

## AQUACELL™ Wastewater Treatment Systems

### Features & Benefits

- Treats Flows From 0.001 to 10 MGD
- Fixed-Film Process
- Small Footprint / Compact Design
- Cost Effective Plant Upgrades / Retrofits
- Modular Pre-constructed Systems
- Durable UV Resistant HDPE Biofilm Carriers
- Cold Climate Nitrification / Denitrification
- Minimal Sludge Generation
- Expandable & Flexible Design Arrangements
- Minimal O&M Requirements
- Fully Automated Systems
- Remote Monitoring Control Options

### The AquaCELL Advantage

AquaCELL is a state of the art fixed-film moving bed biofilm reactor (MBBR) in which thousands of submerged polyethylene (HDPE) biofilm carriers operate in motion within an aerated or mechanically mixed basin. Each carrier element incorporates multiple protected cells with significant surface area to sustain a dense community of attached growth microorganisms. As the neutrally buoyant carriers move throughout the water column, oxygen and organic/inorganic material is available to the biofilm which absorbs, oxidizes and reduces the pollutants thus providing treatment. The dense population of bacteria provides high-rate productivity, enhanced nitrification/denitrification, process stability, small footprint and ease of operation.

### Simple Operation

In attached growth MBBR systems, the bacteria in the biofilm is self-regulating and produces minimal sludge. These characteristics eliminate the need to actively manage mixed liquor suspended solids (MLSS), food to microorganism (F/M) ratios and return activated sludge (RAS). The result is a one pass treatment process that is easy to operate and highly reliable.

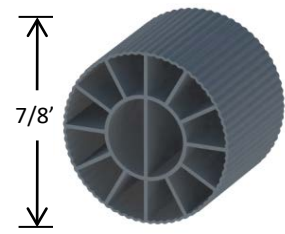
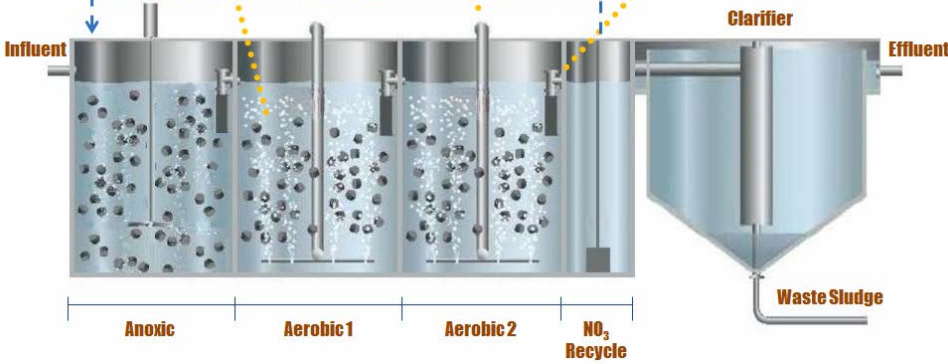
### New Construction and Upgrades

AquaCELL treatment systems are available in a variety of materials and tank geometries. Reactors can be constructed of stainless, epoxy coated carbon steel, fiberglass or concrete and can be installed above ground or below grade.

Aquapoint systems are pre-engineered and pre-constructed or custom designed to fit the specific requirements of your site. Additionally, AquaCELL can be designed to fit within the chambers of an existing plant making it a cost effective solution for capacity and/or performance upgrades.

### Applications Include:

Residential, industrial and high strength waste streams - roughing reactors – nitrification & denitrification - retrofits and upgrades - sites with limited space and/or aesthetic concerns - sites requiring little operational oversight.

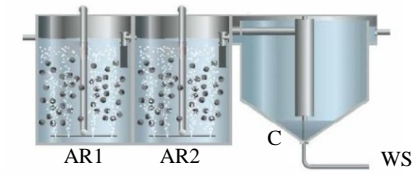


**AquaCELL Biofilm Carriers** are constructed of UV resistant HDPE plastic giving them durability and a long life span regardless of the application. Their neutral buoyancy is critical to effective mixing within a reactor and ultimately provides an increase in treatment efficiency. Each carrier has a large internal protected surface area for biological growth. The apertures are engineered to allow for adequate scouring velocities and sloughing before biological plugging occurs.

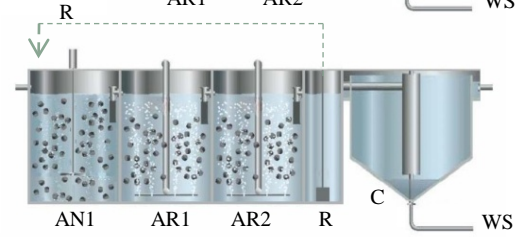
### AquaCELL Design Configurations

#### Legend:

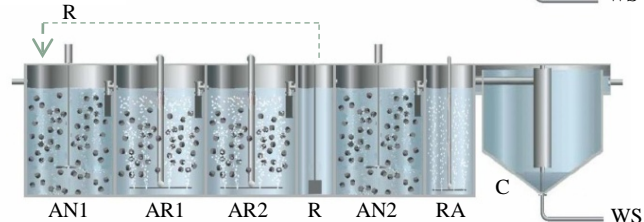
- AN1 + AN2 = Anoxic
- AR1 + AR2 = Aerobic
- R = Recycle
- RA = Re-Aeration
- C = Clarifier
- WS = Waste Sludge



**AquaCELL (AER)**  
 < 20 mg/l BOD  
 < 20 mg/l TSS  
 < 0.5 mg/l NH<sub>3</sub>-N



**AquaCELL (MLE)**  
 < 20 mg/l BOD  
 < 20 mg/l TSS  
 < 0.5 mg/l NH<sub>3</sub>-N  
 < 10 mg/l TN



**AquaCELL (ENR)**  
 < 20 mg/l BOD  
 < 20 mg/l TSS  
 < 0.5 mg/l NH<sub>3</sub>-N  
 < 3 mg/l TN



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