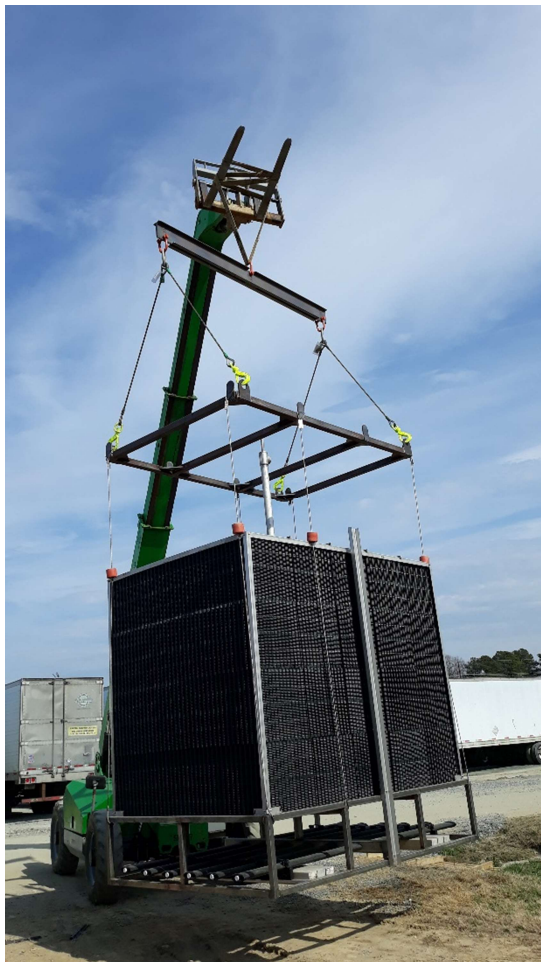




# Fixed bed biofilm reactor system (FBBR)

AET turnkey solutions for BOD and ammonia removal



Retrievable FBBR system unit



Component 1: Fill media



Component 2: Aeration diffusers



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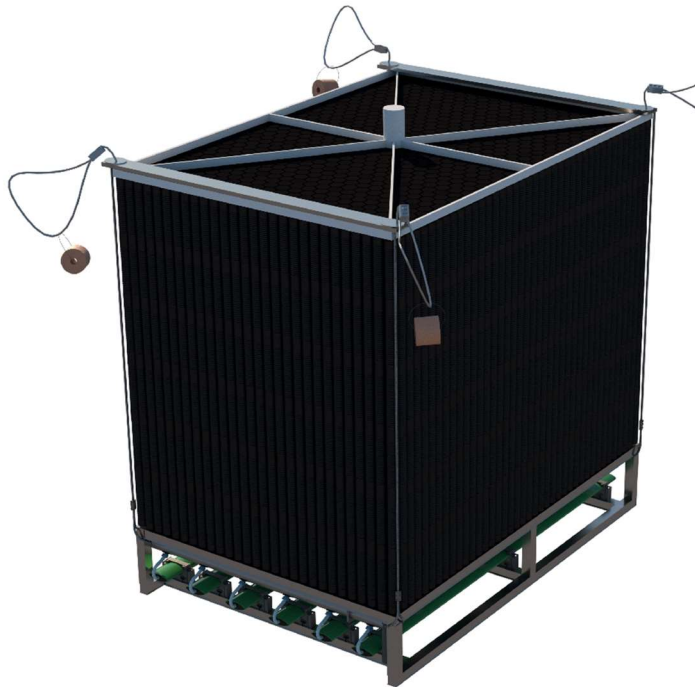
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FBBRs (fixed bed biofilm reactors) are used in various wastewater treatment applications for BOD and ammonia removal. The product consists of two main components: Plastic fill media and aeration diffusers. Biofilm microorganisms settle down on the fill media surface and digest organic waste in water (BOD) under consumption of oxygen. After all BOD is removed the microorganisms facilitate the oxidization of ammonium  $\text{NH}_4^+$  to  $\text{NO}_3^-$  (Nitrate).

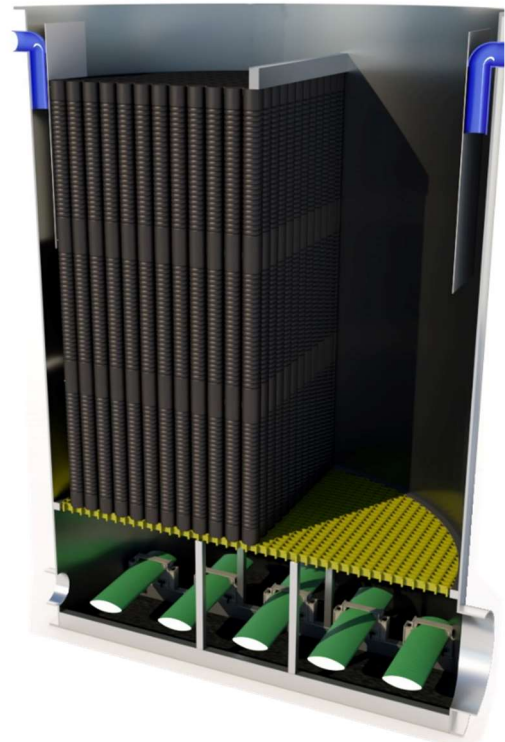
AET supplies various types of fill media and aeration diffusers differing in materials, surface area and dimensions to meet our customers individual demands.

The FBBR system consists of individual, retrievable cage units to allow easy installation, maintenance and upgrades. If needed, AET can also supply complementary air distribution piping, FRP tankage, blowers, monitoring equipment and more.

**Design examples:**



Single FBBR cage unit



FRP tankage incl. FBBR for smaller flows



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### **System advantages:**

- Fine bubble strip diffusers for efficient oxygen supply of attached Biofilm growth
- Turndown rate of 16:1 and better SOTE% compared to disc or tube aeration reduces energy costs
- VFDs for automated blower operation and biofilm scouring possible
- Retrievable system and individual ball valves per FBBR unit ensure easy maintenance
- Modular cage construction allows easy FBBR expansion if needed
- Polypropylene fill media ensures long life span of media and reduces brittleness and chipping compared to PVC fill media
- Vertical flow design fill media provides maximum surface area of 38sft/cft but reduces risk of clogging

### **Applications:**

In comparison to activated sludge, FBBRs are less sensitive for volatile flows, interrupted aeration or grease leaks which makes them a good fit for industrial applications such as:

- Food and beverages
- Meat processing
- Dairy
- Lagoon bypasses
- Chemicals
- Leachate
- Pharmaceuticals
- Energy
- Pulp and Paper

Furthermore, FBBRs are an easy and effective upgrade for existing activated sludge basins. By adding the FBBR units into an activated sludge basin additional biomass will grow on the media surface increasing the total sludge volume by up to 50%. The combination of activated sludge and FBBRs is also known as IFAS (integrated fixed film activated sludge).

### **Please contact us for more information and design support.**

This information has been put together with greatest care. However, any performance data given in this leaflet is subject to compliance with certain surrounding conditions and hence may vary from case to case. Further, we reserve the right to make changes at any time and without notice. We strongly recommend reconfirm with us if this information is still valid.



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