight: 13.1 kgs.

Max Head: (nominal) 35 metres.

Pump Pressure: (nominal) at outlet 3.5 bar.

Max Suction: 3 metres.

Electrical Use: 220-240 Volts AC at 50Hz, 800 watts requiring 13 amp RCD-protected socket. Cable length 5 metres.

Pressure-sensitive (demand) pump which turns itself off until there is a demand for water.

Dry-run Protection: when no water is detected for 8 seconds, the pump is turned off by the PCB to protect the motor and pump from burning out.

Automatic reset after a period of 30 minutes. If water is still not detected, subsequent reset periods are 10 minutes, 1.5 hours, 3 hours, 6 hours, 12 hours, then every 24 hours until water is detected. Additionally, a thermal switch turns the pump off before the motor overheats. It resets when cooled down, which may take several hours.

Alloy bulkhead, pressure release gap and twin chamber design prevent ingress of water to the motor, electrical components, and to the bearing oil. Double bearing seals prevents egress of bearing oil. Alloy bulkhead dissipates motor heat to water in the second chamber.

Each pump is tested before leaving our factory and there may be marks on the connectors and residual water in the body. Pump serial numbers are on record for each pump and can be recalled in the event of a warranty claim.

For ease of maintenance, it is advised when installing in an underground tank, the pump is connected via an IP66 connection box in the turret of the tank. The connection box must be connected to the RCD via armoured cable run through underground ducting.

Pressure-sensitive pumps are unsuitable for use with low flow applications such as drip feed irrigation systems. To be used on such a system a pressure vessel must be installed and charged to 2.1 bar (30 psi).

WARRANTIES

The HydroForce™ pump is guaranteed for 2 years from the date of purchase for manufacturing faults.

HydroForce™ Pumps Ltd certifies that the Series 4 pump with the model and serial number specified on the nameplate, are compliant with the safety requirements of the Machine Directive 89/392/EC and amendments, of the Low Voltage Directive 73/23/EC and in the Electromagnetic Compatibility Directive 89/336/EC and amendments.

The materials and manufacturing of this product are guaranteed for 2 years from the date of purchase if the installation instructions are complied with, the pump has been used for its designed applications and it has not been disassembled.

It is obligatory to prime the pump by removing the Filler screw and filling the body of the pump (approx. 2 litres of water) then replacing the Filler screw. In the event of an apparent fault, the retailer or installer should be contacted first. **HydroForce™ Pumps Ltd** declines responsibility for incidents or damage caused by negligence or by ignoring these instructions. Never use the power cable to support or move the pump; use the handle and the nylon cord.

HydroForce™ Pumps Ltd

HydroForce™ Pumps Ltd,
Unit A Harrier Park, Southgate Way,
Orton Southgate, Peterborough,
England, PE2 6YQ

Tel: +44 (0)1733 405 111

www.HydroforcePumps.co.uk

Email: info@HydroforcePumps.co.uk

Other Innovative Products from RainWater Harvesting Ltd

RainDirector®

- **Intelligent mains water management system**
- **Low energy system**
- **Running costs less than 1p per person per day**
- **Automatic mains water switchover if storage tank is low**
- **Failsafe mains backup**
- **Auto-refresh function cycles water every 3 days**

GRAVITY FEED

Sustainable Drainage System

Rain Activ

Sustainable Drainage System (SuDS)

Where drainage is a problem

- **Limit stormwater discharge rates.**
- **Planning authority recognised Micro Drainage™ calculations included.**
- **Industry leading low discharge rates.**
- **Can combine rainwater harvesting with SuDS.**

FLOOD CONTROL

All products are designed, manufactured and thouroughly tested in house in our UK facilities.

RainWaterHarvesting.co.uk

RainWater Harvesting Ltd.
Unit A Harrier Park, Orton Southgate, Peterborough PE2 6YQ
Phone: **01733 405111**

Email info@RainWaterHarvesting.co.uk
RainWaterHarvesting.co.uk

RWHRA 02 22

RainBackup® in a Box

Simple to use
Simple to fit

Mains water backup for rainwater harvesting systems

Rain Backup in a Box® automatically provides mains water when the rainwater runs out

RAINWATER CAN BE USED FOR:

- **TOILETS**
- **WASHING MACHINES**
- **OUTSIDE USE**
- **CAN SAVE UP TO 50% OF MAINS SUPPLY**

WRAS APPROVED PRODUCT
No: 2006006

Made in Britain

RainBackup® in a Box

MAINS WATER BACKUP FOR DIRECT FEED RAINWATER HARVESTING SYSTEMS

HOW DOES A DIRECT FEED RAINWATER HARVESTING SYSTEM WORK?

Rain falls onto the roof, down the drain pipes, filtered and stored in an underground tank.

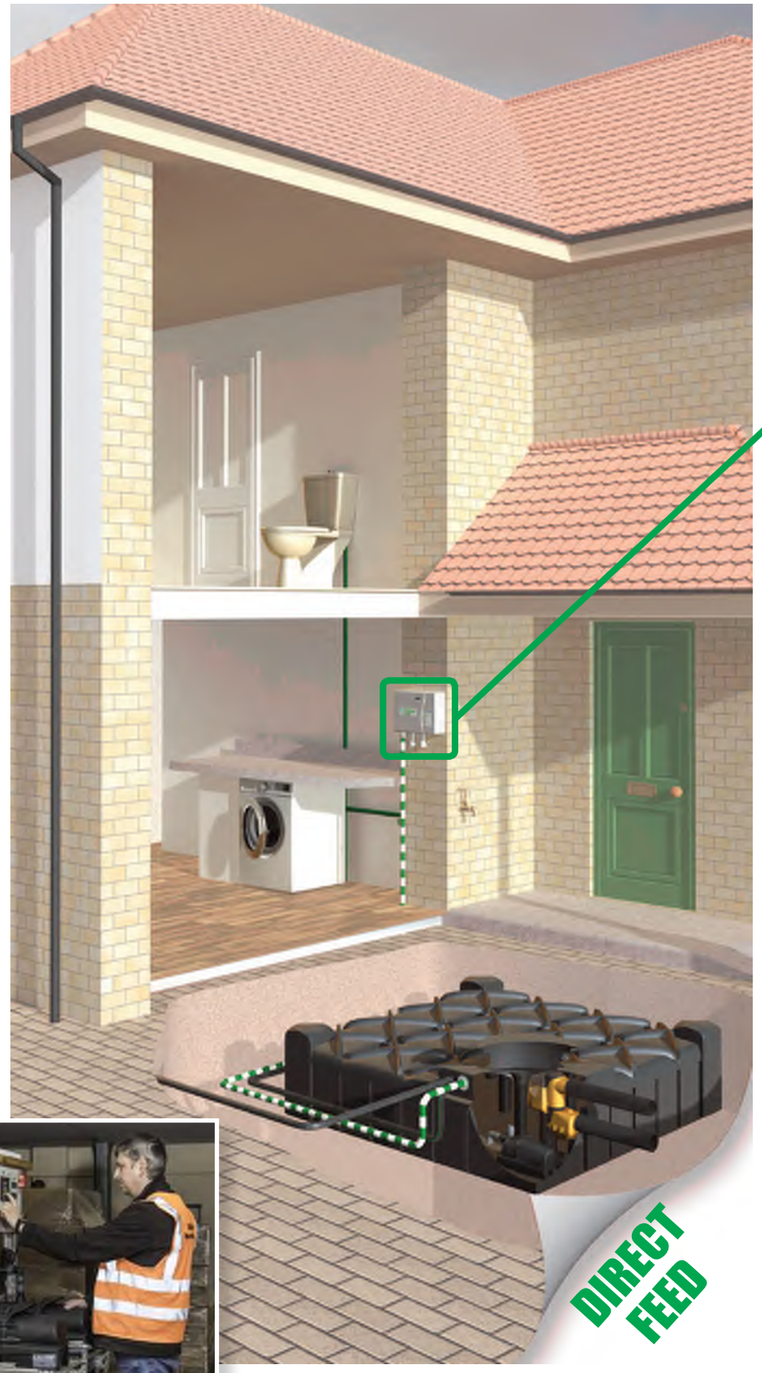
In a direct feed system there is a pressure sensitive pump in the tank.

When a toilet is flushed, the pump will register a drop in pressure and start pumping. When the cistern is full, The pump will rebuild the pressure within the pipes and shut itself down. The pump will run every time there is a demand for water.

The Rain Backup® in a box will sense if the rainwater level becomes critically low. It will automatically allow a measured quantity of mains water into the tank, ensuring your appliances are never without water.
The system does NOT fill the tank. It adds a small amount of water as often as necessary until rainwater is available.

Either a level sensor or float switch (depending on the model) is used to detect when water is at a critical level.

When the sensor is activated, a solenoid valve will open in the control unit, (mounted within the home) allowing mains water to enter the tank.



All products are designed, made and tested in our UK workshops

RainBackup® in a Box

KEY TO THE CONTROL PANEL & PIPE DIAMETERS

- A Multi-route anti splash tundish
- B 1” air gap
- C Solenoid valve
- D Mains in 15mm pushfit/copper
- E Mains to tank 32mm pipe
- F Overflow 32mm waste pipe

WRAS APPROVED PRODUCT
No: 2006006

WRAS Approval is the best way to demonstrate compliance and is accepted by every UK water provider.

SIMPLE MAINS BACKUP & EASY TO FIT

- Replaces multiple, customer assembled components with one easy to install unit.
- Simple “plug and play” install favoured by builders.
- Adheres to all UK water regulations, includes AB air gap and overflow.
- Stylish control unit.
- Safe and efficient 12V supply.

380mm (W) x 270mm (H) x 95mm (D)

FOR SHALLOW DIG TANKS

For ease of installation most of our systems use shallow dig underground tanks. (Can be less than 1.5m in depth).

The system uses a contactless level sensor within the tank, sending a message to the control unit if the water reaches a low level.

Unlike any other mains backup system, the Rain Backup® in a Box introduces a timed amount of water into the tank. This is factory set at 45 minutes. This allows a minimum amount of mains water to be used until the next rainfall.

Made in Britain

Rainwater Harvesting maintenance schedule.

Filter: *Warranty 2 years. Expected service life 100 years.*

Self cleaning filter with 1000 micron screen.
Every 6 months*. Visually check the filter for larger blockages.

1. Release child locks on the lid. (13mm bolt).

2. Inspect filter for visible large blockage.
   If large or non moving debris is found refer to stage 3. Is none is found refer to stage 6.

   NB: Small debris will we periodically self cleaned during storms. Leaves, moss and other smaller debris will self clean and do not require removing unless obvious they are causing a blockage.

3. (If a blockage has been found) Remove filter lid.

4. Remove debris, wash filter head under a tap.

5. Replace filter head.

6. Replace lid, ensure 13mm child safe locks are tight.

Risk if neglected: Very low, possible reduction of filter efficiency. Reduction in quality of water for rainwater harvesting.

NB: the filter is fully self cleaning under normal conditions. Only abnormal or large debris from gutters can cause a blockage.

*Maintenance frequency can be reduced by adding additional leaf and debris guards to gutters. Dependant on the quality of guarding and location, maintenance intervals can be reduced to 12, 18, or 24 months.
Examples of gutter guarding systems.



F-Line Tank. *Warranty 25 years. Expected service life 100 years.*

Every 10 years. Pump out completely and clean sidewalls with pressure washer, pump out using dirty water pump. (very fine silt builds up in the tank)
Risk if missed: Low, potential reduction in water quality for rainwater harvesting. If missed multiple times (circa 50 years), potential blockage of outlet orifice.

Gutters:

Clean to reduce strain on self cleaning filter. Remove all leaf matter, moss, debris. Wash through.
Risk if missed: Very low, increased fine sediment entering the tank.

ULTRA VIOLET FILTER

Home (https://www.rainwaterharvesting.co.uk) / Products (https://www.rainwaterharvesting.co.uk/product-category/products/) / Filtration (https://www.rainwaterharvesting.co.uk/product-category/products/filtration/) / Ultra Violet Filter

Return to Previous Page

(https://www.rainwaterharvesting
content/uploads/2021/04/UV55

(https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/UV55-1.webp)

(https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/UV55-2.webp)

(HTTP://WWW.RAINWATERHARVESTING.CO.UK)

~~£227.00 – £540.00~~

Ex VAT

Ultra Violet Sterilisation Systems Domestic Range

Litres per Min

Choose an option

Pre Filter

Choose an option

1

ADD TO BASKET

Email to a friend (mailto:enteryour@addresshere.com?subject=Ultra%20Violet%20Filter&body=Check%20this%20out:%20https://www.rainwaterharvesting.co.uk/pviolet-filter/)

SKU: UV-FILTER

Category: Filtration (https://www.rainwaterharvesting.co.uk/product-category/products/filtration/)

(https://twitter.com/share?url=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/&text=Ultra%20Violet%20Filter)

(http://www.facebook.com/sharer.php?u=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/)

(http://pinterest.com/pin/create/button/?url=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/&media=https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/uv55-150x150.webp&description=Ultra%20Violet%20Filter)

DESCRIPTION DELIVERY INFORMATION DOWNLOADS

DESCRIPTION

If your household water is from a 'private' water supply and you want to be confident of its safety or you are aware of a problem with bacteria in your water a Ultra Violet Sterilisation system is the perfect solution.

Our domestic models (UV-DS range) are made of high quality stainless steel and comprise of s/s chamber containing a germicidal lamp and quartz sleeve plus a separate electrical box which allows flexibility for fitting.

The majority of our Ultraviolet systems are WRAS approved and Regulation 31 approved.

When selecting an ultraviolet system care must be taken to choose a model that is powerful enough to treat the flow required. If the flow is faster than specified the water passes through the chamber too fast for the rays to effectively kill all the bacteria

Where levels of sediment are high or water is cloudy a pre-filter should be fitted as shadowing from the particles could stop the UV rays reaching the organisms.

The table following is a basic guide to the model size required to treat the water flow required in a property.

Flow rate (max. litres/min)	Model Number
4	UV-DS08
8	UV-DS15
21	UV-DS30
36	UV-DS55

SOCIAL LINKS

SHOP

(https://www.faceboo

(https://twitter.com/w

(https://www.linkedin

harve

(https://www.youtube

HOME
(HTTP://WWW.RAINWATERHARVESTING.CO.UK)

LTD

Harvesting equipment.

(https://www.rainwaterharvesting.co.uk)

ABOUT US KNOWLEDGE

PRODUCTS TOOLS CONTACT US

CART: £0.00
(https://www.rainwa

SHOP
UNIT A HARRIER PARK, PETERBOROUGH, PE2 6YQ
PHONE: +44 (0)1733 405111
EMAIL: INFO@RAINWATERHARVESTING.CO.UK
(MAILTO:INFO@RAINWATERHARVESTING.CO.UK)
WWW.RAINWATERHARVESTING.CO.UK
(WWW.RAINWATERHARVESTING.CO.UK)

RECENT POSTS

05 JUN

BACKUP IN A BOX – UPGRADED VERSION (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/PRODUCTS/BACKUP-IN-A-BOX-UPGRADED-VERSION/)

by Rob Cooper

30 MAY

THAMES WATER'S POTENTIAL COLLAPSE: IMPLICATIONS FOR UK CONSUMERS AND THE ... (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/ENVIRONMENT/THAMES-WATERS-POTENTIAL-COLLAPSE-IMPLICATIONS-FOR-UK-CONSUMERS-AND-THE-ROLE-OF-RAINWATER-HARVESTING-SYSTEMS/)

by Rob Cooper

18 MAY

WELCOME TO THE LAUNCH OF OUR BRAND-NEW EXHIBITION STAND AT ... (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/INFORMATION/WELCOME-TO-THE-LAUNCH-OF-OUR-BRAND-NEW-EXHIBITION-STAND-AT-THE-NSBRC-CENTRE-IN-SWINDON/)

by Emma Cooper

LEGAL DOCS

DELIVERY POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/DELIVERY-POLICY/)

PRIVACY & COOKIES POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/PRIVACY-COOKIES-POLICY/)

RETURNS & CANCELLATION POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/RETURNS-CANCELLATION-POLICY/)

TERMS & CONDITIONS OF SALE (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/TERMS-CONDITIONS-OF-SALE/)

WARRANTIES INFORMATION (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/WARRANTIES-INFORMATION/)

ULTRA VIOLET FILTER

Home (https://www.rainwaterharvesting.co.uk) / Products (https://www.rainwaterharvesting.co.uk/product-category/products/) / Filtration (https://www.rainwaterharvesting.co.uk/product-category/products/filtration/) / Ultra Violet Filter

Return to Previous Page

(https://www.rainwaterharvesting
content/uploads/2021/04/UV55

(https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/UV55-1.webp)

(https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/UV55-2.webp)

(HTTP://WWW.RAINWATERHARVESTING.CO.UK)

~~£227.00 – £540.00~~

Ex VAT

Ultra Violet Sterilisation Systems Domestic Range

Litres per Min

Choose an option

Pre Filter

Choose an option

1

ADD TO BASKET

Email to a friend (mailto:enteryour@addresshere.com?subject=Ultra%20Violet%20Filter&body=Check%20this%20out:%20https://www.rainwaterharvesting.co.uk/pviolet-filter/)

SKU: UV-FILTER

Category: Filtration (https://www.rainwaterharvesting.co.uk/product-category/products/filtration/)

(https://twitter.com/share?url=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/&text=Ultra%20Violet%20Filter)

(http://www.facebook.com/sharer.php?u=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/)

(http://pinterest.com/pin/create/button/?url=https://www.rainwaterharvesting.co.uk/product/ultra-violet-filter/&media=https://www.rainwaterharvesting.co.uk/wp-content/uploads/2021/04/uv55-150x150.webp&description=Ultra%20Violet%20Filter)

DESCRIPTION DELIVERY INFORMATION DOWNLOADS

DESCRIPTION

If your household water is from a 'private' water supply and you want to be confident of its safety or you are aware of a problem with bacteria in your water a Ultra Violet Sterilisation system is the perfect solution.

Our domestic models (UV-DS range) are made of high quality stainless steel and comprise of s/s chamber containing a germicidal lamp and quartz sleeve plus a separate electrical box which allows flexibility for fitting.

The majority of our Ultraviolet systems are WRAS approved and Regulation 31 approved.

When selecting an ultraviolet system care must be taken to choose a model that is powerful enough to treat the flow required. If the flow is faster than specified the water passes through the chamber too fast for the rays to effectively kill all the bacteria

Where levels of sediment are high or water is cloudy a pre-filter should be fitted as shadowing from the particles could stop the UV rays reaching the organisms.

The table following is a basic guide to the model size required to treat the water flow required in a property.

Flow rate (max. litres/min)	Model Number
4	UV-DS08
8	UV-DS15
21	UV-DS30
36	UV-DS55

SOCIAL LINKS

SHOP

(https://www.faceboo

(https://twitter.com/w

(https://www.linkedin

harve

(https://www.youtube

HOME
(HTTP://WWW.RAINWATERHARVESTING.CO.UK)

LTD

Harvesting equipment.

(https://www.rainwaterharvesting.co.uk)

ABOUT US KNOWLEDGE

PRODUCTS TOOLS CONTACT US

CART: £0.00
(https://www.rainwa

SHOP
UNIT A HARRIER PARK, PETERBOROUGH, PE2 6YQ
PHONE: +44 (0)1733 405111
EMAIL: INFO@RAINWATERHARVESTING.CO.UK
(MAILTO:INFO@RAINWATERHARVESTING.CO.UK)
WWW.RAINWATERHARVESTING.CO.UK
(WWW.RAINWATERHARVESTING.CO.UK)

RECENT POSTS

05 JUN

BACKUP IN A BOX – UPGRADED VERSION (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/PRODUCTS/BACKUP-IN-A-BOX-UPGRADED-VERSION/)

by Rob Cooper

30 MAY

THAMES WATER'S POTENTIAL COLLAPSE: IMPLICATIONS FOR UK CONSUMERS AND THE ... (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/ENVIRONMENT/THAMES-WATERS-POTENTIAL-COLLAPSE-IMPLICATIONS-FOR-UK-CONSUMERS-AND-THE-ROLE-OF-RAINWATER-HARVESTING-SYSTEMS/)

by Rob Cooper

18 MAY

WELCOME TO THE LAUNCH OF OUR BRAND-NEW EXHIBITION STAND AT ... (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/INFORMATION/WELCOME-TO-THE-LAUNCH-OF-OUR-BRAND-NEW-EXHIBITION-STAND-AT-THE-NSBRC-CENTRE-IN-SWINDON/)

by Emma Cooper

LEGAL DOCS

DELIVERY POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/DELIVERY-POLICY/)

PRIVACY & COOKIES POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/PRIVACY-COOKIES-POLICY/)

RETURNS & CANCELLATION POLICY (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/RETURNS-CANCELLATION-POLICY/)

TERMS & CONDITIONS OF SALE (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/TERMS-CONDITIONS-OF-SALE/)

WARRANTIES INFORMATION (HTTPS://WWW.RAINWATERHARVESTING.CO.UK/WARRANTIES-INFORMATION/)