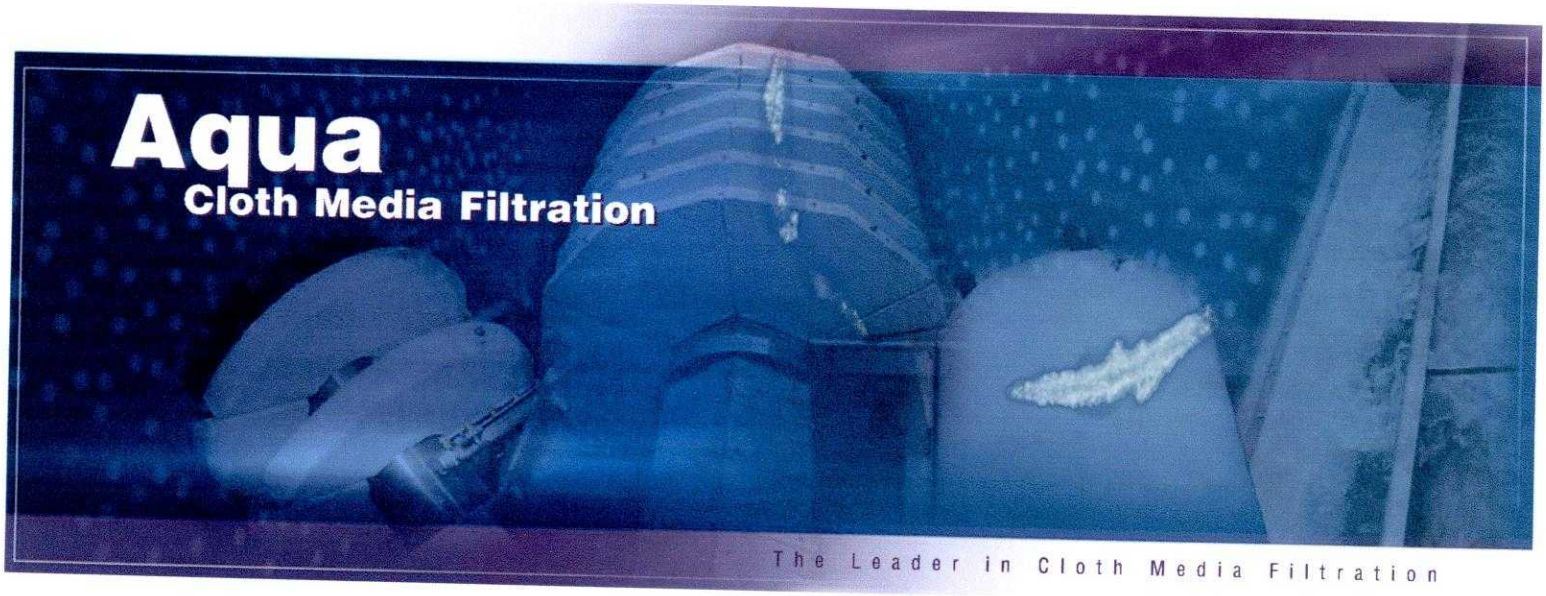


Aqua-Aerobic Systems, Inc.

Cloth Media Leader

Partnering for Solutions

For over twenty five years, Aqua-Aerobic Systems, Inc. has been dedicated to maintaining a leadership role in the process of solid/liquid separation for the purification of water and wastewater.

Our success is justified by our reliable designs, application expertise, quality manufacturing and ongoing research and development. We pledge to continue to partner with our customers, providing solutions with innovative and proven technologies.

A product of our commitment to developing the best solutions for the needs of our customers is the unique media utilized in Aqua's family of cloth media filtration systems. These media have been carefully engineered for quality, durability and performance to provide several process and mechanical advantages compared to alternative filtration media. Aqua's cloth media has been adapted to a variety of mechanical configurations to maximize performance and value. A variety of cloth media are available to provide customized solid/liquid separation solutions for a broad range of municipal and industrial applications.

Advantages

- Unique cloth media
- Reuse quality effluent
- Low backwash rate
- Small footprint
- Low head requirements
- No downtime for backwashing
- Less maintenance than sand filters
- New plants or retrofits
- Lowest life-cycle cost

Applications

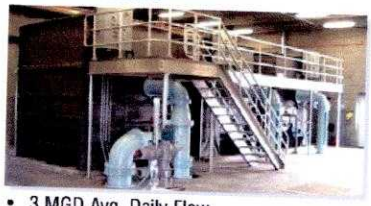
Municipal Reuse/Recycle

- 29.8 MGD Avg. Daily Flow
- AquaDisk® filters handle flows in excess of design while maintaining effluent quality.

Traveling Bridge Filter Retrofits

- 36 MGD Avg. Daily Flow
- AquaDiamond™ filter retrofitted into existing 16' sand filter bed and doubled the sand filter's maximum design hydraulic capacity.

Industrial Reuse

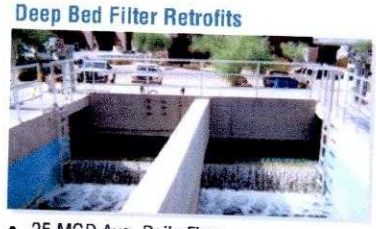


- 3 MGD Avg. Daily Flow
- AquaDisk® filter effluent is reused at a nearby power plant as cooling tower supply water.

Phosphorus Removal

- 3 MGD Avg. Daily Flow
- AquaDisk® filter's small footprint and ability to expand without adding equipment are advantages with limited land space.

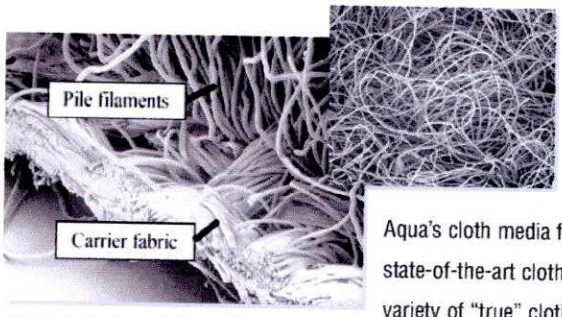
Deep Bed Filter Retrofits



- 25 MGD Avg. Daily Flow
- AquaDisk® filter retrofitted into existing 16' deep bed filter eliminating the need for construction of new basins.

Cloth Media *The Key Component*

Unique Cloth Media



Microscopic view of pile media.

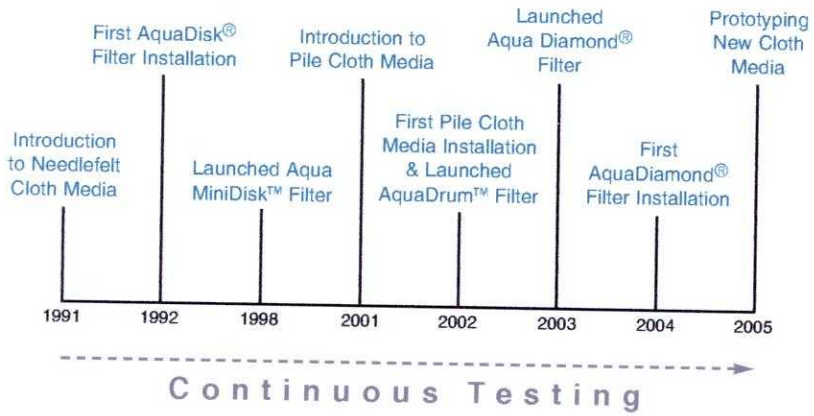
Microscopic view of needlefelt media.

Aqua's cloth media filtration systems utilize state-of-the-art cloth media. Only Aqua offers a variety of "true" cloth media, each with distinctive characteristics which can be custom-applied to your specific application. The depth of the media is inherent to the cloth's ability to consistently store and remove solid particles, resulting in optimal effluent quality.

Ongoing Commitment

Aqua's proactive experience with research and development results in cloth media filtration products that virtually meet any tertiary requirements. We are dedicated to obtaining extensive knowledge on media, textile construction, durability, and impact on performance by working directly with textile manufacturers and independent testing laboratories. Our research efforts include continued development through partnerships with universities who test our products for durability and performance. Our commitment to research and development and piloting programs provides our customers with more media and configuration options to suite individual application needs.

Evolution of Aqua's Cloth Media Technology



Pile Cloth Operation

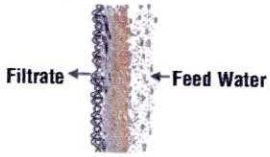
Natural State

Normal Operation

Active Filter Depth

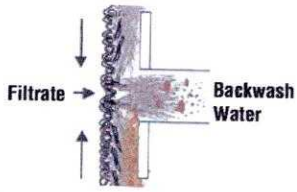
When wetted and mounted in a vertical configuration, densley packed fibers overlay one another, creating depth for the efficient removal and storage of solids.

Normal Operation



Solids retained on and within the cloth form an additional filter layer which provides enhanced filtration.

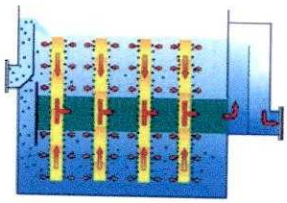
Backwash



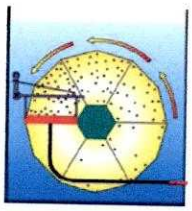
During backwash, filtrate is drawn back through the cloth. The suction causes the pile fibers to revert back to a natural state.

Cloth Media Configurations

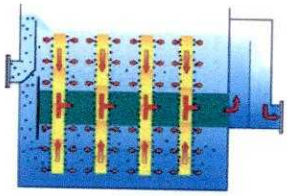
Operation



Inlet wastewater enters the tank or basin, completely submerging the cloth media. By gravity, liquid passes through the cloth media. As solids accumulate on and within the media, a mat is formed and the liquid level in the tank or basin increases. The filtered liquid enters the internal portion of the disk where it is directed to final discharge through the center shaft.



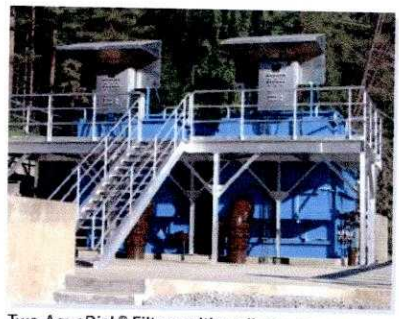
At a predetermined level or time, the backwash cycle will be initiated. Solids are backwashed from the surface by liquid suction from both sides of each disk. During backwash, disks are cleaned in multiples of two, unless a single disk unit is utilized. Disks rotate slowly, allowing each segment to be cleaned. Backwash water is directed to the headworks. Filtration is not interrupted during this cycle.



The filtration process requires no moving parts. Heavier solids are allowed to settle to the bottom portion of the filter tank. These solids are then pumped on an intermittent basis back to the headworks, digester or other solids collection area of the treatment plant.

AquaDisk®

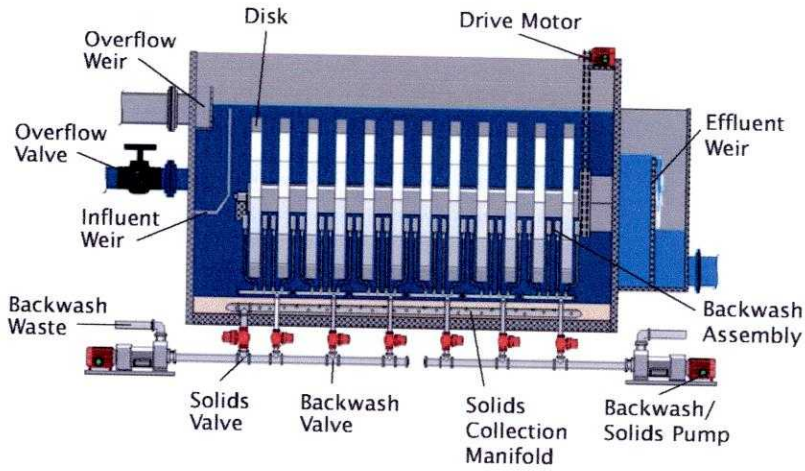
Aqua was first in the market, dating back to 1991, with the cloth media disk configuration as an alternative to conventional granular media filtration technologies. A history of exceptional operating experience and durability continue to make AquaDisk® the disk filter of choice.



Two AquaDisk® Filters with walkway access.

Features

- Up to 12 vertically oriented disks per unit
- Gravity flow operation
- Average hydraulic capacity from 0.25 to 3.0 MGD per unit
- Available in painted steel, stainless steel or concrete tanks
- Steel tank package units minimize field installation requirements
- Fully automatic, PLC based control system



Aqua MiniDisk™

The Aqua MiniDisk™ filter provides the solution for smaller flows. It is based on the same operating strategies as its larger counterpart, the AquaDisk®, but with smaller diameter disks.

Internal view of 4-disk Aqua MiniDisk™

Features

- Up to 6 vertically oriented disks per unit
- Average hydraulic capacity from 50,000 to 300,000 GPD
- Available in painted steel or stainless steel tanks
- Gravity flow operation
- Steel tank packaged units minimize field installation requirements
- Fully automatic, PLC based control system

Cloth Media Configurations

AquaDiamond®

The AquaDiamond® is a unique combination of two time-proven technologies; traveling bridge and cloth media filtration. The result is three times the flow capacity of a traveling bridge filter with an equivalent footprint, making it ideal for new plants or sand filter retrofits.

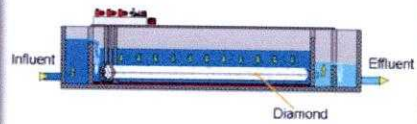
Overview of AquaDiamond® filter retrofitted into a 16' wide sand filter cell.

Features

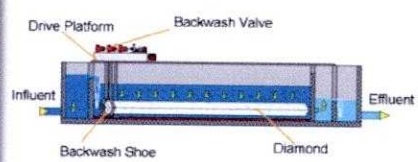
- Up to 8 vertically oriented, diamond-shaped cloth media laterals per unit
- Gravity flow operation
- Available in concrete tanks
- Variable speed drive platform and backwash pump for immediate response to solids excursions
- Four-wheel drive platform designed for better guidance and traction
- Fully automatic, PLC based control system

AquaDiamond® backwash assembly and laterals.

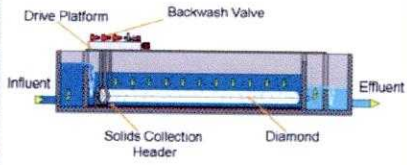
Operation



The cloth media is completely submerged during filtration. Solids are deposited on the outside of the cloth as the influent wastewater flows through. The filtered effluent is collected inside the diamond lateral and flows by gravity, to discharge. The filtration process requires no moving parts. Increased headloss due to the deposited solids automatically initiates periodic backwashing.



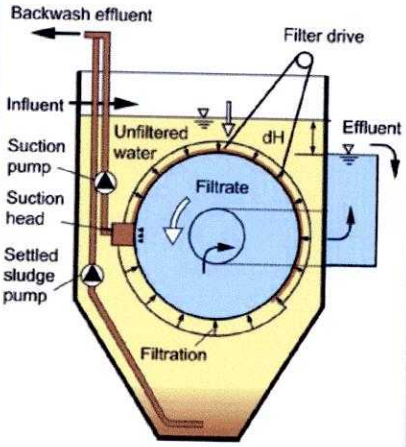
During backwash, a pump provides suction to the vacuum heads, allowing solids to be vacuumed from the cloth as the platform traverses the length of the diamond laterals. The platform operates only during backwashing and solids collection.



Because of the vertical orientation of the media, some solids will settle to the basin floor during normal operation. Small suction headers provide a means for collecting and discharging the settled solids. The solids collection process utilizes the backwash pump for suction.

Cloth Media Configurations

Operation



Solids are deposited on the outside of the cloth as the influent wastewater flows through. The filtered effluent is collected inside the drum and is discharged. Increased headloss due to the deposited solids automatically initiates periodic backwashing.

A pump provides suction to the vacuum head, allowing solids to be vacuumed from the cloth as the drum slowly rotates. Likewise, solids settling in the tank are suctioned and discharged. The drum only rotates during backwashing.

AquaDrum™

A drum style support structure covered with our unique cloth media is the basis of design for the AquaDrum™. It provides another small flow solution where driving head is particularly limited.

Overall view of an AquaDrum™ filter.

Internal view of AquaDrum™ filter.

Features

- One cloth media covered drum per unit
- Gravity flow operation
- Average hydraulic capacity from 60,000 to 375,000 GPD
- Available in stainless steel or concrete tanks

Technology Comparison

Of course, performance is not the only factor in choosing the right filter technology. Life-cycle cost plays an equally important role in the decision making process. Several other key factors should also be considered during the evaluation process.

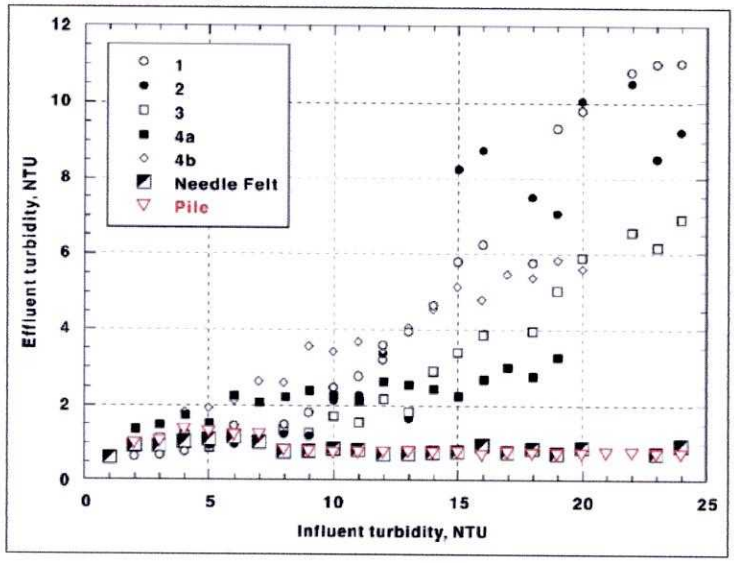
	Aqua-Aerobic Cloth Media	Granular Media	Micro Screens
Depth of Filtration	■	■	
High Solids Loading	■		
Small Footprint	■		■
Ease of Media Handling	■		■
Multiple Media Options	■	■	
Retrofits	■		■
Configuration options provided by a single manufacturer	■		◢

Cloth Media Performance

Documented Testing & Operating Data

The exceptional performance of Aqua's cloth media filtration technology has been fully documented through years of testing and gathering of operating data from full-scale installations.The table below resulted from independent testing and summarizes the performance of both our needlefelt and pile cloth media in comparison to other, more conventional wastewater filtration technologies. It shows that Aqua's unique cloth media produces consistently lower effluent turbidity values over a wider range of influent turbidities than the other technologies tested. This high standard of performance has been demonstrated on all of the cloth media mechanical configurations offered by Aqua-Aerobic.

This chart indicates the comparison of effluent versus influent turbidity for cloth media filtration at 14.7 m/hr and various filters at 9.8 m/hr.



- ○ Deep-bed, continuous backwash upflow mono-medium filters
- ● Shallow depth, automatic backwash mono, dual and multi-medium downward flow filters
- □ Deep-bed, mono-medium downward and/or upward filters
- ■ Shallow-depth, mono-medium filters
- ◇ Shallow-depth, dual medium filters
- ◩ Cloth Media Disk Filter (needlefelt media)
- ▽ Cloth Media Disk Filter (pile media)

Service Capabilities

Application and Engineering - Aqua has process, mechanical and electrical engineers on staff.

Laboratory Testing - Aqua can evaluate a sample of your wastewater and provide you with an analysis.

Piloting - Pilot filter units are available to evaluate effluent results for any application.

Aftermarket - Aqua offers parts sales and numerous service programs including: SpareCare®, 24/7 Customer Service, Cloth Media Replacement and Rental and Lease options.

Operator Training - Aqua offers installation supervision and training to help you understand how your equipment/system operates and and preventative maintenance that keeps your equipment operating efficiently.

Technical Seminars - Aqua provides a one-day Process and Product Application Seminar with Cloth Media Filtration as a main topic.

AquaDisk® pilot unit

Aqua-Jet®
Surface Aerators

Aqua-Jet II®
Contained Flow Aerators

AquaDDM®
Direct Drive Mixer-Blenders

Aqua MixAir®
Aeration Systems

Aqua EnduraDisc®
Fine Bubble Diffusers

Aqua EnduraTube®
Fine Bubble Diffusers

Aqua CB-24®
Coarse Bubble Diffusers

AquaSBR®
Sequencing Batch Reactors

AquaExcel™
Batch Reactors with AquaEnsure™

AquaEnsure™
Maintenance-Free Decanter

Aqua MSBR®
Modified Sequencing Batch Reactor

AquaPASS™
Phased Activated Sludge Systems

AquaMB Process™
Multiple Barrier Membrane System

AquaDisk®
Cloth Media Filters

Aqua MiniDisk™
Cloth Media Filters

AquaDiamond®
Cloth Media Filters

AquaDrum™
Cloth Media Filters

AquaABF®
Automatic Backwash Filters

ThermoFlo®
Surface Spray Coolers

IntelliPRO™
Process Management System

Contact Your Local Representative:

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