AQUATRON®

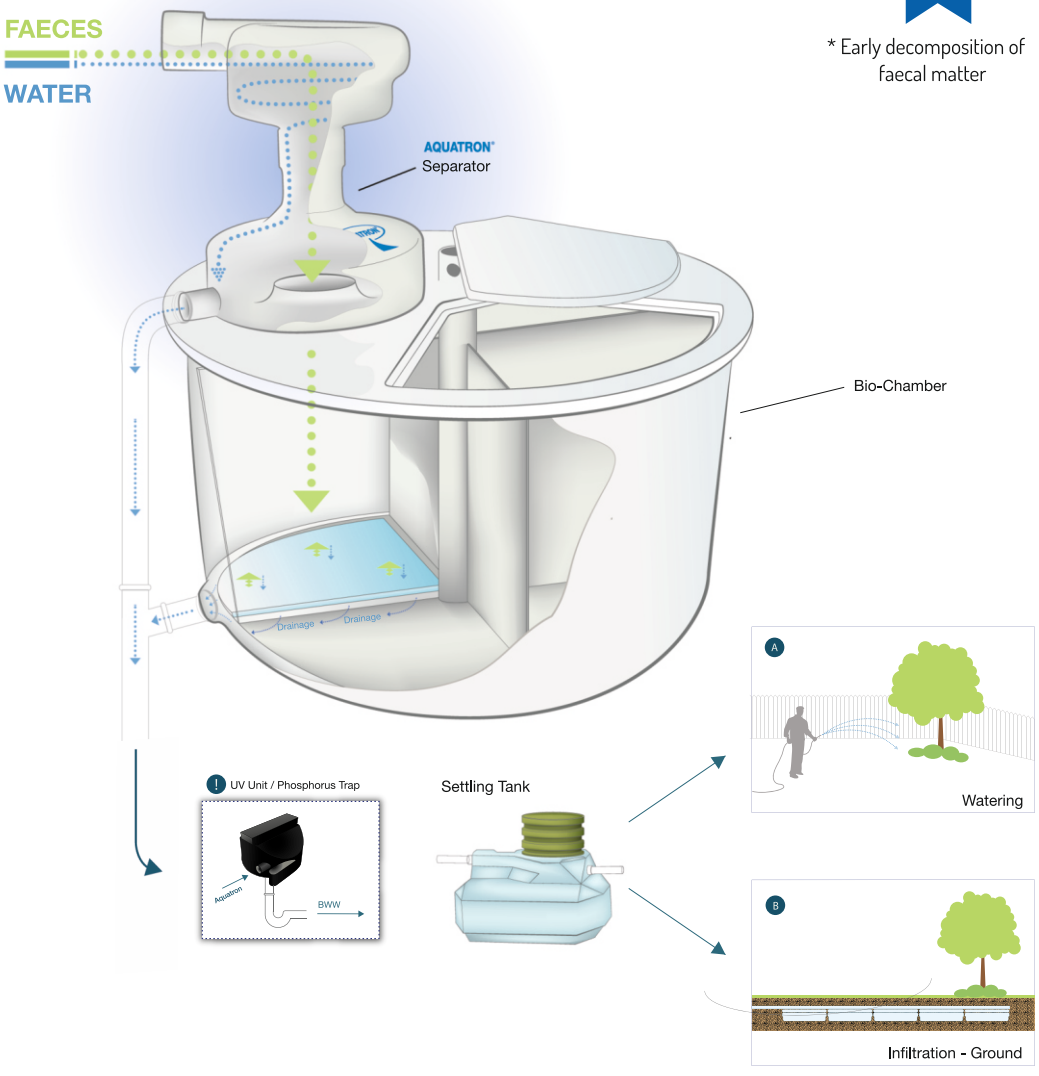
A Green Initiative for a Clean, Safe, and Cost Effective Water Recycling System.

Saves Water, Saves Nutrients, Saves Costs, and Protects the Earth.

GreenPro

swachh-a-thon 1.0
1st prize winner

* Early decomposition of faecal matter



Working Principle

What does Aquatron do?

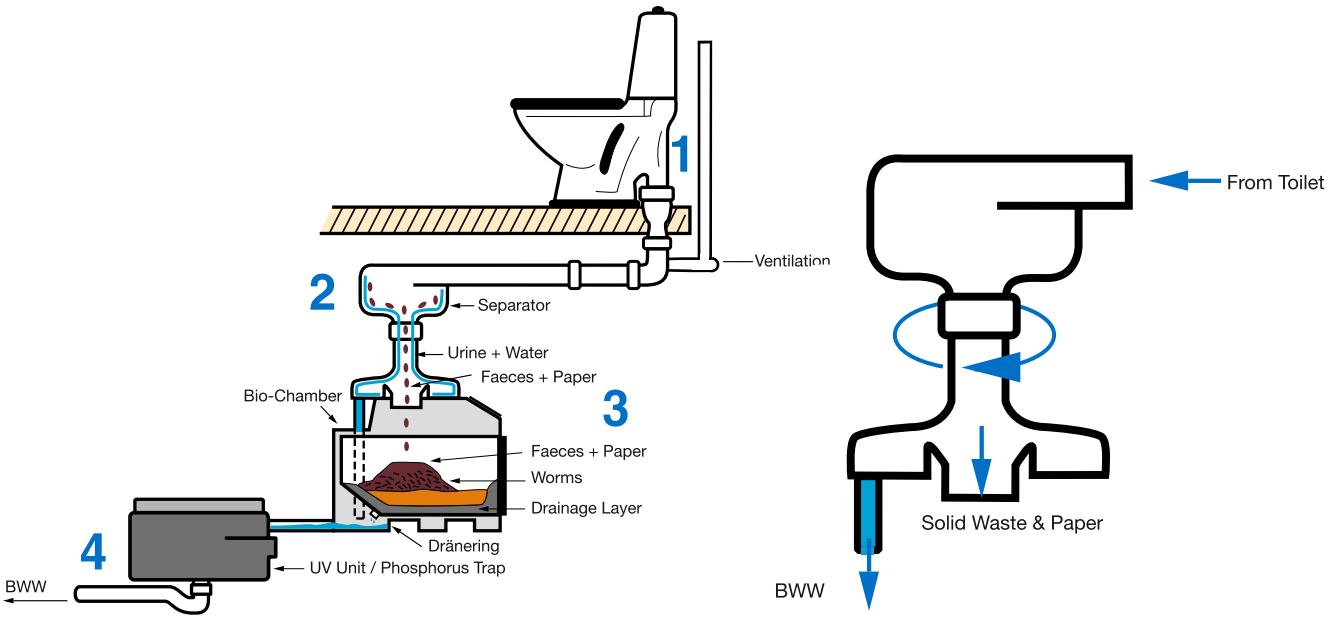
- Aquatron prevents the formation of sludge by separating faecal solids from flushing water
- The separation process is based on three natural principles: Momentum of flushing water, centrifugal force, and gravity
- The process does not involve mechanical moving parts, electricity or chemicals
- Aquatron can handle peak loads (up to 60 ltr/second) and infrequent use equally well

What happens to the liquids?

- 98% of the liquid is separated immediately
- 2% falls into bio-chamber with faecal solids and is filtered out through a special mat
- Separated flushing water & urine can be mixed with kitchen, bath and washing water
- Separated liquids are directly reusable for gardening
- Other reuse and treatment purposes can be achieved with further filtration (see page 4)

What happens to the solids?

- Faecal matter, paper and any other solid objects fall into the bio-chamber
- Natural bacteria consume and convert up to 95% of the matter into carbon dioxide
- The end product will be a small scoop of hygienic, odorless manure
- The need to empty the bio-chamber and handle compost is reduced to a minimum
- There are no insects or unpleasant odours around the dry bio-chamber



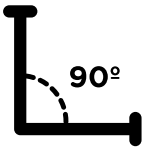
Aquatron can be placed anywhere within 60 meters (200 feet) from the furthest toilet.
Up to 25 toilets can be connected to a single Aquatron.

Installation

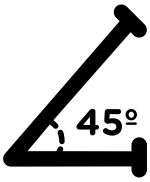
There are only a few simple guidelines for installation and plumbing:

- 1-2% slope in pipes leading to Aquatron
- 5% slope in the last 1 meter
- No manholes
- No 90° bends or Ts
- 45° degree bends and Ys

No manholes

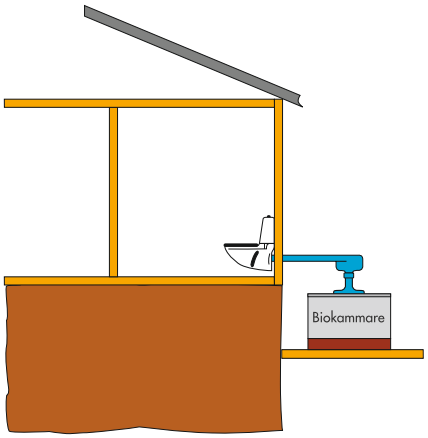


No 90 Degree Bends



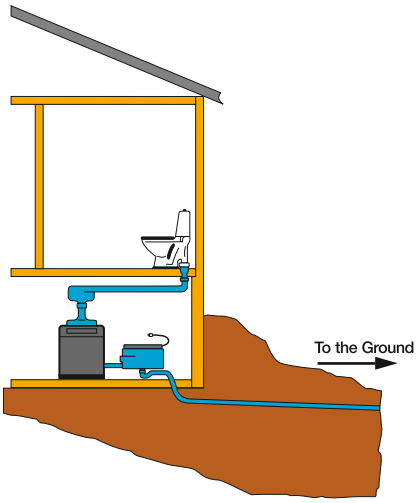
Only use 45 Degree Bends

2



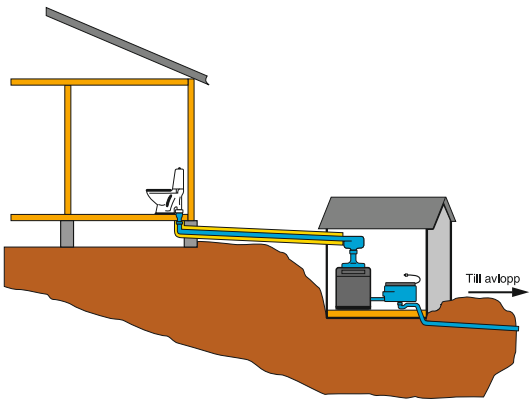
Outdoor Installation

1



Installation in a basement

3

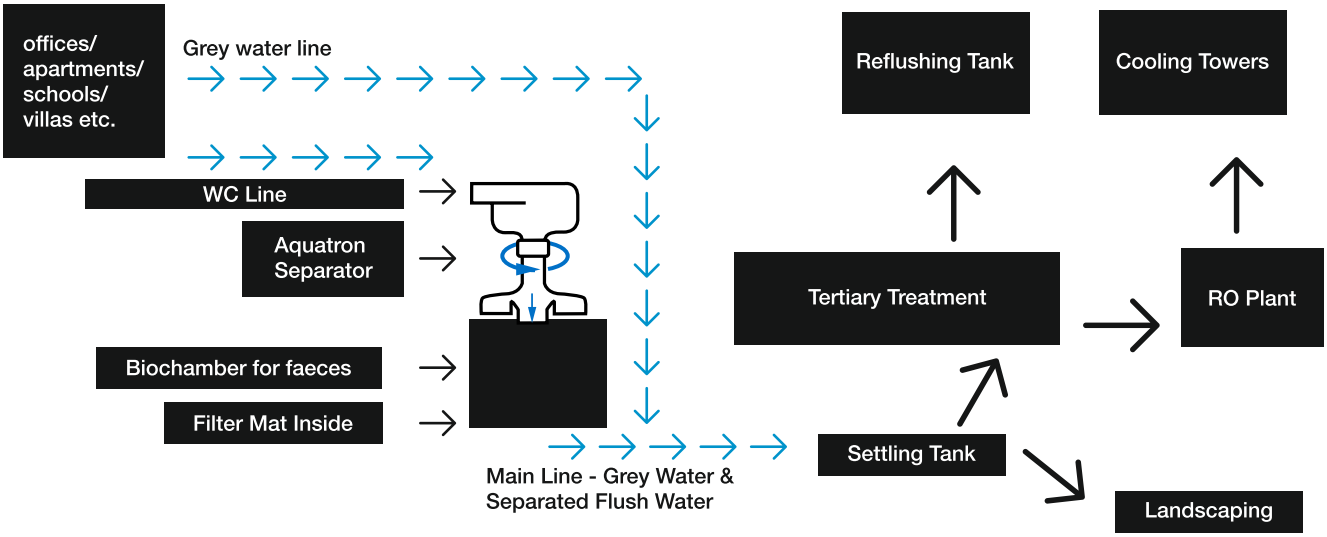


Installation in a Separate house

Treatment of Discharge

While the solid matter is left to decompose on its own, the separated liquids, often together with grey water, can be treated further according to the purpose of treatment:

Purpose of treatment	Filtration steps
Reuse in gardening/ groundwater percolation	Aquatron, UV, Settling tank
Treatment to PCB standards (together with grey water)	Aquatron, Settling tank, Water Treatment Plant (AMF, ACF, MF, BF, UV) Or: Natural Reed-bed
Reuse for reflushing	Aquatron, Settling tank, Water Treatment Plant with Ultrafiltration (AMF, ACF, MF, BF, UF/Ozone, UV) Or: Natural Reed Bed
Reuse for chillers	As per above RO in case of high TDS



Technical Specs

Technical Specs / O & M

Material: Recyclable polyethylene and glass-reinforced polyester
Size: Approx 600 mm x 500 mm x 500 mm
Inlet dia: 110 mm
Outlet dia: 110 mm
Lifespan: At least 50 years
Power consumption: None for primary treatment of sludge with Aquatron.
Toilets to be used: Normal flush toilets. Up to 25 toilets can be connected to one Aquatron.

O & M

Operating and maintaining Aquatron is very simple and no specialist operator is needed.

Recommended maintenance:

- Weekly or bi-weekly: Visual check of composting in bio-chamber
- In case of excess wetness in bio-chamber: Add sawdust, dried leaves or the like

Operating pumps for further water treatment/reuse as per requirement. Often fully automatic.

The straightforward operation translates into 90% savings in monthly sewage treatment power bills (compared to a conventional STP).

Note: Maintenance and media replacements for any additional filters as per manufacturer guidelines.

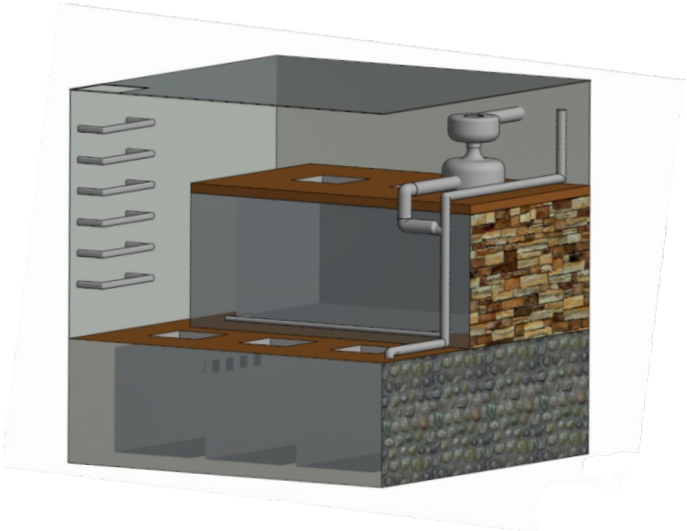


Image: Typical underground bio-chamber and settling tank structure for 10 KLD

Aquatron vs. STP

Aquatron® vs. Conventional STP

	Conventional STP	Aquatron®-based STP
Complexity of equipment	HIGH	LOW
Repair and maintenance requirements	HIGH	LOW
Skilled operator requirement	YES	NO
Energy consumption and cost	HIGH	LOW
Likelihood of odor problems	HIGH	LOW
Required tank capacity	2x times actual waste water volume	Actual Waste water Volume
Lifespan of equipment	10 YEARS	50 YEARS
Quality of output	PCB STANDARD	PCB STANDARD

Site Installation / Pics

Installation in Sweden

iClean, Hyderabad

Client next to Aquatron & Faecal Matter Chamber, Admerus Biosciences, Hyderabad

Installation in Hyderabad, India

Installation in Pune, India

Decomposted Chamber at Yashoda Hospitals, Hyderabad, India

Aquatron – Ecological toilet system using ordinary water closets

Patented technology owned by Swedish firm Aquatron InternationalAB

More than 30 years worldwide experience in wastewater separation without electricity

Aquatron at a glance

- Separates faecal matter from flushing water
- Separation based on natural principles
- Natural bacteria convert separated faecal solids into gas and hygienic soil
- Treatment and immediate reuse of separated liquids becomes easy
- Minimal O&M costs
- Applicable from a single user to 1000s of users
- Existing applications include individual houses, hospitals, factories, schools, educational institutions, IT complexes, pharma companies, villa layouts and many more.
- 50 years lifespan

India Partner

Pangaea TradeTeam Private Limited
Plot No.1, Survey No. 105/C,
4th Floor, E. Malla Reddy Complex,
Kompally, Hyderabad
TS 500 014

Phone: +91 98859 21703, +91 98852 46105
E-mail: aquatron@pangaea.co.in

Local Distributor