clivus multrum

SUSTAINABLE SOLUTIONS

GREYWATER PREFILTER.

Recommended for Use Alongside Clivus Compost Toilet Systems.

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Clivus Multrum Greywater Prefilter.

1. Introduction.

Greywater or sullage, is the wastewater component from baths, showers, basins, laundries and kitchens and excludes all toilet wastes (blackwater).

Greywater is conventionally treated in combination with the toilet wastes in systems such as reticulated sewerage, septic tank and aerated sewage treatment. However, the logic of turning greywater into blackwater, which is what happens in these systems, is questionable to say the least. Why pollute more water than we have to and then spend more money in treating it?

To treat the greywater separately from the blackwater is not only easier but also more practical as it allows the re-use of the treated greywater on site. For this reason the Clivus Prefilter, when used in conjunction with the Clivus Multrum composting toilet, offers the perfect solution to traditional problems of household wastewater disposal.

In the past the septic tank has often been the preferred choice of local authorities, especially for remote or 'out of town' locations, as a means of treating toilet wastes and the pretreatment of waste water (to trap food, hair, lint and grease and to control surge flows).

It is now well documented that the septic tank is not the solution. In many areas water tables have risen and the water is unusable because of contamination due to septic out fall. This is a particular problem where there are sandy soils and water tables are high. Further, evidence abounds as to the way septic systems have led to the degrading of important water ways and catchment areas. Add to this the problem of groundwater and soil contamination and you have a household system that is far from satisfactory, especially in environmentally sensitive areas.

Even when greywater is treated separately, for instance where it is allowed to stand in septic or holding tanks, it will rapidly become anaerobic, breed hazardous bacteria and become offensive. The presence of this anaerobic bacteria inhibits the effectiveness of the aerobic organisms in typical soil/sand filters, to further break down and treat the wastewater.

A much more efficient method of ensuring the pretreatment of household greywater is the Clivus Multrum Greywater Prefilter.

2. Rationale.

While work began on the Clivus Multrum Greywater Prefilter some years ago, the lack of clear guidelines and the varying regulations between State and Local Authorities prevented any significant advances being made in the area of household greywater treatment during this time. For this reason, when installing a composting toilet system except in a minority of cases, householders have still been required to install a septic or other system to treat their greywater.

As well as being cost prohibitive, the compulsory installation these systems alongside a composting toilet, is inconsistent with the ideals of recycling and the re-use of our precious resources that Clivus Multrum stands by and society as a whole is increasingly embracing.

For this reason, Clivus Multrum has refocused energies on seeing the widespread acceptance of the Prefilter as an ecologically sound method of household waste water treatment for on-site re-use.

3. Overview of Features.

The greywater treatment principles the Prefilter are based on, are well known and currently used extensively in the USA and other overseas countries and increasingly within Australia. The following description and diagrams of the Prefilter will assist the reader in understanding the process.

- Usually deploying a gravel filter, work has been carried out to source the best filter medium that will allow the trapping of particles in an aerobic environment. This prevents the wastewater from turning anaerobic and prepares the water for disposal by any of the following methods:
  - absorption trenches
  - evapo-transpiration beds
  - absorption wells
  - subsurface irrigation
  - surface irrigation (drip trickle or flood)
  - sand/soil filters followed by surface irrigation.
- This filtering greatly reduces the risk of clogging leach lines.
- The Prefilter controls surge flows.
- The Prefilter utilizes aerobic processes and is compatible with treatment by soil organisms.
- The unit drains, either by gravity or switched pump. The greywater is not stored and so offensive odours are not produced by anaerobic bacteria growth.
- The Prefilter is vented to ensure optimum oxygen levels within the unit.
- Kitchen water can be directed into the Prefilter after first running it through a grease trap.

4. Materials used.

The Clivus Multrum Greywater Prefilter is manufactured from rotational moulded polyethylene ensuring the system is corrosion resistant, seamless and easy to maintain. Full access to the tank is via a tight fitting lid. Pipes and fittings are of UVPC plastic. Filter socks are of sturdy nylon mesh. Filter medium is made of light weight plastic.

5. Filtration Process.

Solid particles such as hair, lint, soap, and other sediments are filtered by two long nylon socks. These socks run the full length of the filter box. They are evenly supported by a moulded plastic grate. As liquid passes into the nylon filter it is designed to drain evenly down through the aerobic filter medium. When the filter socks become full, they can be emptied into a compost bin and then re-fitted. Alternatively new socks can be fitted to the system. The light weight plastic filter medium is used to further filter finer particles and other sediment from the greywater. This aerobic filter medium has a high surface area to which fine particles, oils, etc. adhere only to be processed by the aerobic bacteria growing on these surfaces.

6. Installation.

The Clivus Multrum Greywater Prefilter is supplied as a complete pre-assembled unit. It has a option of 65mm or 100mm fitting on the inlet and a 50 mm fitting on the outlet. The unit is supplied with a sachet of aerobic bacteria which should be added to the system once it is in operation. This should not have to be repeated.

The greywater tank should be gravity fed with the household water. The tank is not designed to be buried into the ground more than one third without extra support for the walls. The base of the tank should be set on firm level ground. The outlet should be directed to one of the options outlined in point 3. above for further treatment.

7. Maintenance.

The amount of maintenance will vary depending on people's habits and the amount of water used per household. Filter socks will need emptying (or replacing if necessary) approximately every six months. Our field trials have indicated that this time may extend to 12 months depending on the household. For example if plates are scraped well, fat and grease is disposed of into the garbage / compost pile, if shower drains are screened and hair disposed of in a similar manner, the amount of solid particles in the greywater will be greatly reduced.

The aerobic bacteria is self-generating and should not require re-dosing.

Efforts should be maintained to ensure strong chemicals are kept from the drains. This includes agents such as 'Draino', chlorine based disinfectants and bleaches, paint etc.

The use of biodegradable cleaning and personal care products is recommended.

8. Life expectancy.

All components are made from UV stabilized plastic or stainless steel. The life expectancy is estimated at 15 years.

9. Approvals.

The approval of a given system usually rests in the hands of the local authority. As shires and city councils are becoming more aware of the environmental advantages of keeping greywater away from blackwater and in an aerobic state, we are finding increasing council acceptance and expect this trend to continue.

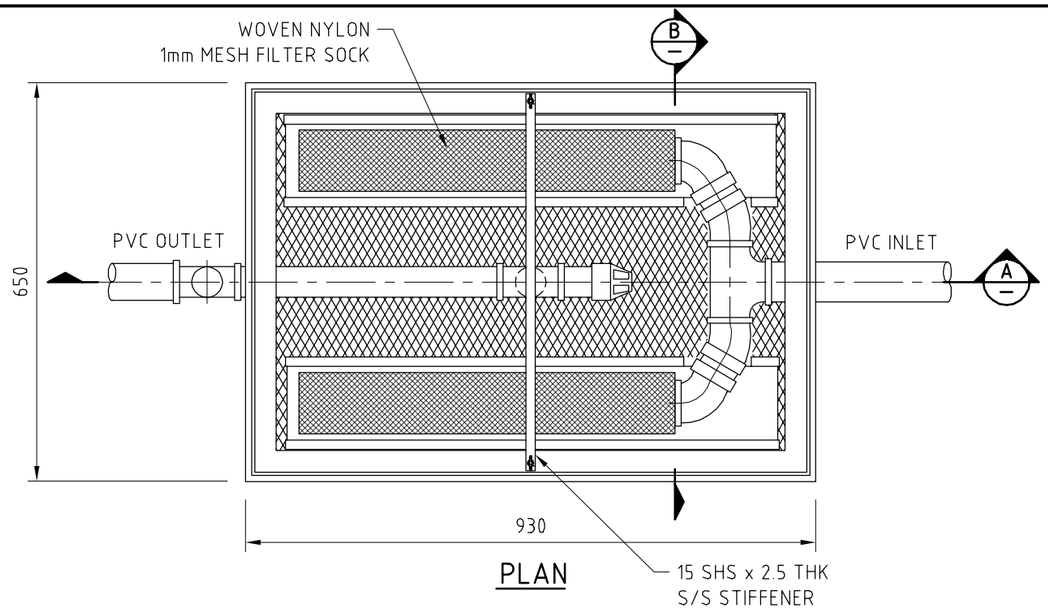
The Clivus Multrum Grey Water Prefilter has been approved for use by many local authorities. Check with you local authority.

10. Customer Support And Limited Warranty.

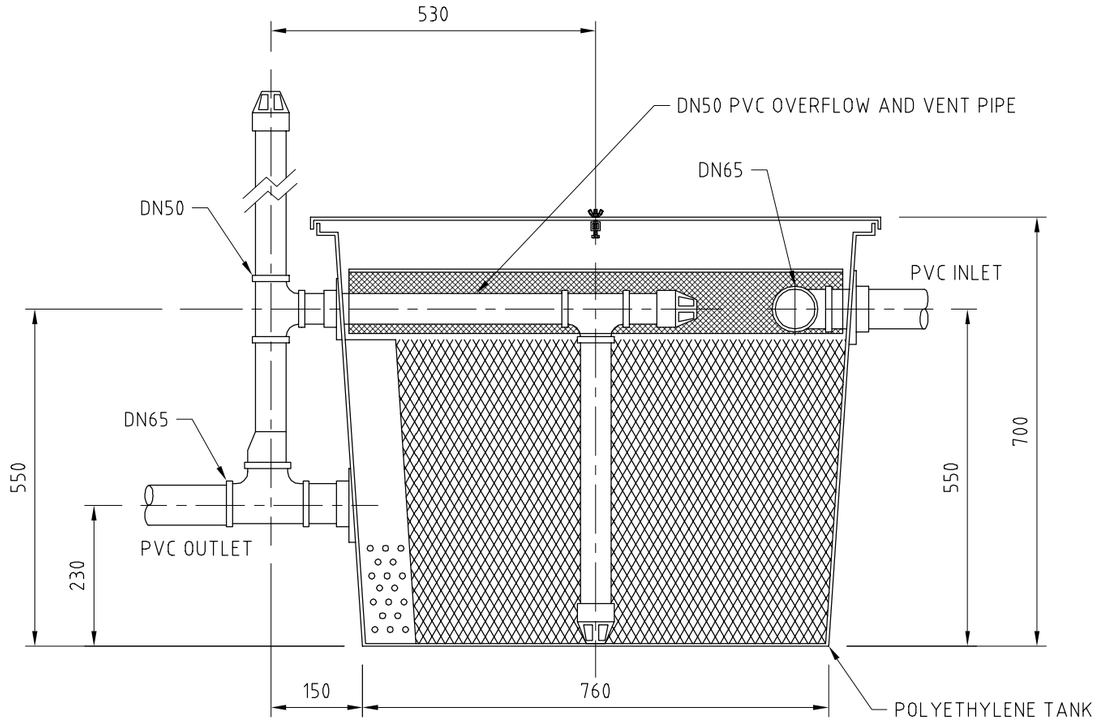
At Clivus Multrum we are serious about the on-going support of our clients. We are always available to answer any query you may have and welcome your comments. In addition the greywater filter is covered by a 12 months limited warranty against faulty workmanship or the supply of substandard components. If any part needs replacing (excluding the filter socks) within that time, we will happily replace it free of charge.

11. Summary.

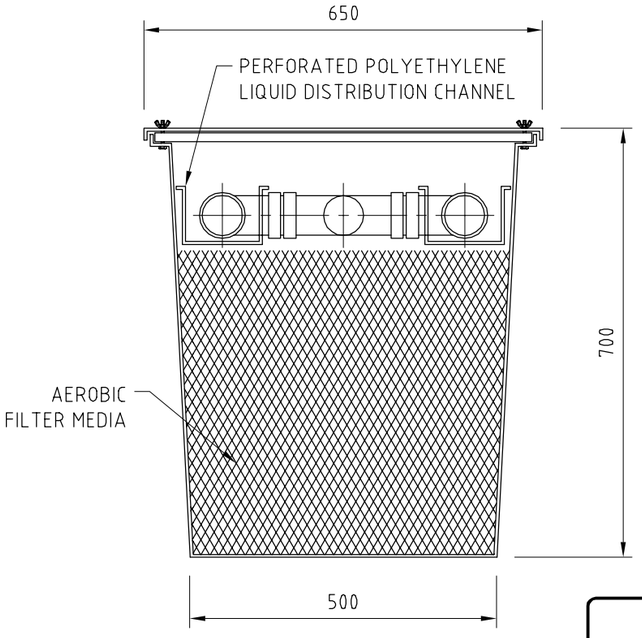
The Clivus Multrum Greywater Prefilter will effectively treat household greywater in preparation for disposal into the soil. The system may be used in conjunction with Clivus, and other composting toilet systems, as well as any other ‘greywater’ treatment system.



PLAN



SECTION A 1:10



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ISSUED FOR CONSTRUCTION

NOTES:

1. MANUFACTURING TOLERANCE ± 2%.

REV	DESCRIPTION	CHKD	DATE	BY
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0	ISSUED FOR CONSTRUCTION	-	1.12.05	WPM

UNLESS OTHERWISE STATED ALL DIMENSIONS IN mm

THIRD ANGLE PROJECTION

DRAFTING STANDARD AS 1100

clivus multrum® WATERLESS COMPOSTING TOILETS

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DRAWN BY:	DESIGNED:	APPROVED:
–		
DATE : –	DATE : –	DATE : –

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CLIENT :	CLIVUS MULTRUM AUSTRALIA PTY LTD		A3
JOB TITLE :	CLIVUS MULTRUM TANKS		SHEET 1 OF 1
DWG TITLE :	GREYWATER PREFILTER GENERAL ASSEMBLY		
SCALE: 1:10	JOB No: 3–020	DWG No: CP–A–02	REV 0M1

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