Waterbrane™

A new generation of filtration treatment
- for industrial water

Aquarden TECHNOLOGIES

Filtration solution for various industries

Aquarden's Waterbrane™ is a membrane unit with silicon carbide (SiC) flat sheet membranes that can be used for many types of filtration applications.

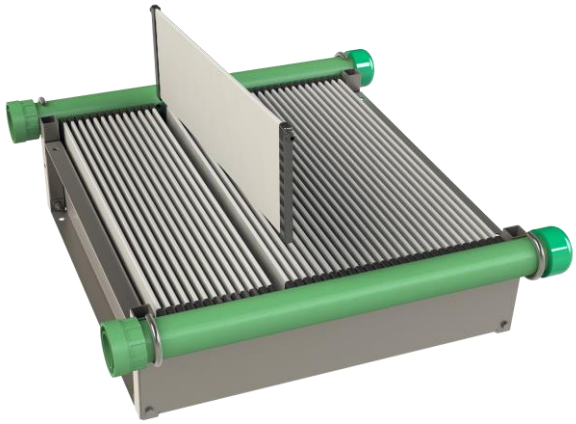
The Waterbrane™ can be used for most of the separation tasks where settling tanks and sand filters are used today. Some possibilities include:

- Safe Intake water for fish farming plants.
- Separation of heavy metal sludge particles from industrial wastewater and acid mine drainage (AMD).
- Treatment of scrubber water from power plants and ships.
- Filtration of surface water to produce drinking water.
- Filtering of process baths containing particles of metal hydroxides, metal sulfides and metal phosphates.
- Cleaning of contaminated surface water and leachate.

Waterbrane™ can remove metal hydroxides and other mechanical particles in water as well as bacteria. The particles are concentrated in a thickening tank and the concentrated sludge is ready for dewatering. The Waterbrane™ system thus combines the properties of a traditional settling tank and a sand filter, which is applied in most treatment plants for wastewater.

Effective, compact, and robust

The compact design of Waterbrane™ makes it an obvious choice where space is a constraint. The silicon carbide membranes provide a very fine filtration (0.1µm), and at the same time achieve a higher flux than most microfiltration systems. In combination with a low consumption of water for washing (back-flush) and the small footprint, Waterbrane™ is a cost-effective solution that can purify wastewater in an easy and efficient way. The high filtration flow is maintained due to automated back-flushing. The silicon carbide material is resistant to all chemicals and can therefore be cleaned chemically with either strong acid or base.



Waterbrane™ is based on the best available technology which includes the ceramic SiC (silicon carbide) micro filter as shown above. This filter display severe durability and filters very fine particles. Additionally it is stackable, which makes the total solution scalable according to specific needs.

Specifications

Flow and capacity	The Waterbrane™ unit is typically supplied with a flow from 1 to 100m^3/h. In principle there are no limits to the plant capacity as the units are modular. The high filtration flow is maintained due to short, automated back-flushing 2-3 times per hour.
Filter material and pore size	The micro filter consists of flat-sheet modular cassettes made of silicon carbide (SiC). Each filter module has a filter surface of 6 m^2 and a pore size of 0.1µm.
Footprint	The Waterbrane™ filter unit takes up only 10-20 % of the space compared to a traditional solution with settling tank and sand filter. A capacity of 10m^3/h takes up less than 2 m^2 floor space.
Maintenance	Periodical chemical cleaning of the SiC filter may be required to maintain the flow but depends on the wastewater characteristics. SiC can resist all kinds of cleaning chemicals from pH 0-14.

How it works

Aquarden's Waterbrane™ consists of a small tank with a built-in filter module made of silicon carbide membranes. Wastewater with particle pollutants is fed continuously to the tank. Clean water is sucked out through the membranes, while the sludge particles are collected and concentrated in the conical bottom as a thin sludge. The sludge is pumped to a sludge storage tank or sludge thickener for further processing. The result is pure water that has been filtered through a 0.1µm filter, which is considerably more efficient than obtained in a conventional sand filter.

Aquarden offers

Aquarden delivers complete solutions from initial laboratory tests to installation and support of the Waterbrane™ system. Laboratory tests will conclude how suitable the Waterbrane™ solution is for treatment of your specific wastewater. Initial tests are performed at Aquarden's test facilities in Skævinge and require only 100 liters of waste-water. Long-term tests under realistic conditions are also an option. Or you can rent a pilot plant for onsite testing at your own premises. The pilot plant is very simple to set up and operates.

Contact us to learn more about Waterbrane™ and how we can help you purify your wastewater.

Main benefits

High performance: Removes particles larger than 0.1µm. Higher flux than most standard microfiltration systems. Automated back-flush maintains a constant high flow.

A two-in-one solution: The Waterbrane™ unit combines the properties of a traditional settling tank and a sand filter.

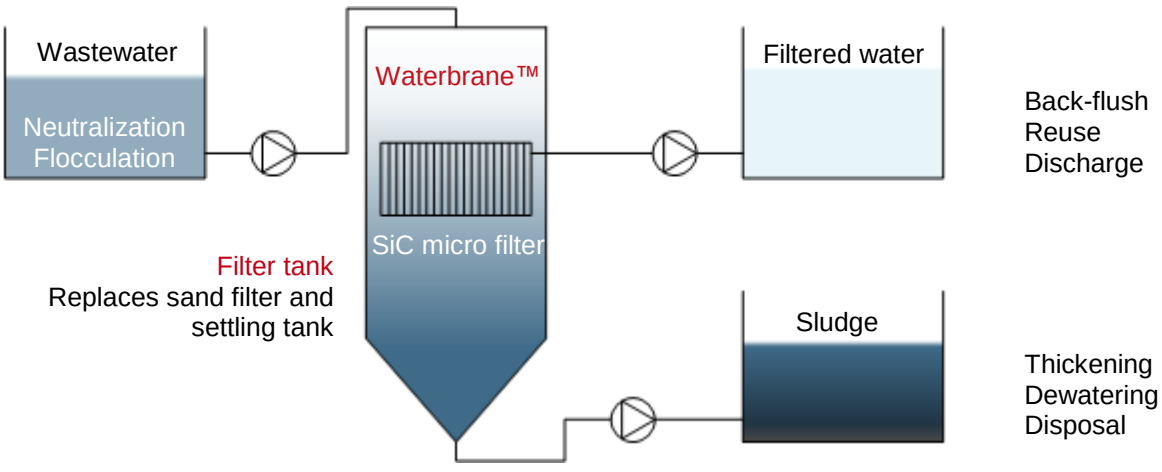
Easy maintenance: Slower fouling compared to traditional polymer membranes due to a special filter design.

Small footprint: Takes up only 10-20 % of the space of a traditional solution with settling tank and sand filter.

Robust design: Long lifetime of the SiC filter module.

Low water consumption: A fraction of the filtrated water is used for back-flushing which means no extra water is added.

Water reuse: Filtrated water may be reused in the production instead of being discharged to the sewer.



About Aquarden
Provider of total solutions

Aquarden is an expert in sustainable treatment of problematic wastewater and designs solutions for solving the toughest wastewater challenges. We offer tests, consultancy, turnkey systems, and services – all customized to meet your specific requirements. Solutions are integrated into your individual production and wastewater treatment processes.

Our mission is to help you in meeting the highest environmental standards for industrial wastewater treatment by providing green and effective solutions. Our proprietary and prize-winning SCWO system destroys all organic and toxic compounds in wastewater completely and efficiently, and reuses energy and water.

Aquarden
TECHNOLOGIES

Aquarden Technologies ApS
Industrivej 17
DK-3320 Skævinge
Denmark
Tel. +45 48 70 85 88
info@aquarden.com
www.aquarden.com