

WASTEWATER TECHNOLOGIES

Reclaiming Clean Water

Wastewater Technologies continues to expand its liquid/solid separation capabilities by adding a user-friendly, small footprint, low backwash, high performance tertiary filter for both small and large flow applications. The **BioDISC™** Cloth Media Filter removes suspended solids as small as 10 microns and can be configured for flows as low as 100,000 GPD to over 6 MGD.

BioDISC™ Advantages

- High effluent quality
- Small footprint
- Continuous filtering during backwash
- Pre-coat design for better capture rates
- Low backwash rates
- No backwash storage required
- No underdrains required
- Stable filtration process
- Easy to maintain and service



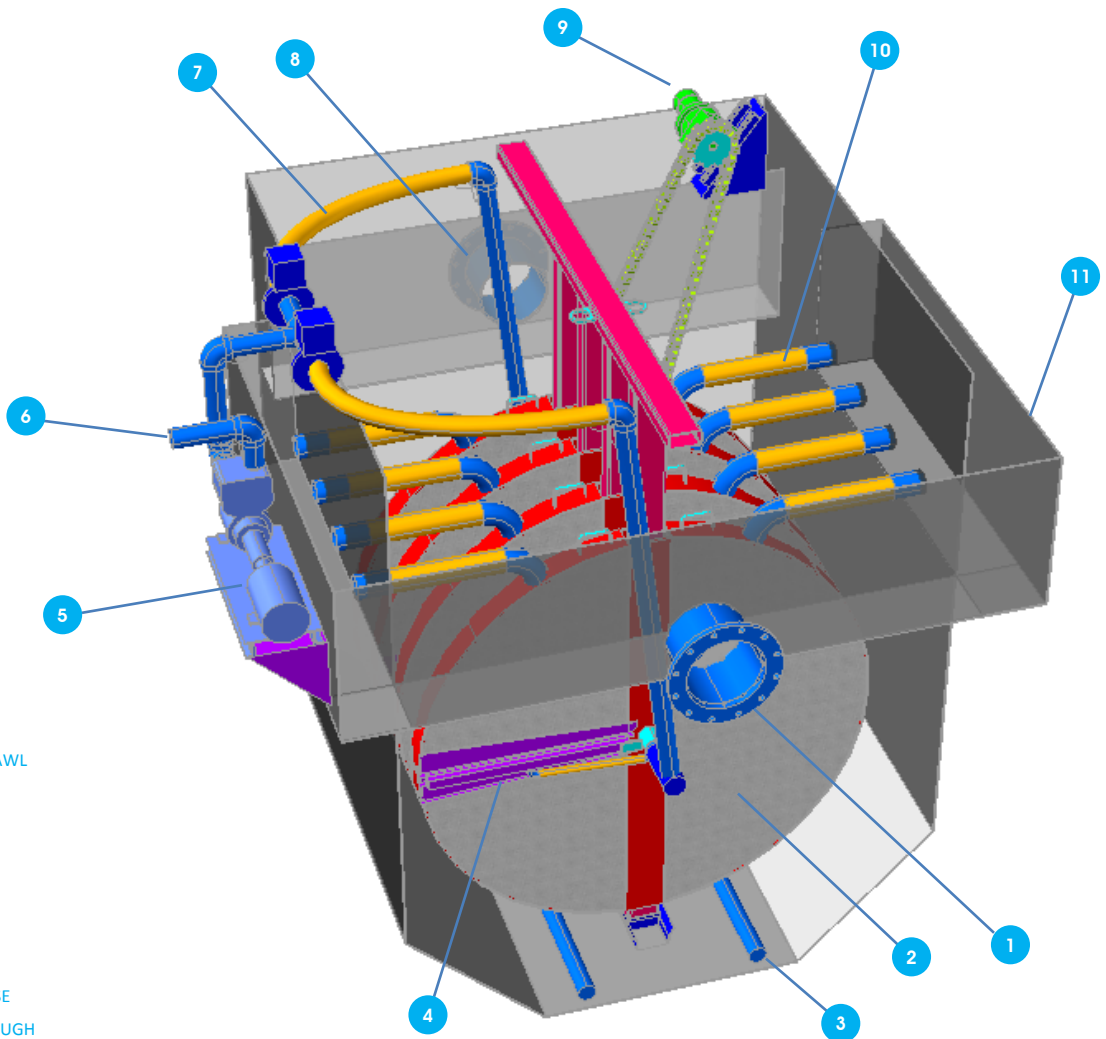
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Filtration Principles

Influent enters the filter through a pipe that directs the flow toward the floor of the tank housing the filter discs. This approach uses the turbulence of the incoming flow to keep the solids in suspension and prevent premature settling. This simple design characteristic greatly reduces the amount of sludge accumulation in the bottom of the tank and significantly improves maintenance and cleaning.

The suspended solids are removed as the influent passes through the cloth filter media. Each filter disc is made up of two filter cartridges. Filtered flow from each cartridge is visible through individual discharge ports. This design characteristic allows the operator to monitor the operation of each cartridge and quickly isolate a problem. In the event of a problem, each cartridge is easily replaceable without taking the entire filter off line. This is possible because the **BioDISC™** panels do not rotate. The panels are stationary and the vacuum head rotates around the disc during the backwash cycle.



1. EFFLUENT
2. FILTER DISC
3. SLUDGE WITHDRAWAL
4. VACUUM HEAD
5. VACUUM PUMP
6. REJECT WASTE
7. VACUUM LINE
8. INFLUENT
9. DRIVE MOTOR
10. DISCHARGE HOSE
11. DISCHARGE TROUGH

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A New Concept in Cloth Media Filtration



Ease of Installation and Maintenance

The BioDISC™ filter has been designed to be user friendly for the operator. Each disc is composed of two cartridges. Each cartridge has its own effluent discharge pipe to allow the operator to monitor the effluent quality being produced by individual cartridges. Cartridges can be removed, inspected and replaced without stopping the filtration process and removal can be done from outside the tank.

The pictures show a standard two disc unit being assembled in a concrete tank. Each unit consists of two to six discs, a vacuum pump assembly and the gear drive, axle and sprocket.

It is possible to remove the mechanical equipment and structure of the filter from either a steel or concrete tank without dewatering. It is not necessary for the operator to enter the tank, since all connections required for removal of the mechanism are bolted at the top of the tank, within easy reach. Each individual filter cartridge may be removed by capping the discharge port on the outside of the tank, disconnecting the discharge hose from the discharge port and simply lifting out the cartridge. The pile cloth can be inspected and replaced as necessary, and the cartridge reinstalled. The filter can continue to operate with a portion of the filter panels removed, as may occur during normal routine maintenance.



Backwash Principles

As the filtration process continues, solids accumulating on the cloth filter media will gradually restrict the flow of liquid through the media causing the level within the filter tank to rise. When the level reaches a predetermined point, the backwash process begins. Thus head loss is the trigger for backwash. In addition, backwash may also be initiated by a timer in the control panel.

The drive motor that moves the vacuum head engages and begins the process of moving the vacuum head across the face of the discs. The point at which the media is directly beneath the faceplate, provides optimum dynamics for removing solids from the media. Rotation is bi-directional for better and faster media cleaning.

The unique design of the header eliminates turbidity spikes during backwash and allows for better control of the pre-coat on the cloth. This ensures that particles smaller than 10 microns do not pass through the cloth media while in the backwash cycle. The non-contact vacuum head extends the life of the filter cloth by not causing excessive cloth wear. The tapered design of the vacuum head allows for even cleaning of the disc surface and the round disc design avoids dead comers.

Backwash does not disrupt the filtration process since only 5% of the panel surface is cleaned at one time and the vacuum head moves rapidly. No change in NTU occurs during the backwash cycle. A chemical cleaning solution can be injected into the panels for removal through the backwash vacuum system.

Applications

The **BioDISC™** filter produces reuse quality effluent suitable for applications from golf course irrigation to cooling tower supply water.

- Activated sludge
- Extended aeration
- SBRs
- Oxidation ditches
- Trickling filters
- Membrane pretreatment
- Reuse / Recycle
- Phosphorus removal
- Color removal
- Industrial make-up
- Precipitate removal
- Algae removal



The BioDISC™ is protected by U.S. Patents No. 7,537,689; 7,678,284; 7,820,062 and other US patents pending. Foreign Patents in Germany, Switzerland, EP, New Zealand, Mexico, Japan and other foreign patents pending.

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