



Filters with Membranes Capabilities

Membrane Protection Matters

WATER TECHNOLOGIES

For more than 120 years, Veolia has been in the business of providing solutions for global customers, helping them address some of the world's most demanding challenges. Today, we are committed to protecting our most precious natural resources, and helping our customers run more proficient and responsible businesses.

To that end, Veolia offers a broad portfolio of solutions to address the wide-ranging needs of our customers. For example, to better protect your membrane treatment system, Veolia offers a line of the industry's best pre-filters. By providing the whole solution and not just portions of it, Veolia helps our customers extend membrane life and reduce operating costs.

We've invested in the Minnetonka, Minnesota Center of Excellence to meet customer demands for top quality filters with membranes. We substantially expanded and upgraded the equipment in the plant to create an automated, streamlined facility to help support the growing needs of customers around the world.

Veolia is a world leader in filters with membranes. The combination of our filters with membranes offers you optimal systems performance. We offer a broad portfolio of filters and membranes.

Filters

Depth cartridge filters

- Hytrex*, high-strength graded density filters
- Z.Plex* technology filters, superior particle holding capacity, longer filter life

Pleated cartridge filters

- Flotrex* and Memtrex*, precise micron ratings with exceptional particle holding capacity in microfiber and membrane versions
- Filters available in standard and sterilizing grade versions



Membranes

- Multiple configurations, including brackish, low energy, low fouling, high temperature, seawater and wastewater. High salt rejection as well as energy saving models
- Ease of replacement and upgrade
- Multiple configurations available
- Complete spectrum of membranes and spiral elements, including Microfiltration (MF), Ultrafiltration (UF), Nanofiltration (NF) and Reverse Osmosis (RO)



Key applications for filters and membranes

Seawater desalination – SWRO.Z depth filters effectively protect Veolia seawater RO membranes to ensure greater membrane efficiency and life.

Municipal and tertiary water treatment – Muni.Z* depth filters are designed specifically for municipal and tertiary water treatment. When used in combination with our Muni RO LE membranes, customers can expect superior membrane protection, longer membrane life, and lower operating costs.

Boiler feed applications – ROSave.Z* depth filters are ideal for boiler feedwater applications. High quality feedwater is imperative for boilers to prevent corrosion and boiler inefficiency. Veolia's ROSave.Z depth filter, in combination with the brackish water AG Series, provides the high quality of water needed for boiler applications.

Veolia offers world-class filters and membranes because we believe that a sound membrane water treatment solution includes both good pre-filtration and world-class membranes. Proper pre-treatment is critical to maintaining a fully optimized water treatment operation. Good pre-filtration offers protection against membrane fouling and thus leads to a reduction in energy costs, downtime, and CIP frequency. All of this translates to reducing operating costs over the life of the plant. Veolia continues to invest in both filtration and membrane technology development to remain the filters with membranes leader and better serve our customers.

Filters

Veolia recently launched the Z.Plex* Depth Filter product line. This patented technology provides unmatched performance by offering superior particle holding capacity with absolute filtration while maintaining a lower pressure drop than other conventional depth filters.

Highlights of Z.Plex filters:

Features	Benefits
Superior particle holding capacity	Up to twice the life of conventional depth filters
Up to 50% lower pressure drop	Lower energy consumption
Superior SDI reduction	Extends the life of downstream RO/NF membranes
Melt-bonded exterior ensures no media migration	No contamination

The key benefits of melt blown filters versus string wound filters are:

- Graded density, which allows the filter to hold a greater amount of particles with the larger particles remaining near the surface and the smaller particles retained closer to the core.
- 100% polypropylene construction eliminates any contamination.
- Thermal bonding prevents particle passage and channeling.
- Continuous manufacturing process at Veolia results in consistency of filter performance.

Membranes

End users are leveraging high rejection, low fouling, and high flow characteristics of membranes to optimize their total cost of ownership of a water treatment facility. Veolia offers clients an extensive list of products that are designed to meet the customers' needs in each unique situation. Veolia has recently invested in a Centre of Excellence in Minnetonka, MN where they manufacture world-class sheet membranes and have automated membrane rolling technology.

Features	Benefits
High rejection membrane	Superior permeate water quality, minimize size of second pass or possibly eliminate it altogether
Low fouling membrane	Ability to operate economically on difficult to treat water
High flow membranes	Provide maximum product water while minimizing energy costs

Note: Veolia offers various models for each of these types of membranes primarily through our AG, AK, and AD product lines for boiler feedwater applications, municipal water treatment, and seawater desalination.

Winflows

Veolia has just launched a new version of Winflows called Winflows 3.0.0, which is Veolia's RO membrane projection software. This version of the software includes many improvements to meet our customer's needs. RO system design continues to get more complex, and this intuitive software makes even the most complex systems easy to design. Download Winflows 3.0.0 at www.veoliawatertechnologies.com.

Did you know?

A nominal rejection rating of a filter does not really express the true capabilities of a particular filter because it is unknown whether the manufacturer is referring to a percentage of particles removed over a particle distribution spectrum or of a specific sized particle. Absolute ratings however, do express the true capabilities of a particular filter because it states the removal efficiency of the smallest sized particle that can be retained by the filter. For example, a filter rated at 99% removal, 10 micron nominal simply means that it will remove a percentage of particles that are 10 microns and greater—but a filter rated at 99% removal, 10 micron absolute means it will remove 99% of all particles at 10 microns or greater.

Key site examples for our three key markets

Municipal Water Treatment

Through our local distributor, Veolia has installed Muni.Z depth filters in over 20 municipal water treatment plants treating brackish water in the state of Florida. The operators of these plants are under constant budget constraints and have implemented the use of the Muni.Z filters after positive results from pilot trials to improve the feedwater quality of their RO membranes and to optimize the replacement frequency of the cartridge filters themselves.

Seawater Desalination

Through our local distributor, Veolia has installed SWRO.Z depth filters at several seawater desalination plants in Spain as pretreatment to the SWRO membranes. This product fits the needs of the customer because of the strong product capabilities, including high particle retention and low pressure drop, competitive pricing, and industry leading delivery times.

Boiler Feedwater

Veolia manufactures and delivers fully engineered reverse osmosis systems called PRO-Series machines into the boiler feedwater market space. These systems utilize our ROSaves.Z depth cartridge filters as pretreatment to our brackish water RO membrane elements to ensure our customers receive the best water treatment solution.

When you use Veolia filters as pretreatment to your Veolia membranes, you reduce membrane fouling and increase the cost efficiency of your water treatment solution. If you would like more information about how Veolia filters with membranes can provide you with the same, please contact your contact your local Veolia representative or visit our website.

Resourcing the world

Veolia Water Technologies
Please contact us via:
www.veoliawatertechnologies.com