

Pontos:
New Generation Gray-water System

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Gray-water is water that was previously used in a house. The exception is toilet water (“Gray water”, 2008). It is usually comprised of dish washing, laundry and bathing water and can typically make up over 80% of total water used in residential homes (“Graywater Central”, 2008). Pontos is a newly developed, German engineered gray-water system developed by Hansgrohe, Inc.

Introduction

Gray-water systems are used to recycle used water from residential homes for purposes of irrigation, car wash, and supply for toilets (“Graywater Central”, 2008). With the increasing water crisis developing around the southwest of the United States, gray-water systems are becoming a hot topic. Recycling is more popular than ever; constant rising costs for fresh water and water treatment plants make gray-water systems a viable alternative. Hansgrohe, Inc has been the leading innovator for water savings technology in bath and kitchen. Their Pontos system is a state of the art compact and self-sufficient gray-water treatment system (“Pontos”, 2008). The Aqua Cycle from Pontos is the eco friendly, low odor, low maintenance answer to today’s ancient gray-water systems.

Installation

Unlike traditional gray-water systems, the Aqua Cycle does not require any outside installation. The unit is so compact enough; it can fit inside the house. The Aqua Cycle must be installed in the basement of the house. The reason is because gray-water must be able to freely drain into the unit (“Product”, 2008). The foundation must be able to withstand 1259kg/m² or 260lb/ft² (“Product Information”, 2008). Pipes used for gray-water drainage and distribution must be labeled according to local installation codes. It is advisable to have a licensed electrician perform all electrical terminations.

Technology

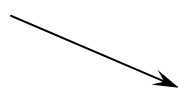
The Aqua Cycle 900 is the smallest unit available from Pontos. The water recycling systems utilizes a biological cleaning method as supposed to most chemical gray-water treatment systems (“Technology”, 2008). There are some limitations on what the Aqua Cycle system can and cannot recycle.

Recyclable water

- Shower
- Bath tub
- Sink from bath (restrictions apply)

Non-recyclable water

- Kitchen
- Dishwasher
- Washing machines
- Toilets
- Water contaminated with color (textile or hair color)



The Aqua Cycle uses a 4 stage treatment process to filter and treat the gray-water (Figure 1). This patented treatment process is called “SmartClean” (“Product Information”, 2008). Following is a explanation of the four stages.

Stage 1 - Filtration chamber

During this stage all solids such as hair and lint are filtered. This is to prevent any solids from entering the second tank. After the filtration, the solution is pumped into the second process tank. Eventually, the filter will be come clogged. To prevent this form happening, the system automatically cleans the filter using the water from stage 3 tank (Technology, 2008). This is done at set intervals.

Stage 2 - Pre recycle chamber

After the water has been pumped into the second tank, the water is treated with factory pre-added bacteria. The water and bacteria is infused with oxygen from the environment (“Technology”, 2008). This is the biological cleaning phase.

Stage 3 – Main recycle chamber

Once the bacterial has cleaned the water, the solution is then pumped into the final tank. During the bacteria treatment, sediment forms in tanks 1 and 2. (“Technology”, 2008). After 4 days, the sediment is automatically suctioned off and rinsed into the sewage line.

Stage 4 – UV sterilization

During the final stage, the water in tank 3 is sterilized with an internal UV lamp. The UV light kills all remaining germs which makes the water hygienically harmless, odorless and storable (“Technology”, 2008). In case of to much water entering the system, i.e. draining a full bathtub, the system will automatically redirect water in excess of process capacity towards the drain. Visa versa, when there is insufficient water to supply toilets, or irrigation systems, the unit will automatically add fresh city water to the unit to keep the water flowing.

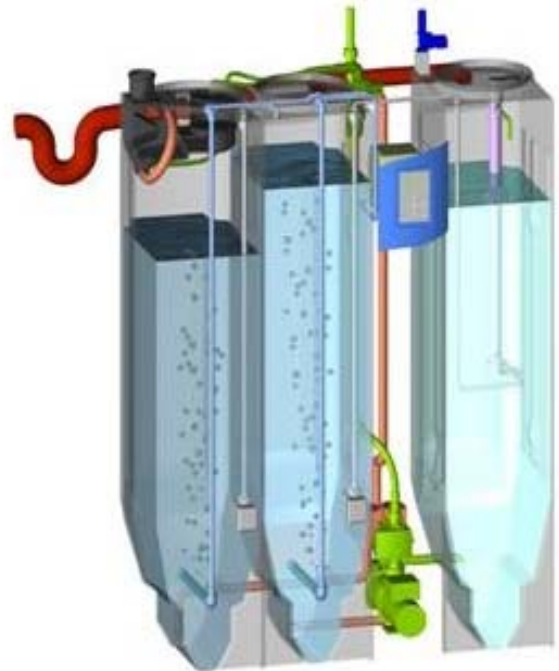


Figure 1 (Technology, 2008, fig. 1)

Evaluation

The Pontos - Aqua Cycle system is superior to last generation gray-water systems. Other Gray-water systems require large tanks and are an eye sore to landscaping. These systems also require extensive maintenance and setup time. Additionally, gray-water treated with the older systems can not be stored (“Common gray”, 2008). If stored, the water will quickly become septic (“Common gray”, 2008). Traditional gray-water systems are only for irrigation and other outdoor watering.

Pontos Aqua Cycle takes many of the problems traditional gray-water systems faces out of the equation. The Company Hansgrohe stands for quality. There is no complex outdoor installation required. Other strengths of the system include

- Recycles water for re-usage in toilets
- Treats gray-water for longer possible storage
- Odorless, clean treatment of water
- Multiple sizes for most applications, including commercial applications such as hotels
- Increased cost savings, by reusing water inside the house
- Virtually maintenance free design

Pontos is really a great system with benefits and capabilities that far exceed any traditional gray-water system. However, Pontos systems can be costly. To effectively utilize a Aqua Cycle system, much of the plumbing in your home must be redone. These can be expensive additional costs to install the system, which increase the total cost of the system. Due to the Biological cleaning of the water, Aqua Cycles are not able to process food from kitchen sinks. The Aqua Cycle is currently only available in Germany and other European counties. However, test trails are being ran in the U.S. and Hansgrohe is working on getting all approvals to sale the product in the U.S.

Conclusion

Hansgrohe has done a great job developing the Aqua Cycle. Even though the system cannot process water from the kitchen sink and dishwasher, the cost savings from recycling gray water and reusing it in toilets, makes the product very attractive. In spite of the high cost to purchase the system, Pontos estimates a 6-7 year ROI depending on average water usage (“Investment”, 2008). This makes the system not only economically feasible, but also helps protect the environment.

Work Cited

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