Aqua-Aerobic Cloth Media Filters

Typical Applications

Municipal Recycle/Reuse
- 1.5 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
- 25 MGD average daily flow
- AquaDisk filters retrofitted into traveling bridge filter frames more than doubled the hydraulic capacity within the existing filter footprint.

Deep Bed Filter Retrofits
- 0.12 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
- AquaMiniDisk 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

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

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

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

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

- 25 MGD average daily flow
- AquaDisk filters retrofitted into traveling bridge filter frames more than doubled the hydraulic capacity within the existing filter footprint.

- 0.12 MGD average daily flow
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Aqua-Disk® media technology. Original OptiFiber 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 cloth media 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 blended solids to be retained, unlike microscreen media, to extend the time between backwashings. A uniquely designed cloth media backing structure provides exceptional durability during the media for optimum performance.

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 class relationship between cloth construction and performance. Every cloth media design must pass rigorous, full-scale load 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® Pile Cloth Media Compared to Microscreen Media
- Depth of media provides excellent solids capture
- Backing support offers durability and longer media life
- Direct media contact during backwashing for higher maximum cleaning efficiency
- Vegetation directly on cloth media available, as small as 5 micron nominal pore size
- 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

Filtration Mode
- Influent wastewater enters the filter
- Cloth media is completely submerged
- Dikes are stationary
- Solids deposition on outside of cloth media forming a mat as filtrate flows through the media
- Tank liquid level rises
- Flow enters the filter to gravity and solids are collected into the media and discharged
- Heavier solids settle to tank bottom

Backwash Mode
- Heavier solids on the tank bottom are removed on an intermittent basis
- Solids are pumped back to the collection area of the treatment plant
- The media is cleaned with water
- Backwash water is directed to headworks

Solids Wasting Mode
- Wastewater enters the filter
- Influent wastewater is completely submerged
- Dikes are stationary
- Solids deposition on outside of cloth media forming a mat as filtrate flows through the media
- Tank liquid level rises
- Flow enters the filter to gravity and solids are collected into the media and discharged
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Backwash Mode
- Solids are backwashed at a predetermined rate
- No moving parts
- Solids deposition on outside of cloth media forming a mat as filtrate flows through the media
- Tank liquid level rises
- Flow enters the filter to gravity and solids are collected into the media and discharged
- Heavier solids settle to tank bottom

Components
- Backwash water is directed to headworks
- Solids are removed on an intermittent basis
- Heavier solids on the tank bottom are removed on an intermittent basis
- The platform only operates during backwashing
- The platform traverses the length of the cloth media diamond laterals during backwashing
- The 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
- Filter backwashing is initiated by increased headloss due to solids accumulation

Components
- Filter backwashing is initiated by increased headloss due to solids accumulation
- The platform traverses the length of the cloth media diamond laterals during backwashing
- The 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
- 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

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® cloth media filters, like AquaDisk® and AquaDiamond® filters, satisfied customers realize performance benefits, cost savings, and ease of operation and maintenance compared to other tertiary filters and microscreens.

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 filtration performance. Our commitment to research and development is reflected in our research and development efforts, which are designed to provide our customers with the highest degree of confidence in the performance of cloth media products.

OptiFiber® Cloth Media

OptiFiber® cloth media is engineered specifically for wastewater and water applications. It is designed to maximize solids removal over a wide range of particle sizes. Its unique fiber construction allows filtered solids to be stored, unlike microscreens, allowing for easier reuse.

- **Performance**: OptiFiber® cloth media is engineered exclusively for Aqua-Aerobic cloth media filters.
- **Specifications**: OptiFiber® cloth media filters are available in painted steel, stainless steel, or concrete tanks.

OptiFiber® Cloth Media Compared to Microscreen Media

- **Pile Cloth Media Compared to Microscreen Media**
  - **Microscreen**
    -扁平，无深度的结构
    -布料是完全可伸缩的
    -布料是完全可伸缩的
    -简单的单盘结构
    -在洗涤过程中，布料是完全可伸缩的
    -固体是通过重力泵出到洗涤器
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    -固体是通过重力泵出到洗涤器
  - **Pile Cloth Media**
    -有深度的结构
    -布料是完全可伸缩的
    -布料是完全可伸缩的
    -复杂的多盘结构
    -在洗涤过程中，布料是完全可伸缩的
    -固体是通过重力泵出到洗涤器
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AquaDisk® CLOTH MEDIA FILTER

Aqua-Disk was first in the market, in 1991, to offer a cloth media disk configuration as an alternative to conventional granular media filtration systems. The AquaDisk® tertiary filter of choice.

**Features and Advantages**

- Vertically oriented cloth media disks reduce footprint
- Each disk has a lightweight, removable, segmented frame for ease of maintenance
- Fully automated PLC control system with touch screen Human Machine Interface (HMI)
- Low hydraulic profile
- Higher solids and hydraulic loading rates
- Lower backwash rate
- Available in painted steel, stainless steel or concrete basins
- Low life-cycle cost

**Components**

- **Dias**: Dia plates, Dia plates, Dia plates, Dia plates, Dia plates, Dia plates, Dia plates, Dia plates
- **Reverse Flow Valve**: Reverse Flow Valve, Reverse Flow Valve, Reverse Flow Valve, Reverse Flow Valve

AquaDiamond® CLOTH MEDIA FILTER

The AquaDiamond® filter is a unique combination of two proven technologies: traveling bridge and cloth media filters. The result is a high-capacity filter within an efficient footprint for areas that can only accommodate a traveling bridge footprint.

**Features and Advantages**

- Up to eight vertically oriented diamond laterals per unit
- Fully automatic PLC control system with touch screen Human Machine Interface (HMI)
- Advanced drive and tracking system prevents misalignment
- Fully automated PLC control system with touch screen Human Machine Interface (HMI)
- Low hydraulic profile
- Higher solids and hydraulic loading rates
- Lower backwash rate
- Components requiring maintenance are easily accessible, reducing overall maintenance costs compared to sand media filters
- Low life-cycle cost

**Components**

- **Components**: Components, Components, Components, Components, Components

**Modes of Operation**

- **Filtration Mode**: Filtration Mode, Filtration Mode, Filtration Mode, Filtration Mode
- **Backwash Mode**: Backwash Mode, Backwash Mode, Backwash Mode, Backwash Mode
- **Solids Wasting Mode**: Solids Wasting Mode, Solids Wasting Mode, Solids Wasting Mode, Solids Wasting Mode

**Solids Wasting Mode**

- **Initial backwash carries off the filter**: Initial backwash carries off the filter, Initial backwash carries off the filter, Initial backwash carries off the filter
- **No moving parts**: No moving parts, No moving parts, No moving parts
- **Solids deposit on solids of cloth media forming a mat as filtrate flows through the media**: Solids deposit on solids of cloth media forming a mat as filtrate flows through the media, Solids deposit on solids of cloth media forming a mat as filtrate flows through the media
- **Solids are pumped back to the headworks, digester or other solids collection areas of the treatment plant**: Solids are pumped back to the headworks, digester or other solids collection areas of the treatment plant

**Backwash Mode**

- **Periodic backwashing is initiated by demand**: Periodic backwashing is initiated by demand, Periodic backwashing is initiated by demand
- **The backwash platform traverses the length of the cloth media diamond laterals during backwashing**: The backwash platform traverses the length of the cloth media diamond laterals during backwashing, The backwash 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**: Backwash shoes contact the media directly and solids are removed by vacuum pressure of the backwash pump, Backwash shoes contact the media directly and solids are removed by vacuum pressure of the backwash pump
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**AquaDisk® Cloth Media Filters**

Aqua-Disk was the tertiary filtration device that 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® cloth media technology has been installed in over 1,000 units worldwide, and Aqua-Aerobic continues to lead the industry in the development and application of cloth media technology.

**OptiFiber® Cloth Media**

OptiFiber® cloth media is engineered exclusively for wastewater and water applications. It is designed to maximize solids removal across a wide range of particle sizes. Its thick, pile construction allows for efficient backwash, unlike microscreen media, to extend the time between backwashes. A uniquely designed cloth media backshading system promotes thorough cleaning of the media for optimum performance. 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 complex relationships 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® Pile Cloth Media Compared to Microscreen Media**

- Depth of media provides improved filtration performance.
- Backing support offers solids and longer media life.
- Direct media contact during backwashing for higher maximum cleaning efficiency.
- Uniform solids storage, as small as 3 micron nominal pore size.

**Filtration Mode**

- **In-sequence filters**
  - Cloth media is completely submerged.
  - Dikes are stationary.
  - Solids deposited on outside of cloth media forming a mat as filtrate flows through the media.
  - Tank liquid level rises.
  - Flow enters filter by gravity and filtrate is collected inside the cloth and discharged.
  - Heavier solids settle to the bottom.

**Backwash Mode**

- Solids are backwashed at a predetermined liquid level or time.
- Backwash water is directed to headworks.
- Solids are pumped back to the tank bottom.
- No moving parts.
- Solids removed from solids in cloth media forming a mat as filtrate flows through the media.
- Two dikes are backwashed at a time (unless a single dike is utilized).
- Dikes rotate slowly.
- Fibrous 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 tank bottom.
- Solids are removed from solids in cloth media forming a mat as filtrate flows through the media.
- Two dikes are backwashed at a time (unless a single dike is utilized).
- Dikes rotate slowly.
- Fibrous water is directed to headworks.

**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.
- Fully automatic PLC control system with color touchscreen.
- Low hydraulic profile.
- Higher solids and hydraulic loading rates.
- Low life-cycle cost.
- Components requiring maintenance are easily accessible.
- Reduced maintenance costs compared to sand media filters.

**Components**

- Inlet wastewater enters the filter.
- Water media is a completely submerged.
- No moving parts.
- Solids deposited on solids in cloth media forming a mat as filtrate flows through the media.
- Backwash shoes contact the media directly and solids are removed by reduced pressure of the backwash pump.
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Aqua-Aerobic Cloth Media Filters

Typical Applications

- Municipal Recycle/Reuse
  - 1.8 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
  - 152 MGD average daily flow
  - AquaDiamond filters retrofitted into traveling bridge filter frames more than doubled the hydraulic capacity within the existing filter footprint.

- Deep Bed Filter Retrofits
  - 20 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
  - 1.5 MGD average daily flow
  - 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.

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

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

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Phosphorus Removal
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- AquaDisk filters provide phosphorus removal to 0.1 mg/l in a small footprint.

Traveling Bridge Filter Retrofits
- 150 MGD average daily flow
- AquaDisk filters retrofitted into traveling bridge filter frames more than doubled the hydraulic capacity within the existing filter footprint.

Deep Bed Filter Retrofits
- 2.9 MGD average daily flow
- AquaDisk filters replaced sand media filters, increasing hydraulic capacity without the need for construction of new basins.

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