



ZeeWeed* membranes for municipal drinking water

WATER TECHNOLOGIES

ZeeWeed membranes provide more public health protection and system reliability

Are you confident that your existing water treatment system can protect your community from viruses, bacteria and other harmful pathogens? From greenfield plants to retrofits, more communities are trusting ZeeWeed membranes to safeguard public health and ensure regulatory compliance—at a cost that is comparable to conventional technology.

As the pioneer of membrane technology, Veolia draws on decades of research, development, and operational experience to bring water treatment plants of all sizes to communities throughout the world. From large membrane plants, capable of treating 100 MGD (380 MLD), to compact and cost-effective packaged plants for small towns, ZeeWeed systems consistently outperform conventional technology and meet or exceed increasingly stringent regulatory requirements—regardless of source water quality.

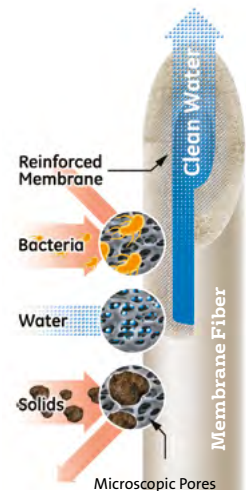
No matter what the water source, Veolia's unique offering of reinforced and high efficiency hollow fiber membranes provide outstanding versatility and value for water treatment plants, that ensure the best available protection from waterborne pathogens today, and well into the future.

The advantages of ZeeWeed membranes include:

- Pressurized or immersed systems to suit the application
- Reduced lifecycle costs and extended membrane life
- Simplified design and operation
- Smaller footprints with reduced land acquisition costs
- Consistent performance through virtually any change in raw water quality

How Membranes Work

Membranes are based on filtration methods found throughout nature. ZeeWeed membranes are hollow polymer fibers with billions of microscopic pores on the surface. The pores are much smaller in size than common contaminants, bacteria and viruses. This physical barrier only allows clean water to pass through while rejecting impurities—guaranteeing an exceptional water quality and clarity on a continuous basis. Application of pressure outside or a slight vacuum inside the fiber is all that is required to draw water into the membrane and filter out impurities.



Dalton, GA
40 MGD (151,400 m³/d)
ZeeWeed 1500



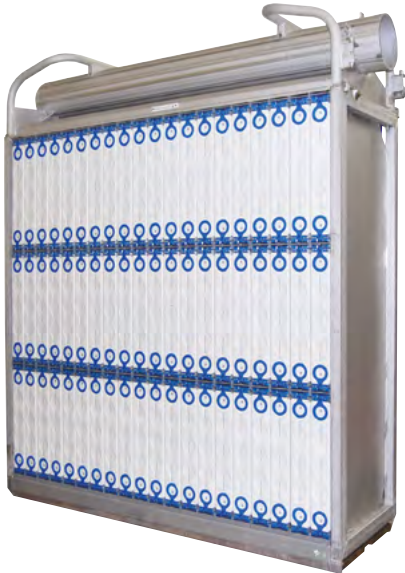
Racine, WI
50 MGD (189,250 m³/d)
ZeeWeed 1000



Olivenhain, CA
34 MGD (128,700 m³/d)
ZeeWeed 500

ZeeWeed 1000, 1500 and 700B Series

- High efficiency design ensures low capital, operating and lifecycle costs
- Operator-friendly design
- Extremely compact footprint
- Ideal for retrofits



ZeeWeed 1000 Cassette



ZeeWeed 1500 Rackless Module System



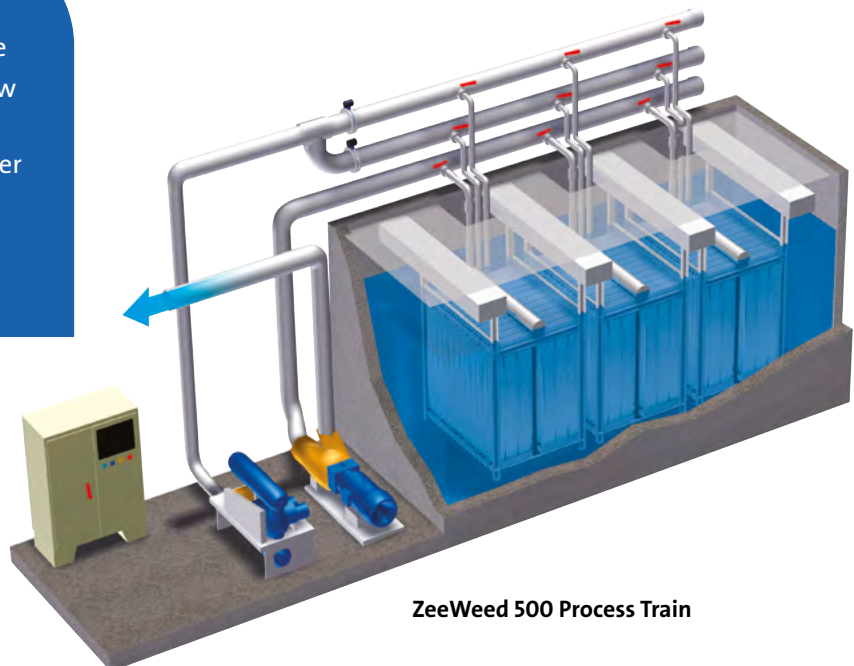
ZeeWeed 700B Rackless Module System

ZeeWeed 500 Series

- Reinforced structure ensures long life
- Highest solids tolerance of any hollow fiber membrane
- Works through virtually any raw water quality change or upset
- Does not require preclarification



ZeeWeed 500 Cassette



ZeeWeed 500 Process Train

Typical Drinking Water Treatment Results

Bacteria	> 4-log removal
<i>Giardia</i> Cysts	> 4-log removal
<i>Cryptosporidium</i> Oocysts.....	> 4-log removal
Virus – ZeeWeed 500.....	> 2.0-log removal
Virus – ZeeWeed 1000.....	> 3.5-log removal
Turbidity.....	< 0.1 NTU
Iron	< 0.05 mg/L [†]
Manganese	< 0.02 mg/L [†]
TSS.....	< 1 mg/L
TOC.....	50-90% removal ^{††}
Arsenic.....	< 5 µg/L
Color.....	< 5 PCU ^{††}

[†] TOC and color removal is dependent on raw water quality

[†] Pretreatment required

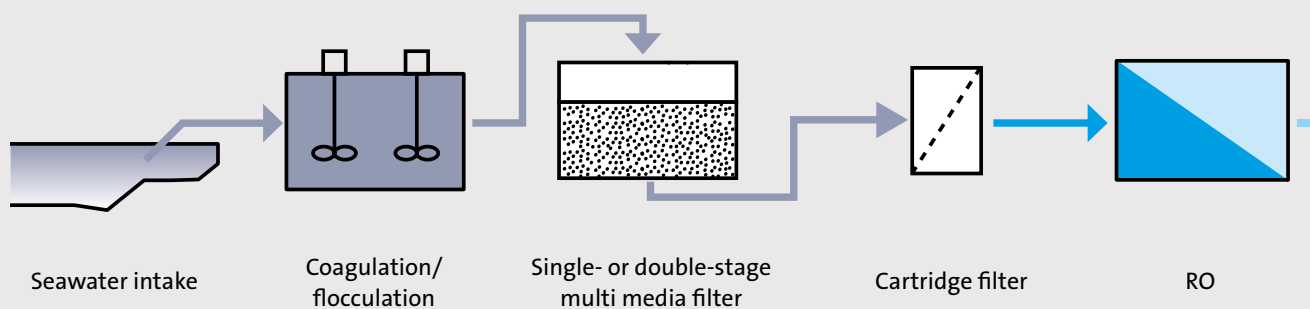
Trusted Reverse Osmosis (RO) Pretreatment

Operational experience has proven that consistent high quality pretreatment is critical for long-term, successful RO operation for seawater and brackish water desalination. ZeeWeed UF membranes are the preferred pretreatment to produce consistent high quality feedwater with a silt density index typically < 3, often < 2, turbidity < 0.1 NTU and TSS < 1 mg/L, ensuring peak RO performance regardless of raw water quality.

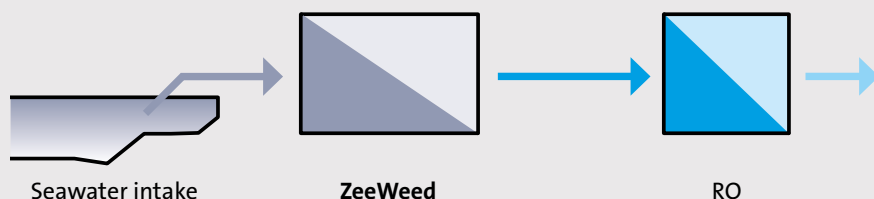
ZeeWeed Pretreatment Advantages Include:

- Higher quality RO feedwater
- Simplified pretreatment process
- Extended RO membrane life
- Increased RO system efficiency
- Lower chemical requirements for pretreatment and cleaning
- Simplified retrofit of existing granular media filters

Conventional RO Pretreatment Process



ZeeWeed Simplified RO Pretreatment Process



A complete portfolio of ZeeWeed solutions

Veolia's ZeeWeed ultrafiltration membrane products are engineered to provide an advanced, cost-competitive solution tailored to fit your needs, from a global industry leader in membrane filtration technology.

ZeeWeed 500

- Reinforced membrane fiber for longer life
- Highest solids tolerance of any hollow fiber membrane
- Robust performance through raw water quality changes or upsets
- Does not require preclarification
- Ideal for variable water quality and high levels of suspended solids



ZeeWeed 1000

- High efficiency design ensures low capital, operating and lifecycle costs
- Extremely compact footprint
- Ideal for retrofits of granular filter media
- Trusted solution for large-scale water treatment, and pretreatment for brackish and seawater desalination



ZeeWeed 1500

- Pressurized UF membrane for small- and medium size plants
- Packaged and custom skid-mounted designs for rapid delivery and installation
- Simple, compact rack design, with on-rack inspection capability
- Ability to retrofit conventional filter media and similar outside-in MF and UF systems



ZeeWeed 700B

- Pressurized UF membrane ideal for low solids and seawater reverse osmosis pre-treatment applications
- Versatile product that can easily retrofit other ultrafiltration and microfiltration systems
- Compact footprint, simple installation and operation
- Ability to customize plant layout using standard, pre-assembled kits and adding new ZeeWeed 700B modules at any time



WANT TO LEARN MORE?