

The power of nature



Phylocube

Delivering a compact natural wastewater treatment system

PHYLOCUBE BRINGS THE FULL BENEFITS OF RECENT INNOVATIONS IN EXTENSIVE WETLAND TREATMENT SYSTEMS TO LOW FLOW RATE APPLICATIONS SUCH AS SINGLE HOUSES AND SMALL INDUSTRIALS.

Reed bed systems are widely known as one of the most reliable and sustainable wastewater treatment systems currently on the market. With characteristics such as very low power requirement, robustness and low maintenance, they have become an accepted choice for the treatment of municipal, agricultural and industrial wastewaters. Reed bed systems blend into the environment naturally and have a minimal ecological impact.

By introducing one of the more recent innovations - aeration of the reed bed - the issue of land requirement has largely been solved.

The extra oxygen that is injected, enhances the purification efficiency by a factor up to ten and reduces the footprint by a factor of four to six. Aerating the bed provides high and consistent water treatment capacity and offers more flexibility for the treatment of varying loads.

The **Phylocube** makes this cutting-edge aeration technology available for individual homes and other low flow wastewater treatment situations. Its modular capability allows straight forward adjustment to treatment requirements and expansion if required.

Benefits of the Phylocube

- Very small footprint: only 0.5 m² required per inhabitant equivalent
- Low yearly costs
- Only one maintenance visit per year
- Simple and fast installation as prefabricated system
- Limited earthworks
- Generates no excess sludge
- No source inoculation required
- Extremely quick start-up - compliance can be achieved after only two weeks
- Modularly expandable
- Minimum ecological footprint
- Suitable for variable and stress load applications
- Configurations include ground level, partially above ground and above ground installation options
- Personalized finishes available to match local landscaping concept
- Integrated sampling point
- CE Mark tested and approved



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Phytocube principle

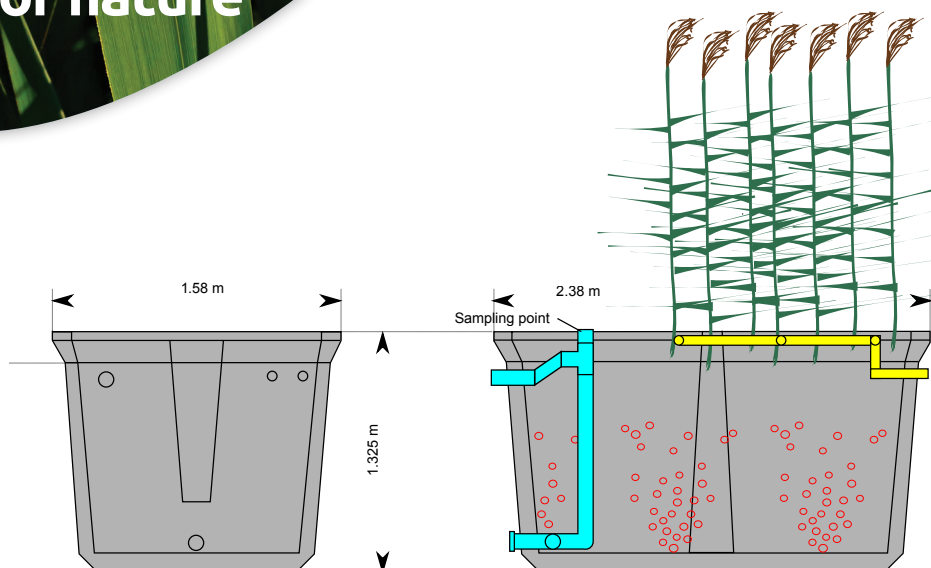
Domestic wastewater is fed to a common pre-settlement tank where solids settle and the floating fat layer separates. If there is an existing septic tank, it can be used.

After the pre-settlement tank, the wastewater is delivered into the **Phytocube** system. The **Phytocube** basin is filled with a selected media, in which the plants root. Bacteria attach and grow on the media and the roots of the plants as a biofilm. They consume the contaminants within the wastewater as it passes over the biofilms. The bacteria are supported by the natural environment existing between the roots of the reed plants and are supplied with oxygen through a network of airlines at the bottom of the basin, which is connected to a small air pump.

The relatively long retention time of the wastewater in the basin leads to negligible sludge production as excess sludge is consumed by the bacteria. The natural environment around the roots of the plants and a combination of aerobic and anaerobic processes, produce a very rich diversity of bacteria in the reactor, that can also break down hard degradable substances, such as pharmaceuticals.

Low yearly costs

Compared to standard underground small wastewater treatment systems, the energy consumption of the **Phytocube** is considerably lower, because it needs relatively less aeration. Also, the system only requires one maintenance visit per year. Because no excess sludge is produced, only the sludge from the septic tank needs to be disposed of once every year. This means the operational and whole life costs for treatment are much reduced.



Delivery and options

The standard sized **Phytocube** will serve five to six people. The system is modular and multiple basins can be linked in different ways to achieve the correct treatment capacity for your purposes.

The **Phytocube** is delivered including an electronic control with alarm

functions for pump and air blower. The control is mounted in a green coated stainless-steel housing, fit for outside usage. For situations where there is no daily flow of wastewater, a special electronic control can be supplied that switches the air blower on and off depending on the treatment demand.

Excellent purification results for the Phytocube

The results below were obtained at the European CE-mark testing according to EN 12566-6 at the European notified body Certipro (Mol, Belgium). In this procedure, the system is tested under varying loads for 38 weeks, including a winter period. The results show that the **Phytocube** conforms to the strictest discharge standards.

	AVERAGE IN (mg/l)	AVERAGE OUT (mg/l)	REDUCTION (%)
BOD	346	4	99%
COD	751	34	95%
Suspended solids	303	7	98%
Ammonium-N	68	7	90%
total-N	85	39	54%
total-P	10	5	50%

Our years of experience and know-how in wastewater treatment, combined with extensive cooperation with the most renowned institutions and organisations at home and abroad, enables us to provide you with the necessary certificates and testimonies.



ARM have been designing reed bed treatment systems for sewage, industrial process waters, run-off and leachates for over 30 years.

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