WESTERNTECH VIETNAM

CÔNG TY CỔ PHẦN WESTERNTECH VIỆT NAM

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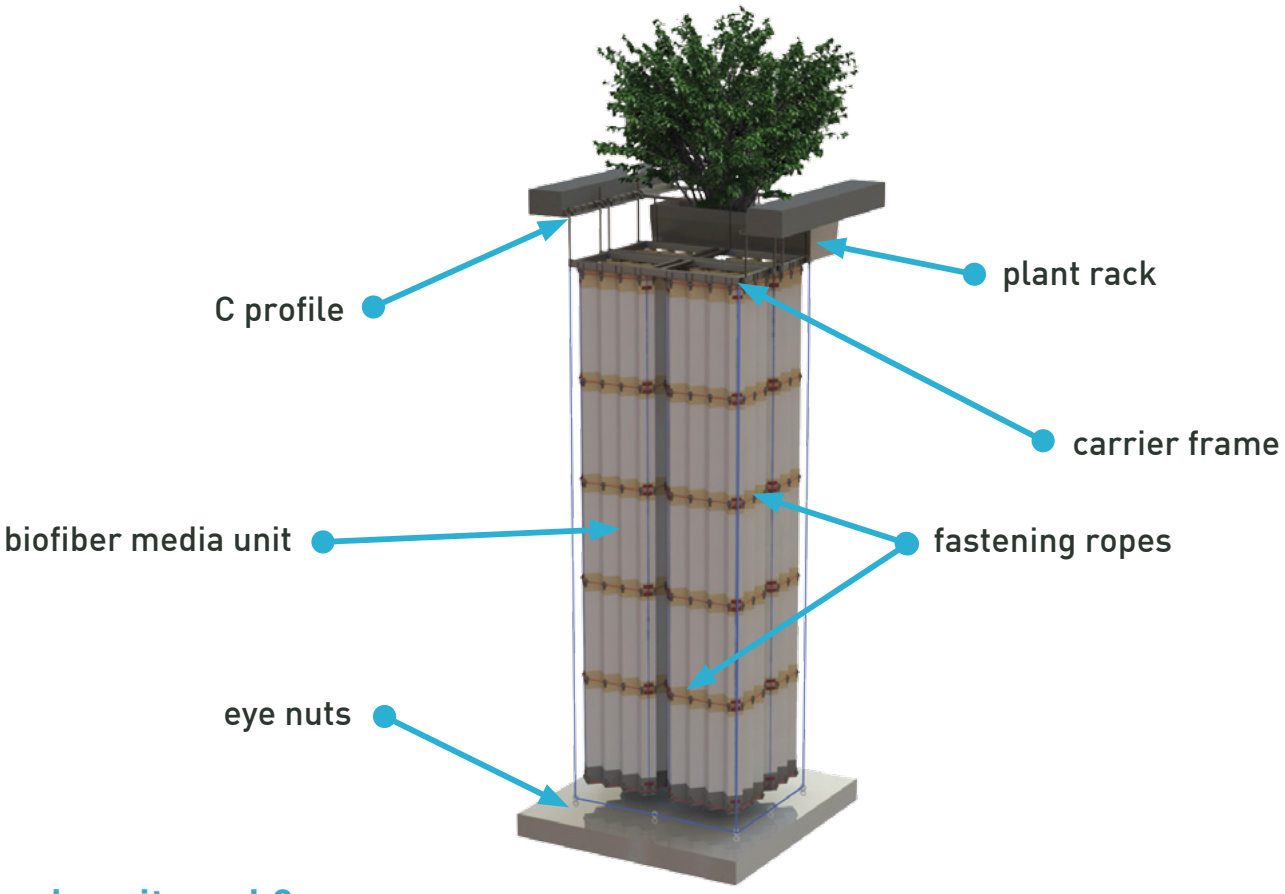
ORGANICA

The Organica Biomodule is a specially-designed product which acts as the support mechanism for the biofilm carriers - both natural (plant) and engineered (patented biofiber media) root structures – in the Organica Food Chain Reactor (FCR) solution. The Biomodule is the key component of an Organica FCR, enabling the same level of contaminant/nutrient removal in half (or less) reactor volume when compared to other activated sludge-based solutions, resulting in land, construction, and equipment cost savings.

The Organica FCR solution is a type of an Integrated Fixed-Film Activated Sludge (IFAS) system which utilizes a fixed-bed biofilm to remove the contaminants in wastewater. One of the core differentiators of the Organica FCR solution is the use of root structures (natural and engineered) as bio-film carriers, which enables the development and maintenance of a 3 to 4 times higher biomass concentration for every cubic meter of reactor volume when compared to other activated sludge-based solutions.



How does it work?

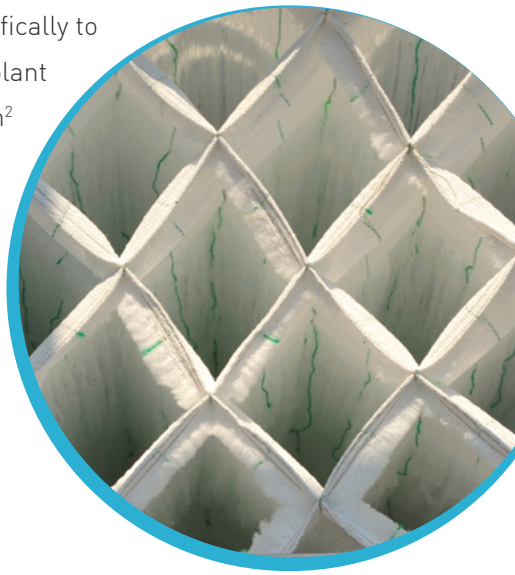
The Organica Biomodule is specially designed to fit securely into the cascade of concrete biological reactors in the Organica FCR solution. Each Biomodule supports the root structures – both natural plant roots and Organica's patented biofiber media – and the fixed bed biofilm that grows on them. The root structures in turn provide an ideal habitat for a larger ecosystem to thrive, resulting in much smaller physical footprints and reduced construction costs. The ecosystem is not only large but also more diverse; in the Organica FCR solution we find over 3000 species compared to 600-800 in other activated sludge based solutions. This results in the development of a distinctive self-regulating ecosystem with operational flexibility and high resilience to unexpected influent fluctuations and shock-loading. In addition, because the Biomodules can support this unique biofilm all FIXED on the root structures, the solution is able to achieve lower suspended solids content in the water (TSS of 100 – 300 mg/l), which in turn improves oxygen transfer efficiency and results in 30% or greater energy savings.

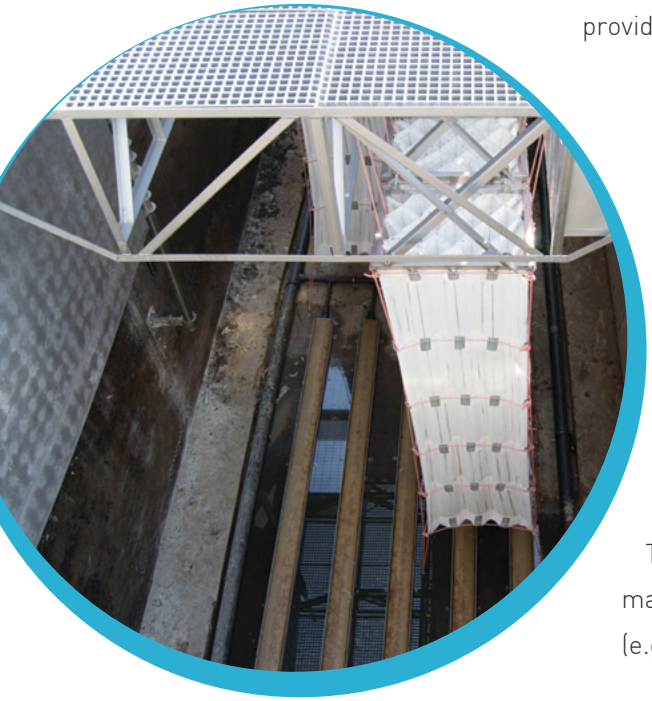
Features and Benefits

The Organica Biomodule is the heart of the Organica FCR solution, specially designed to maximize the surface area where this unique fixed-bed biofilm can grow. In Organica FCR systems we find 14-18 kg of active biomass is for each cubic meter of reactor space, compared to 5-8 kg/m³ in other activated sludge-based systems.

The **natural root structures** provide 12,000 m² of surface area for each cubic meter of reactor space they occupy. Oxygen and enzyme transfer between the biofilm and roots occurs naturally, making this living biofilm carrier the ideal habitat for the microorganisms in the system.

The **engineered root structures**, Organica's patented biofiber media, were developed specifically to mimic the physical qualities of natural plant roots. The patented design ensures 50.6 m² of surface area per unit of biofiber media, providing a vast habitat for the fixed bed biofilm to grow on.





The arrangement of plants and biofiber media units is designed to ensure flawless operation. The plants are carefully placed to avoid root tangling with the biofiber media below, allowing routine inspection of the reactors. The configuration of the Biomodules also allows for simple maintenance when equipment in the reactors (e.g. diffuser head) requires replacement.

FEATURES	BENEFITS
Modular design in one single structure including stainless steel carrier frame and mounting mechanism	Easy installation and durability with ability to bear significant biofilm loads over a long period of time
Patented Biofiber media	Increased surface area to support robust and diverse biomass development
Plants and plant racks	Support for natural plant root surface area that allows the growth of a diverse and plentiful biomass and adds to the unique look & feel of the Organica FCR solution
Fastening ropes	Easy installation and routine maintenance