

EKO-DISK

CONTINUOUS OPERATION MEMBRANE DISC FILTER

PRODUCER

NEOWATER technologies



MAIN CHARACTERISTICS AND APPLICATIONS:

- eco-friendly, fully recyclable
- easy, smart durable design
- easy installation
- easy operation and maintenance
- high capability
- low cost at maintenance
- one range with different quantity of discs with different mesh size
- freestanding and concrete version in one construction
- compatibility with existing systems

OPERATING PRINCIPLE

Liquid Flow through the Filter: Water enters the central drum of the rotor and, under the force of gravity, flows through the holes in the drum wall into the filter discs. Due to the difference in levels inside and outside the filter discs, the liquid passes through the filter fabric. This fabric retains solid particles larger than its pores, allowing clean water to pass through. As the liquid flows, particles are retained, gradually accumulating contaminants and increasing the hydraulic resistance of the filter fabric.

Filter Disc Structure: Filter discs consist of cassettes with frames that hold the stretched filter fabric. The passages between the cassettes are separated by thin jumpers, ensuring unimpeded flow of liquid from one cassette to another. The filter elements are secured in the cassettes using patented design features that ensure rigidity and stability of the disc structure, while also providing convenience and reducing maintenance and operating costs.

Backwash Process: When the water level in the drum reaches a set point, signaling an increase in hydraulic resistance due to clogging of the fabric, the filter initiates backwashing without interrupting the filtration process. High-pressure nozzles direct backwash water onto the fabric, displacing and washing away impurities. The backwash water is the unit's own filtrate, collected by the built-in backwash pump.

Removal and Discharge of Impurities: The impurities removed from the filter cloth are washed into the dirty backwash water collection channel located inside the drum. From there, the dirty backwash water is discharged through the outlet pipe, effectively removing captured particles from the system.

Filtrate Level and Immersion Depth: The filter discs are submerged in water by approximately 60%, while the filtrate level outside remains constant. This arrangement ensures effective filtration while maintaining stable operating conditions for the filter cloth.

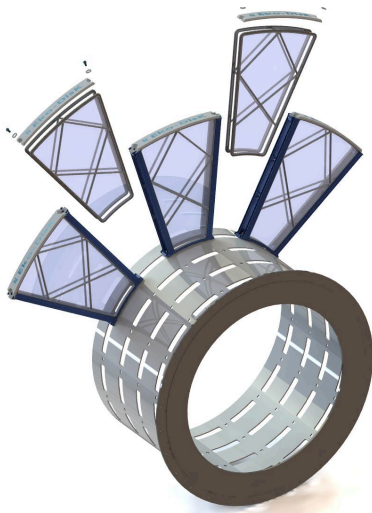
Installation Options: The filters are available in two versions: a free-standing model with its own housing and a model for installation in a channel or tank, allowing for easy integration into a variety of existing installations.

Recyclability: Almost all filter components are recyclable at the end of their service life, demonstrating a commitment to sustainability and environmental responsibility.

Compatibility with Chemical Pre-treatment: This filter is optimized for use with coagulants and polymer flocculants, improving the removal of suspended solids and enhancing filtrate quality.

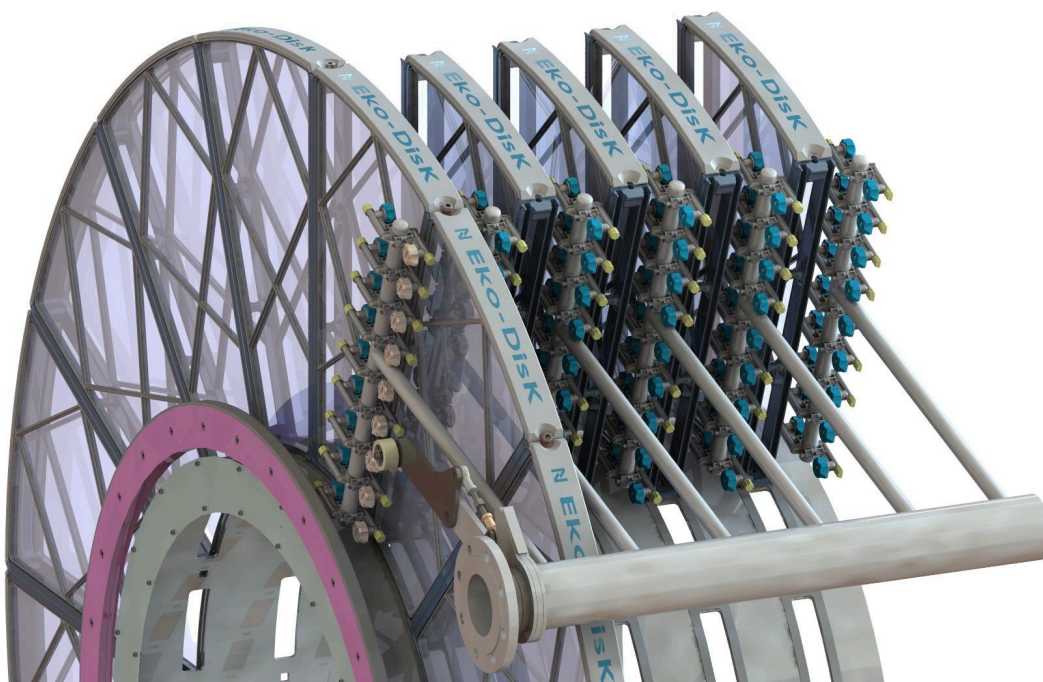
APPLICATION

- 1. Tertiary Filtration of Municipal Wastewater:** This system effectively treats municipal wastewater to meet strict water quality standards, reducing suspended solids from up to 500 mg/l to below 10 mg/l, making it suitable for discharge or reuse.
- 2. Chemical Pretreatment Compatibility:** Optimized for use with coagulants and polymers, this filter enhances removal of suspended solids and improves water quality.
- 3. Removal of TSS and Phosphates:** It effectively eliminates suspended solids and phosphates, helping reduce nutrient levels in treated wastewater and preventing eutrophication.
- 4. Primary Filtration for Algae and Plankton:** This filter removes algae and plankton, improving water clarity and quality for uses like drinking water, aquaculture, and recreation.
- 5. Filtration for Particle Sizes of 10-300µm:** Suitable for a wide range of industries, including food and beverage, pharmaceuticals, and chemical processing, where precise suspended solids filtration is essential for product quality and efficiency.



NEW PATENTED CASSETTES DESIGN (EP 4 364 823 A1)

- **Effortless Maintenance:** Quick and easy removal and replacement of cassettes minimize downtime and reduce maintenance costs, boosting operational efficiency.
- **Modular Flexibility:** Removable sides enable cost-effective replacement of individual plates and customization to specific filtration needs, enhancing adaptability.
- **Robust Construction:** Strong cassette frames ensure structural integrity and stability, even under pick-flow filtration or during backwashing, enhancing durability and reliability.



AUTOMATION FEATURES

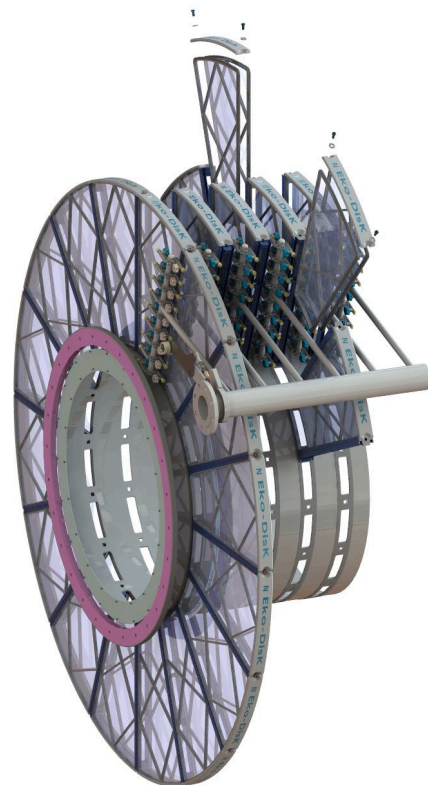
- **Automatic Backwash Process:** Utilizes level sensors to trigger backwashing automatically, ensuring efficient maintenance without manual intervention.
- **Automatic Pump Protection:** Incorporates automatic pump protection mechanisms to safeguard against damage and ensure reliable filtration operation.
- **Automatic Control of Backwash Filter:** Controls the backwash filter automatically, streamlining the filtration process and maintaining consistent performance.

HEAD LOSS SPECIFICATIONS

- **Total Head Loss:** Ranges from 50 to 300 mm, indicating efficient filtration with minimal resistance to flow.
- **Backwash Trigger:** Initiates backwashing when head loss reaches 250 mm, ensuring timely cleaning to prevent clogging.
- **Emergency Overflow:** Activates at 300 mm to prevent system overload and maintain operational safety.
- **Open Inlet Design:** Minimizes turbulence and other flow interferences, enhancing filtration efficiency and prolonging equipment lifespan.

SPECIFICATIONS

Standard size	EDC 25-33
Efficiency	10 µm*
Maximum number of disks per size	33 pc.
Mounted number of disks per filter	5,12,19,26,33 pc.
Total filtration area, max	229 m²
Effective filtration area, max	205 m²
Submerged filtration area, max	133 m²
Wash water consumption, max	19,4 l/s
Number of flushing nozzles, max	594 pc.
Net weight	5100 kg
Operating weight	22500 kg
Disc diameter	2,45 m
General installation dimensions	6,3 x 2,6 x 2,9 m
Drum drive: type, model	
Power	2,2 kW
Backwash pump: type, model	
Installed power	22 kW
Power consumption	18 kW
Pressure	7,5 Bar
Oscillating drive for backwash system	SEW, 0,12 kW
Cover opening drives	Maedler, 2 x 0,09 kW



PRODUCTION

The filter complies with the Regulation (EU) 2023/1230 and undergoes welding according to European standards EN287, EN288, and EN719. Components are standard stainless steel EN 1.4301, with alternative alloy options available. Welds are pickled for quality assurance.

QUALITY CONTROL

Our production workshops adhere to high standards, ensuring the delivery of top-quality products. Before shipment, equipment undergoes thorough checks and dimensional control. All materials and components undergo incoming inspection, with certificates, acts, and protocols meticulously archived for traceability and quality assurance (available at previous demand).