AQUA-AEROBIC SYSTEMS, INC.

Aqua-Aerobic
Cloth Media Filters

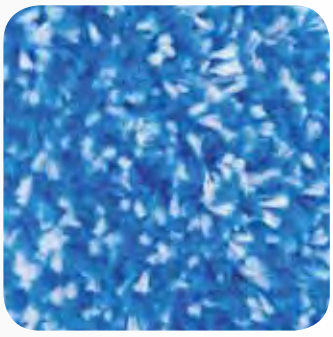
Aqua-Aerobic
Cloth Media Filters

Aqua-Aerobic Systems revolutionized tertiary treatment by introducing cloth media disk filtration. After 20 years and over 1,000 installed units worldwide, Aqua-Aerobic continues to lead the industry in the development and application of cloth media technology. Original OptiFiber® pile cloth is the common thread utilized on all of our mechanical configurations: AquaDisk®, Aqua MiniDisk® and AquaDiamond® filters. Satisfied customers realize performance advantages, cost savings and ease of operation and maintenance compared to other tertiary filters and microscreens.

OptiFiber® Cloth Media

OptiFiber® cloth media is engineered exclusively for wastewater and water applications. It is designed to maximize solids removal over a wide range of particle sizes. Its thick, pile construction allows filtered solids to be stored, unlike microscreen media, to extend the time between backwashes. A uniquely designed cloth fiber backing support structure promotes thorough cleaning of the media for optimum performance.

OptiFiber PA2-13®



OptiFiber PES-13®

Ongoing Cloth Media Research

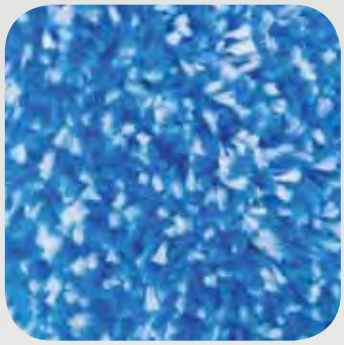
We remain dedicated to advancing the science of cloth media filtration through technical research. Our years of experience in cloth media development provide a unique understanding of the close relationship between cloth construction and performance. Every cloth design must pass rigorous, full-scale field testing prior to commercial implementation. The result is our ability to offer you the highest degree of confidence in achieving your specific performance objectives.

OptiFiber PES-14™

Unique backing design

OptiFiber® Pile Cloth Media Compared to Microscreen Media

Pile Cloth Media



- Depth of media provides increased solids storage
- Backing support offers durability and longer media life
- Direct media contact during backwashing for higher maximum cleaning efficiency
- Variety of application-specific cloth media available, as small as 5 micron nominal pore size

Microscreen

- Flat, no depth for solids storage
- No backing support resulting in media being vulnerable to tearing
- No direct contact with media during backwashing
- 10 micron pore size and greater

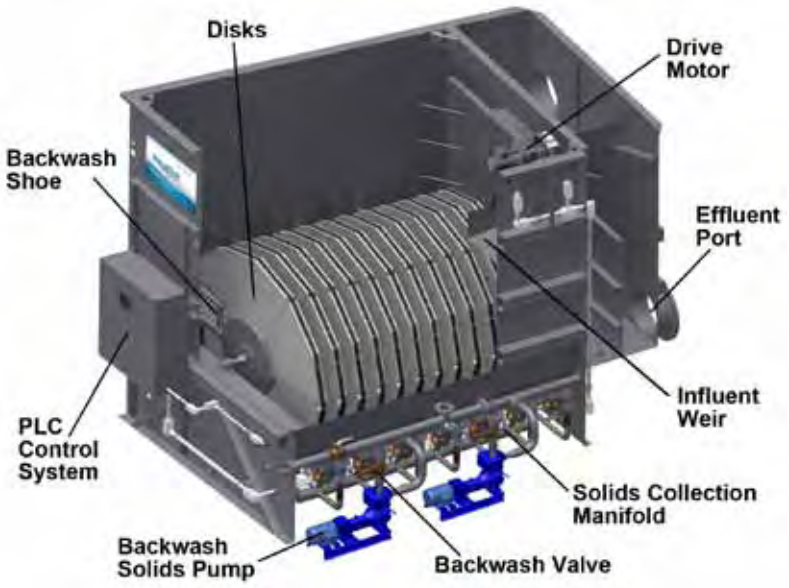
AquaDisk®
CLOTH MEDIA FILTER

Aqua-Aerobic was first in the market, in 1991, to offer a cloth media disk configuration as an alternative to conventional granular media filtration technologies. A history of exceptional operating experience and durability continues to make AquaDisk® the tertiary filter of choice.

Features and Advantages

- Vertically oriented cloth media disks reduce required footprint
- Each disk has six lightweight, removable segments for ease of maintenance
- Fully automatic PLC control system with color touchscreen Human Machine Interface (HMI)
- Low hydraulic profile
- Higher solids and hydraulic loading rates
- Low backwash rate
- Available in painted steel, stainless steel or concrete tanks
- Low life-cycle cost
- The Aqua MiniDisk® filter is designed for flows up to 0.6 MGD offering the same features as the AquaDisk

Components



Modes of Operation

Filtration Mode

- Inlet wastewater enters filter
- Cloth media is completely submerged
- Disks are stationary
- Solids deposit on outside of cloth media forming a mat as filtrate flows through the media
- Tank liquid level rises
- Flow enters the filter by gravity and filtrate is collected inside the disks and discharged
- Heavier solids settle to tank bottom

Backwash Mode

- Solids are backwashed at a predetermined liquid level or time
- Backwash shoes contact the media directly and solids are removed by vacuum pressure of the backwash pump
- Two disks are backwashed at a time (unless a single disk is utilized)
- Disks rotate slowly
- Filtration is not interrupted
- Backwash water is directed to headworks

Solids Wasting Mode

- Heavier solids on the tank bottom are removed on an intermittent basis
- Solids are pumped back to the headworks, digester or other solids collection area of the treatment plant

AquaDiamond®

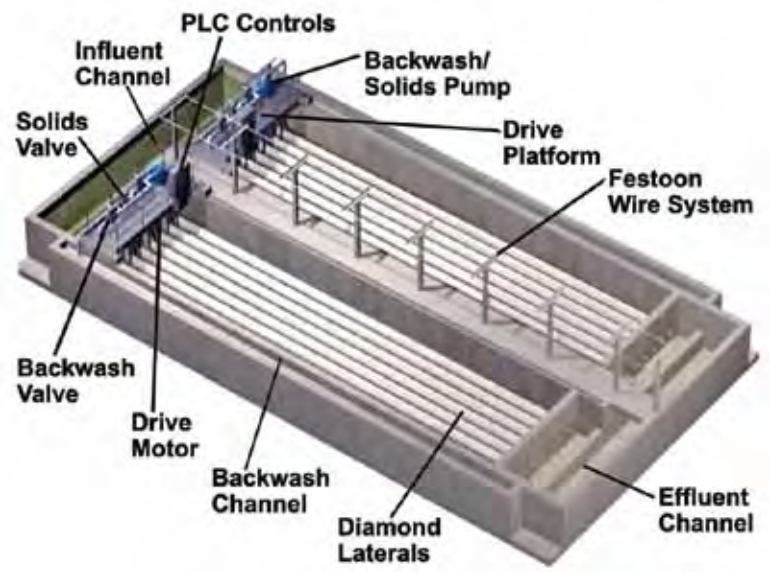
CLOTH MEDIA FILTER

The AquaDiamond® filter is a unique combination of two proven technologies; traveling bridge and cloth media filters. The result is two to three times the flow capacity of a traveling bridge filter within an equivalent footprint, making it ideal for sand filter retrofits.

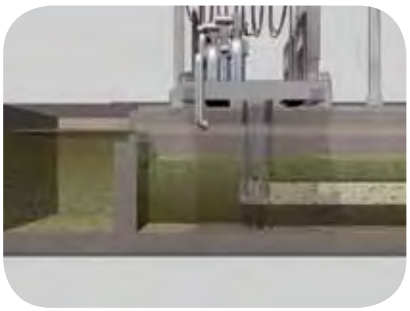
Features and Advantages

- Up to eight vertically oriented diamond laterals per unit; available in concrete tanks
- Fits neatly into existing traveling bridge filter profile with minimal civil work
- Variable speed drive platform and backwash pump provide immediate response to influent solids excursions
- Advanced drive and tracking system prevents misalignment
- Fully automatic PLC control system with color touchscreen Human Machine Interface (HMI)
- Low hydraulic profile
- Higher solids and hydraulic loading rates
- Low backwash rate
- Components requiring maintenance are easily accessible, resulting in less maintenance costs compared to sand media filters
- Low life-cycle cost

Components



Modes of Operation

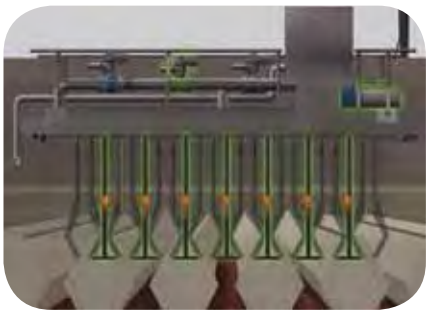


Filtration Mode

- Inlet wastewater enters the filter
- Cloth media is completely submerged
- No moving parts
- Solids deposit on outside of cloth media forming a mat as filtrate flows through the media
- Flow enters the filter by gravity and filtrate is collected inside the diamond laterals and discharged
- Heavier solids settle to basin floor

Backwash Mode

- Periodic backwashing is initiated by increased headloss due to solids deposits
- The platform traverses the length of the cloth media diamond laterals during backwashing
- Backwash shoes contact the media directly and solids are removed by vacuum pressure of the backwash pump
- The platform only operates during backwashing and solids collection



Solids Wasting Mode

- Heavier solids on the tank bottom are removed on an intermittent basis
- Small suction headers collect and discharge settled solids
- The backwash pump is utilized for solids removal.

Aqua-Aerobic Cloth Media Filters
Typical Applications

Municipal Recycle/Reuse

- 18 MGD average daily flow
- AquaDisk filters provide <= 2.0 NTU for stringent reuse applications.

Phosphorus Removal

- 1.5 MGD average daily flow
- AquaDisk filters provide phosphorus removal to 0.1 mg/l in a small footprint.

Traveling Bridge Filter Retrofits

- 162 MGD average daily flow
- AquaDiamond filters retrofitted into traveling bridge filter basins more than doubled the hydraulic capacity within the existing filter footprint.

Deep Bed Filter Retrofits

- 25 MGD average daily flow
- AquaDisk filters replaced sand media filters, increasing hydraulic capacity without the need for construction of new basins.

Small Flows Up To 0.6 MGD

- 0.12 MGD average daily flow
- Aqua MiniDisk® filters in steel package tanks provide reuse water for a west coast gaming facility.

Onsite Pilot Testing

- Cloth Media Filtration Pilot System provides on-site cloth media testing, analysis, and performance validation.
- Totally enclosed system includes a cloth media filter and fully equipped laboratory.

Providing TOTAL Water Management Solutions

Visit our website at www.aqua-aerobic.com to learn more about Aqua-Aerobic Cloth Media Filters and our complete line of products and services:

Aeration & Mixing

Biological Processes

Membranes

Filtration

Controls & Monitoring Systems

Aftermarket Products and Services

AQUA-AEROBIC SYSTEMS, INC.

6306 N. Alpine Rd Loves Park, IL 61111-7655
p 815.654.2501 f 815.654.2508
www.aqua-aerobic.com
solutions@aqua-aerobic.com

Bulletin #600K 10/11