Stormsaver™ Non Pressurised system: Including tank with pre-tank filtration

Brief summary of system.

The Stormsaver™ rainwater recovery system will make the most economic use of the local rainfall with predicted water consumption. It is recommended that the use of low water consuming products are used to complement the system, furthering a reduction in overall consumption.

System (numbers relate to schematic)
Rainwater is collected from the roof area of the building (1). This is channelled through a pre-tank filter (3) to remove large debris, leaves etc. Water then enters the Stormsaver™ storage tank, close to the building, through an inlet calmer (5), which prevents the rainwater from disturbing sediment that settles on the base of the tank. If there is an excess of rainwater, this can flow out of an overflow (6) to the storm drain or to Stormsaver™ soakaway. Inside the tank are a number of control sensors (9). Inside the tank there is a submersible pump (7), which takes water from a floating suction filter (8). On demand the system activates the pump and water is then pumped to the Stormsaver™ rain processor unit (15), which provides a supply to the Stormsaver™ header tank (20) and gravity feed to points of use supply (25). In periods of low rainfall a back up supply activates (21), providing a continuous water supply. This tops the Stormsaver® header tank inside the building, and operates as a back-up failsafe in event of power failure.

Note:
The Stormsaver™ rainwater recovery system is designed for storing and filtering rainwater collected from the roof of the building only, using the approved Stormsaver™ system.

The Stormsaver™ system is not designed to recover surface ground water, should not be integrated with any type of grey water system and is not designed for processing any other types of water.

Warning!
Rainwater is this system is not fit for drinking!

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1) **Non-pressurised system** – Supplies rainwater on demand from the Stormsaver™ rain processor unit to the Stormsaver™ header tank. From here water is supplied to source. In periods of low rainfall mains-water automatically tops up the header tank to provide continuity of supply.

Table 1. Non-pressurised system (corresponds to Non-pressurised schematic)

Component	Description
Roof area	Rainwater should be collected from roof area only, taken through sealed gullies drainage to pre-tank filter (3)
Sealed gullies	Rainwater should enter drainage through sealed gullies (2) to prevent unwanted or accidental contamination of the rainwater
Pre-tank filter	Self-cleaning filter (3), removes large particles and debris. Installed before Stormsaver™ storage tank
Stormsaver™ storage tank	Rainwater storage tank appropriately sized and sited close to the building, typically installed below ground level. Water enters via a pre-fitted inlet calmer preventing incoming water from disturbing sediment on the base of the tank (5) and can overflow to storm drainage or soakaways (6)
Submersible pump	Sited on the base of the tank (7), used to pump water through Black MDPE Pipe (10) to the Stormsaver® rain processor unit
Floating suction filter	Floats on the surface (8) of the water to allow water to be taken from the cleanest part of the tank, without disturbing the sediment
Water level sensor	Detects the level of water inside the tank (9) Supplied with monitor unit.
Lockable lid	Each storage tank is supplied with a lockable lid (11) for safety purposes
Service chamber	Enables connection for electrical services (13) adjacent to the storage tank (12)
Ducting	2 x 100mm ducts (14) should be installed to transfer cables and pipe-work from storage tank to building
Stormsaver™ rain processor unit (MPU)	Contains all system electrics, controls and backwashing filtration and should be mounted inside the building (15)
Water meters	Water meters can be fitted (16 – Optional) to monitor the amount of water saved
Overflow to backwashing filter	Allows dirty water –released at pressure, from the backwashing filter to pass to the drain (17)
Power supply (single phase)	A double pole rotary switching isolator should be fitted to provide the MPU power supply
BMS	A readout can be given for each operation of the system (Optional), tank level, pumps running, alarms, filter cleaning, meter readings etc. etc.
Header tank	Rainwater is pumped via the Stormsaver™ rain processor unit to a header tank (20) The mains-water (21) top up supply is fed directly to the header tank - Regulation compliant. The tank should be fitted with an overflow and warning pipe (23)
Distribution pipework	Pipe work should be correctly labelled (21-22) to identify the source of supply
Booster set / Disinfection	Water either gravity feeds to points of demand (25) or is pumped by an additional booster pump set (Optional -24). In certain installations a disinfection unit is recommended.
Appliances / points of supply	Clean, clear rainwater is fed to points of supply on a continual basis. The system operates automatically, providing mains-water in periods of low rainfall. In a power fail situation the system reverts to mainswater operation mode.
Important Notes:	**Rainwater from the Stormsaver™ system must NOT be used for drinking or connected to supplies where accidental ingestion can occur. Mainswater pipework must connect to the approved entry point only at the Stormsaver™ Header tank.**

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List of parts:

Please check complete content of goods against the order and delivery note.

Stormsaver™ storage tanks: Includes as standard

- [1]*Pre-moulded inlet
- *Pre-moulded over-flow
- *2 x 500mm x 600mm dia. access turret fitted with 2 x Pre-moulded service duct
- *Galvanised pedestrian duty lockable manhole cover and frame
- Stainless steel inlet calmer (pre-fitted to tank inlet)

Tank management; this set of equipment is to be installed within the tank and includes:

- Stainless steel submersible pump; including 5m power cable
- Stormsaver™ floating suction filter 180micron
- Suction hose includes: One way valve and connections from floating suction filter to pump
- 5m stainless steel cable for lifting pump from tank
- Tank 10% Low level sensors
- Tank 0-100% Level sensor & Stainless steel level sensor bracket (Supplied with monitor unit only)

Pre-tank filter;

- Filter housing body including inlets and outlets, housing lid
- Stainless steel filter insert 440micron
- Standard handle

Stormsaver™ rain processor unit (wall mounted) includes:

- [2]Manual valve, backwashing filtration unit (35 micron) as standard
- Expansion vessel
- Electrical control unit

Stormsaver™ Header tank includes:

- 22mm Solenoid valve
- 2 x Level sensors
- 2 x Ball valves
- Compliant airbreak chamber

[1] *Pre-moulded inlets and outlets to storage tank can be ordered to suit drainage dimensions: This must be specified upon ordering of storage tank and stated on our drawing for approval- tanks cannot be rectified after dispatch from our factory.

[2] Backwashing filter can be upgraded to back wash automatically in which case the appropriate power supply and connections are factory fitted

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Installation summary

In summary the system comprises a system to collect rainwater from the roof area of the building. Rainwater is channelled through a pre-tank filter which is fitted upstream of the Stormsaver™ storage tank. The Stormsaver™ storage tank is installed below ground level and requires the installation of inlets, outlets and 2 x service ducts and access turret. A service chamber will be located in immediate vicinity to the storage tank to make electrical connections.

In the tank the system requires plumbing of the submersible pump, suction filter and pipework to go back to the building. The two level sensors require fitting into the tank.

Inside the building the Stormsaver™ processor unit requires fitting to the wall at eye level. The unit will be plumbed making connections from the unit to the pump and header tank. The Stormsaver™ Header tank should be fitted with rainwater supply, mainswater supply (through the appropriate compliant entry position) and connection made to suitable downstream pipework.

The processor unit requires connection to the mains electrical supply, all cables from the Stormsaver™ underground tank and Stormsaver™ Header tank should be terminated within the electrical control panel.

Summary of installation works

1. **Building work in connection - requirements:**
    a. Fitting of pre-tank filter
    b. Installation of Stormsaver™ storage tank; excavation; appropriate backfill surround and cover
    c. Underground drainage, inlet, outlet, overflow, connection to storm drain /soak away, ensuring gullies are sealed at ground level
    d. Fit access turret and install locking manway cover
    e. Install a service chamber in immediate vicinity to the tank – fitted with a base drain – chamber provides access for making electrical connections including appropriate manway cover. Electrical service duct to pass through chamber to building
    f. Builders work in connection with fitting 2 x 100mm service ducts for electrical and plumbing services
    g. Ensure that service ducts exit access turret a maximum 300mm below ground level to enable access without entering the storage tank

2. **Plumbing work in connection – requirements:**
    a. Fit Black MDPE hose from tank to Stormsaver™ processor unit in building
    b. Connect pump suction inlet
    c. Connect pump outlet to Black MDPE hose, ensure that the connections are accessible to enable fitting and removal of pump from ground level
    d. Fit processor unit to wall inside building, which must be at eye level when standing on the floor

e. Connect processor unit inlet (from tank), outlet (to header) drain (to appropriate drain)
f. Install Stormsaver™ header tank: connect rainwater inlet, mainswater inlet, outlet to points of use, overflow, warning pipe, tank drain cock,
g. Mains-water top up supplied directly to header tank via solenoid valve
h. Fit 1 x water meters to each rainwater and mainswater inlet (optional)
i. Plumb all downstream pipework from header tank all designated points of use (including any booster sets or disinfection – Optional)
j. Connect a drain port on pipework immediately downstream of header tank – to be used during commissioning and maintenance
k. Appropriate labelling and insulation of all pipe-work

3. Electrical work in connection – requirements:

a. Connect the pump cable into an appropriate IP rated connection in the service chamber next to the tank access, which should include a local isolator
b. Fit the low level 10% switch (pump protection) including weight in the underground tank and terminate in the service chamber as with pump connections
c. Fit the tank level sensor bracket to the side of the access turret at least 750mm above the water level of a full tank (Supplied with monitor unit only)
d. Fit the 0-100% level sensor into its bracket in the side of the access turret and terminate in the service chamber as with pump connections (Supplied with monitor unit only)
e. Pull cables back from service chamber to the processor unit inside the building
f. Supply the processor unit with a single phase 230v supply which must pass through a double pole local isolator rated 16A
g. Fit the high level float switch and weight inside the Stormsaver™ header tank and take cable back to processor unit
h. Fit the low level float switch and weight inside the Stormsaver™ header tank and take cable back to processor unit
i. Connect the solenoid valve next to the Stormsaver™ header tank and take cable back to processor unit
j. Connect 1 x water meters from each rainwater and mainswater meter (supplied as an option)
k. Connect water meters (Optional) and take cables back to processor unit
l. Terminate all electrical connections within the electrical control panel. These will include: power supply, pump / pumps, 10% level switch, 0-100% level gauge, Header tank high level, header tank low level, solenoid valve (optional – 2 x water meters, BMS, education unit).
m. Fit education / monitor panel and supply with local fused (3A) power supply. Connect panel back to processor unit. (Supplied as an option)
n. Connect BMS to panel (Supplied as an option)
o. Use of appropriate electrical connections and ducting both internally and externally

4. Commissioning: Must be carried out by a Stormsaver approved engineer to validate the warranty