



... a greener tomorrow, today



# BAYAT ENERGY

URBAN RAINWATER HARVESTING



## **Bayat Energy Ltd**

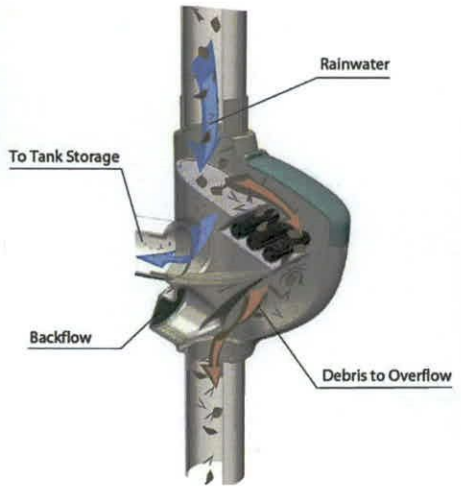
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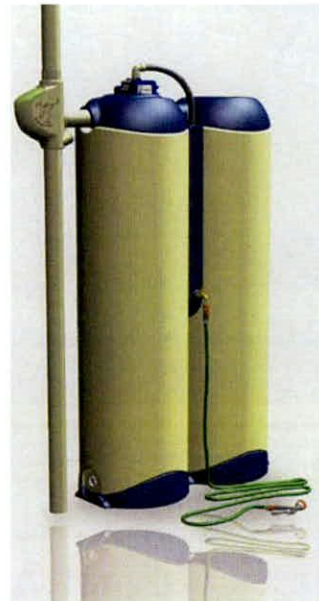
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## Specification

<p>Tank System</p>		<ul style="list-style-type: none"> <li>• Base tank system is 145 x 70 x 215 cm excluding the filter diverter and controller.</li> <li>• Including the Frogmouth Filter and controller the overall dimensions are 183 x 70 x 232 cm.</li> <li>• Each incremental 700 litre tank adds a further 75 cm to the length of the system.</li> <li>• Supplied with self install 1" BSP outlet fitting and tank coupling.</li> </ul>
<p>Filter Diverter</p>		<ul style="list-style-type: none"> <li>• The Frogmouth is an efficient first stage filter that through its unique low maintenance design removes leaves and gutter debris.</li> <li>• It incorporates a durable 900 micron stainless steel filter and can be installed in a standard 68mm O.D. round downpipe and adapted to other sizes and profiles.</li> <li>• Also features rainwater diverter, tank overflow and backflow prevention.</li> <li>• Lazy Lizard finer second stage filter available as an optional extra.</li> </ul>
<p>Submersible Pump &amp; Pump Controller</p>		<ul style="list-style-type: none"> <li>• 100 litres/min output or up to 32m of head.</li> <li>• Rated for continuous duty.</li> <li>• Pressure controller starts pump when water is demanded.</li> <li>• Quiet and economical to operate.</li> <li>• Dry running protection.</li> <li>• Pump and controller require 230v 50Hz power supply.</li> </ul>
<p>Mains Top Up Valve</p>		<ul style="list-style-type: none"> <li>• Wall mounted plug-n-play automatic mains top up unit.</li> <li>• 24 v power supply</li> <li>• Activated by tank mounted float switch</li> <li>• Complies with water regulations</li> <li>• Available as a kit of top up unit components for self assembly</li> </ul>





## Tower Tank Rainwater Harvesting System

The complete all-in-one rainwater harvesting system for larger property with filter diverter, tower tank, rainwater delivery pump, controller, mains valve and garden tap.



The Slim-line Tower Tank rainwater system is modular, easy to install and durable and is manufactured to the highest standards. This proven product incorporates the best features of above ground rainwater harvesting design and is ideal for retrofitting to larger domestic and commercial property. The system features;

- 1400 litre base tank system with add on tanks in 700 litre increments
- Secure inter tank connection
- High performance Frogmouth filter diverter and optional Lazy Lizard finer second stage filter
- Submersible pump that automatically delivers rainwater on demand to connected services and shuts-off once water is no longer required
- Intelligent controller shows power on, pump on and failure LED
- Mains Top Up Valve
- Requires a single downpipe connection and outside power point
- Tap for garden watering conveniently positioned at waist height

The tank system is made from high density food grade polyethylene and all components feature high levels of UV protection. The system is easy to install by a competent DIY or general trades installer. The pump and controller is supplied as an integrated kit with plug-n-play electrical interconnects. In the event of there being insufficient rainwater to meet demand a valve is automatically opened to supply a small quantity of mains water to the tank.

A component kit is also offered containing the recommended solenoid valve, float switch and tundish to self configure an electrical top up valve for connection to a 230v power supply.

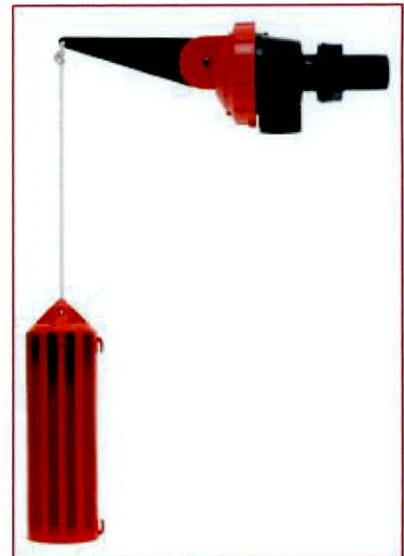
## Mechanical Top Up Valve

To avoid the use of energy or when a power supply is not readily available, then this mechanical valve is an ideal top up unit. The valve is simple to install either inside or above the tank with the cord and operating weight hanging freely in the stored rainwater.

- Cold mains pressure water connection.
- Inlet 20mm 3/4" BSP male
- Minimum inlet pressure 55 kPa (8 P.S.I.).
- Maximum inlet pressure 1000 kPa (150 P.S.I.).
- Maximum water temperature 60°C.
- Supplied with inlet strainer.

Follow these guidelines to install the top-up unit and ensure proper operation.

- Do not restrict inlet water flow.
- Not to be modified.
- Valve must be installed horizontally.
- Overflow discharge must be visible.
- Overflow and air gap to comply with regulations.
- The minimum water level is easily set at any height during installation by adjusting the cord length.
- Cord must hang freely.





## Mains Water Top Up Valve for Rainwater Tanks

### Application

- Top up water supply control valve.
- The valve is designed to be connected to a mains water supply on a rainwater tank. It will provide a top up supply of water in the event of demand exceeding rain supply, whilst ensuring maximum rainwater storage for the next rainfall.
- If the rainwater level drops below a pre-set level, the valve will open to raise the water level 10 cm using mains water.

### Electrical Top Up Valve

This 'plug and play' product takes the complexity out of installing a solenoid valve and float switch activated mains water top up systems for rainwater harvesting.



- Plug in controls with 24v power supply
- No complex rewiring of float switches and solenoid valves
- Float switch externally mounted on the rainwater tank
- All parts including tundish contained in a sturdy insulated box
- Pressure reducing valve to regulate incoming mains

Follow these guidelines to install the top-up unit in the best location;

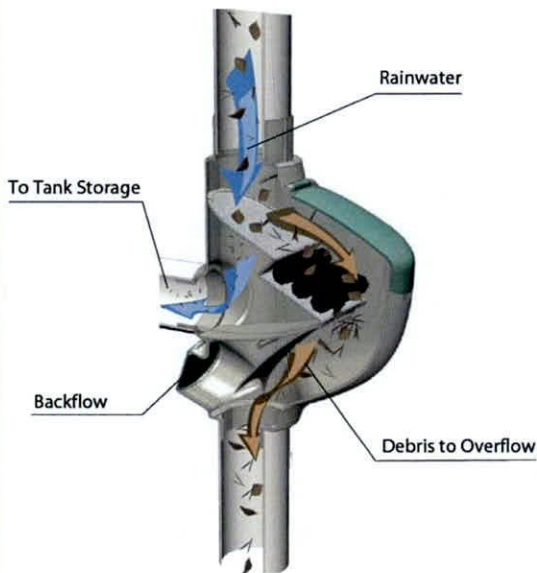
- Within a metre of a 230V AC RCD protected wall socket to connect the power supply plug
- Inside the building where it is protected from frost or freezing temperatures
- Accessible to a mains water supply
- Within 3 metres of the rainwater tank
- Above the top of the rainwater tank so that the mains water flows by gravity into the tank.

## Frogmouth Rainwater Filter – How it Works

A design revolution in urban rainwater filtration

The Frogmouth is a slim profile multi-purpose first stage filter with a 0.9mm stainless steel mesh, designed for efficient filtering of rainwater debris and easy cleaning. It is simple to install into existing downpipes and is compatible with most rainwater tank systems. The Frogmouth has a high flow capacity and incorporates a storm water backflow outlet. It can be used in conjunction with the Lazy Lizard, a final stage filter with a 240 microns mesh that removes fine materials such as pollen, sand and silt.

### How it Works



- Rain water from the roof enters the filter from the down pipe, passes through the insect proof stainless steel mesh and into the tank.
- Dirt, leaves, moss and other debris from the roof is diverted by the mesh and a unique roller system in the filter directly to the storm water drain.
- In the event of storm water being forced back up into the filter, this contaminated water is trapped in the lower chamber of the filter and expelled via the lower flap. Once the water pressure drops, the flap closes sealing the filter from birds, pests and vermin.
- When the storage tank is filled, excess water is prevented from entering the tank and is diverted by the filter into the storm water drain.



## **Sizing Your System**

The simple rule is, the larger the roof area connected to the tank, the more water can be collected. To calculate the available rainfall (litres) multiply the local rainfall amount (mm) each year by the roof area (m<sup>2</sup>) connected to the tank. The average rainfall for England is 850mm. The expected usage each year can be calculated by multiplying the usage per person per day (150 litres) by the number of persons using the building by 50% and 365 days. For small urban systems, scale the storage capacity by calculating 2% of the lower of available rainfall or usage. The comparable figure for larger systems is 5%. One of the benefits of an urban modular rainwater system is that additional tanks can be easily added at a later date to optimise performance based on actual experience.

## **A guide to installation**

The tanks should ideally be installed close to the point of water use to minimise plumbing alterations. Halsted Rain above ground collection systems are designed for installation by a general trade's person or a competent DIY enthusiast using plug-n-play components. Any changes to the electrical supply must be undertaken by a qualified electrician and the installation must comply with water regulations. Urban systems are designed to stand on compacted ground or hard standing and installing a system above ground level is not recommended without taking specialist advice from a structural engineer. Each component is supplied with an easy to follow installation guide. Experience has shown that in a temperate climate such as the UK it is unlikely that a properly installed purpose designed urban rainwater harvesting system will freeze. Exposed pipe work must be insulated and other winterisation measures are offered if felt to be essential.

## **System Maintenance**

Invest in well designed equipment made from quality materials and incorporating easy access inspection covers to minimise the time and cost of maintenance and maximise the life of the system. Some filters such as the Frogmouth are designed to be self cleaning in most circumstances and it is advised that finer secondary filters if required are cleaned every month. Follow the manufacturer's recommended maintenance schedule and clean and keep the gutter line clean and in good repair. These simple preventive measures will lead to years of trouble free harvesting.

Bayat Energy is a supplier of urban rainwater harvesting solutions. We offer a range of products including tanks, filters, pumps and accessories specifically designed for above ground rainwater collection and utilisation systems that can be installed in a confined space. Our products are ideally suited for installation on domestic and light commercial property particularly as a retrofit solution.



## **Buyers Guide to Urban Rainwater Harvesting**

Before deciding to install urban rainwater harvesting we recommend you take some time to plan your installation. How much water can be realistically collected given the rainfall, the collecting area and storage space, and how and where will it be used. The right system matching collection and use will provide years of trouble free harvesting. Urban systems are an ideal retrofit solution and prior planning will minimise disruption to the existing fabric of a property.

### **How it Works**

An urban rainwater harvesting system comprises of a purpose designed filter, storage tank, pump and mains valve that is connected to services that use rainwater for toilet flushing, laundry and garden watering. Rain falling on the roof of a building is channelled via the existing gutters and down pipe to a filter which removes leaf litter and other debris before diverting the water into a storage tank. When an appliance demands water a pump is automatically switched on and draws water from the tank. In the event that the tank runs dry a mains water valve is automatically activated to partly refill the tank.

### **Slim Line Urban Systems**

Above ground rainwater harvesting systems specially designed for the urban 'built up' environment are a new innovation in the UK and are widely used in other countries. These state-of-the-art modular systems are an attractive, practical and contemporary solution to managing water resources and blend seamlessly with modern and traditional building designs. Urban systems such as the Super Slim Wall Tank are ideally suited to small and medium sized schemes, typically between 200 and 1200 litres and larger capacity systems are provided by the Slim-line Tower Tank. It is not uncommon for such systems to be installed with a single use in mind, toilet flushing or garden use, for example.





Rainwater harvesting is often a compromise between available space, utility and cost and a slim-line storage tank provides a versatile solution that avoids the extensive civil works and disruption to property necessary for the installation of below ground tanks.

### **Water Quality**

People have used collected rainwater from above ground storage systems for 1000's of years. The guiding principles to trouble free harvesting are to ensure every attention is taken to protect the quality of the water diverted to the tank, use rather than store the water and regularly undertake simple routine maintenance. Ensure the gutter line is in good repair to avoid the collection of debris and the pooling of rainwater between storms. Use a high quality filter to remove leaf litter and debris that descends from the roof and install a purpose designed opaque tank out of intense sun light or shaded by light screening. Installation against a north westerly facing wall is ideal. Maintain a good air flow in and around the tank and don't oversize the storage as this stops the tank periodically overflowing to the main drain or soak away which removes fine particles of floating organic matter.



## Specification

<p>Tank System</p>		<ul style="list-style-type: none"> <li>• Twin tank 440 litre base unit is 160 x 19 x 180 cm including the steel support frame and wall fixings.</li> <li>• Including the Frogmouth Filter the overall length is 190 cm.</li> <li>• Each incremental 220 litre tank adds a further 80 cm to the length of the system.</li> <li>• Supplied with self install 3/4" BSP outlet fitting and tank coupling</li> </ul>
<p>Filter Diverter</p>		<ul style="list-style-type: none"> <li>• The Frogmouth is an efficient first stage filter that through its unique low maintenance design removes leaves and gutter debris.</li> <li>• Incorporates a durable 900 micron stainless steel filter and can be installed in a standard 68mm O.D. round downpipe and adapted to other sizes and profiles.</li> <li>• Also features rainwater diverter, tank overflow and backflow prevention.</li> <li>• Lazy Lizard finer second stage filter available as an optional extra</li> </ul>
<p>Electronic Pump</p>		<ul style="list-style-type: none"> <li>• Option of 5 or 10 litre/min output ideal for toilet cistern replenishment and micro irrigation.</li> <li>• Requires 230v 50Hz power supply</li> <li>• Available as a plug-n-play or bare pump unit</li> <li>• Pump is mounted inside the property.</li> <li>• Pressure controller activates pump when water is demanded.</li> <li>• Quiet and economical to operate.</li> </ul>
<p>Mains Top Up Valve</p>		<ul style="list-style-type: none"> <li>• Wall mounted plug-n-play automatic mains top up unit</li> <li>• 24 v power supply</li> <li>• Activated by tank mounted float switch</li> <li>• Complies with water regulations</li> <li>• Available as a kit of top up unit components for self assembly</li> </ul>



## Rainwater Harvesting

..... is a supplier of urban rainwater harvesting solutions. We offer a range of products including tanks, filters, pumps and accessories specifically designed for above ground rainwater collection and utilisation systems that can be installed in a confined space. In addition to the Wall Tank system we also offer a higher capacity Tower Tank product for use on larger property. Our products are ideally suited for installation on domestic and light commercial property particularly as a retrofit solution.



## Super Slim Wall Tank Rainwater Harvesting System

The complete entry level rainwater harvesting system for retrofit, smaller property and installing in a confined space, incorporating a wall tank, filter, rainwater delivery pump and mains valve.



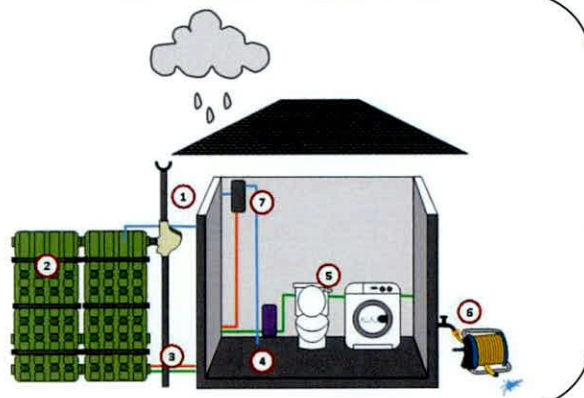
The Super Slim Wall Tank System is modular, easy to install and durable and is manufactured to the highest standards. This proven product incorporates the best features of above ground rainwater harvesting design and is ideal for supplying water for toilet flushing, laundry and micro irrigation. The system features;

- 440 litre Super Slim base tank system (only 19cm wide) with add on tanks in 220 litre increments
- Galvanised steel tank support frame
- Secure inter tank connection
- High performance Frogmouth filter diverter and optional Lazy Lizard finer second stage filter
- Electronically controlled pump that automatically delivers rainwater on demand to connected services
- Mains Top Up Valve
- Requires a single downpipe connection and power point

The tank system is made from high density food grade polyethylene and all components feature high levels of UV protection. The system is easy to install by a competent DIY or general trades installer. Rain falling on the roof is channelled via the existing gutters and down pipe to a filter which removes leaf litter and other debris before diverting the water to the storage tank. When a connected service demands water, the pump is activated to draw water from the tank. In the event that demand exceeds the available rainwater a mains water valve is automatically opened to partly refill the tank.

Simple – Reliable – Affordable

1. Filter diverter
2. Modular tanks
3. Tank outlet
4. On-demand pump
5. Connected services
6. Irrigation via rose gun
7. Top up valve







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