AQUA-AEROBIC SYSTEMS, INC.

Aqua BioMax™

DUAL TREATMENT SYSTEM

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The Aqua BioMax™ dual treatment system is a unique combination of rotating biological contactor (RBC) technology and cloth media filtration. The package unit utilizes multiple RBC disks that are vertically mounted and closely spaced on a steel shaft, providing a large surface area for biofilm growth. The disks rotate out of the wastewater to provide aeration for efficient BOD removal and nitrification. A cloth media drum filter follows the RBC to collect and remove the biological solids prior to the effluent discharge. This cloth media filter eliminates the need for a secondary clarifier. The Aqua BioMax system is an ideal solution for low flow applications (up to 100,000 gpd) where economical treatment and simple operation are critical.

Features and Advantages

- Minimum energy consumption
- Reduced maintenance
- Easy access to internal components
- Utilizes exclusive OptiFiber® cloth filtration media in a drum configuration
- Reduced footprint requirements
- Minimal operator attention needed
- No need for mechanical aeration or diffuser systems with blowers
- Low installation costs
- Pre-assembled plant, complete with an integrated electric control panel allowing rapid installation and start-up



Internal view of the RBC and cloth media drum filters.

Typical Applications

- Small Communities
- Tourist Complexes/Camping sites
- Construction Sites
- Industrial Wastewater
- Hotels
- Schools
- Highway Rest Areas



Aqua BioMax™ system overview (filter cover removed).

Operation Description

Effluent from an upstream primary sedimentation basin enters the Aqua BioMax unit through the biological treatment section of the unit. Biofilm grows on the RBC disks, removing BOD and oxidizing ammonia. The RBC disks are 40% submerged and rotate continuously to allow for aeration of the biomass when exposed outside of the water. This method of providing oxygen to the biomass eliminates the need for mechanical aerators or diffusers systems with blowers, resulting in significant power savings.

Flow then enters the filter portion of the unit. Biological solids are collected on the outside of the cloth media and removed when the filter is backwashed. Effluent is then discharged. The back-wash water is returned to the upstream primary sedimentation basin and the biosolids are typically anaerobically digested in the bottom of the pre-treatment tank. The digested solids are removed from the tank every three to six months.

Rotation of both the RBC disks and the cloth media filter drum is accomplished by a small gear motor, 1.0 to 2.0 horsepower (hp) (0.75 to 1.5 kilowatts kW). In addition, there are one or two 0.8 hp (0.6 kW) backwash pumps for the drum filter, depending on the unit size.

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