



Mobile High Recovery RO

Maximizing Flexibility, Reliability and Efficiency

WATER TECHNOLOGIES

The Drive To Maximize Water Recovery

Over the past few decades, fresh water sources have become increasingly scarce throughout the world.

At the same time, brine disposal options have become less available and increasingly more expensive due to environmental regulations and sustainability requirements. These ongoing trends have been drivers for industries to utilize high recovery Reverse Osmosis processes.

Increase Your RO
Recovery Rate From

75% to 95%

and

Reduce Your Brine
Volume By

80%

Veolia's Advanced High Recovery RO Technology Now Available in Two Mobile Options

Veolia's high recovery reverse osmosis (RO) technology has been designed specifically to extract purified water from industrial, brackish and wastewater sources. **For clients, this means a guaranteed supply of the highest permeate water recovery — up to 98% — across numerous applications.**

This technology is truly versatile. From pre-treatment to wastewater reuse across all applications — it can recover water at an extremely high rate. This solution creates a sustainable solution that can lessen the reliance on existing water sources and help ensure business continuity—all while reducing a facility's total water footprint

These technologies are available in a large-scale high recovery RO mobile unit, as well as an industrial-scale demonstration unit that utilizes Veolia's CaptuRO™ technology. Both of these mobile options use **dynamic, single-stage RO, operating in semi-batch mode.**



High Recovery RO Trailer

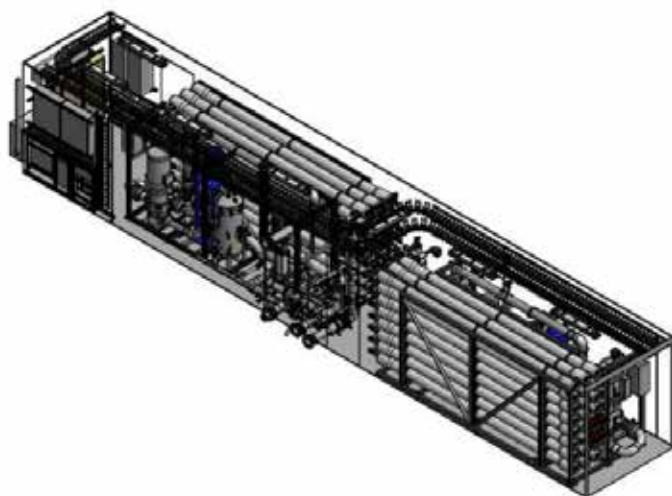
Up to 900 GPM Mobile Unit

Veolia offers the high recovery reverse osmosis technology in a mobile unit for temporary treatment at industrial sites. It is ideal for emergency needs, short-term planned outages and longer term (up to 7 years) rental.

What is Veolia's High Recovery RO Trailer?

Our Mobile Water Services high recovery RO trailer provides unmatched flexibility, and the highest flow rate in the industry (900 gpm). This allows operators to cope with variations in feed water, optimize performance and minimize costs. The system is a **dynamic, single-stage RO**, which can achieve higher water recovery rates, up to 98%. Its semi-batch operation provides greater resistance to fouling and scaling, for improved reliability, as well as superior operational flexibility compared to conventional RO. It also extends membrane life and consumes less chemicals.

This technology is ideal for extracting purified water from industrial brackish and wastewater sources, brine concentrate waste can be reduced from 50% to 75%, and energy consumption reduced by up to 35% as well, compared to conventional RO technology.



Mobile Unit Specifications

Operating Modes:

900 GPM Single Pass or 400 GPM Double Pass

Pressure Rating of System:

450 psig

Salt Rejection:

Various membranes available - conventional and low energy brackish RO

Adjustable Water Recovery:

75% to 98% - allows for maximum recovery for fluctuating feed water TDS

Adjustable Flux:

6 – 25 GFD

Feed Water Requirement:

SDI 5 maxi, NTU maxi 1 NTU, temp. less than 100° F
(other components and requirements to be validated for each case)

Connections:

Qty (4) 6" 150 lb. Flange & Qty (2) 2" 150 lb. Flange

Power Requirement:

Qty (2) 400 AMP

Weight:

38,000 lbs. dry / 54,000 lbs. wet



CaptuRO™ High Recovery RO

An Industrial-Scale Demonstration Unit

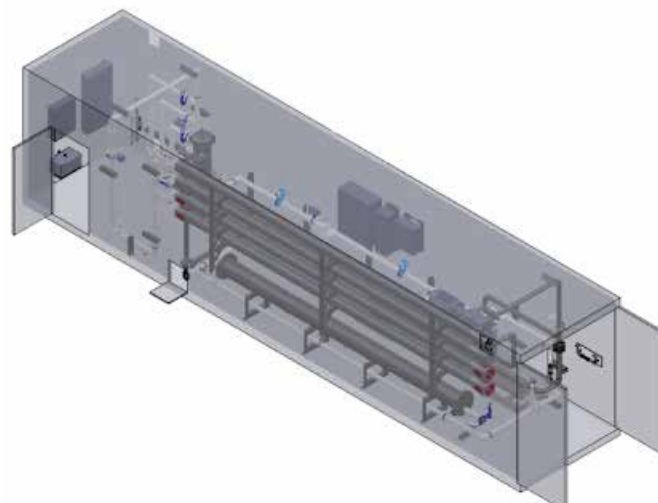
Veolia also offers an industrial-scale demonstration unit utilizing the CaptuRO high recovery RO technology. This demonstration unit is engineered to be deployed onsite for performance validation of various feed water applications before investing in capital expenditures.

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What is the CaptuRO Technology?

CaptuRO is a **dynamic, single-stage RO**, which enables a higher recovery rate than conventional RO, up to 98%, while minimizing the potential for membrane scaling and fouling. It operates in semi-batch mode to leverage induction time for salts to precipitate (particularly silica and calcium sulfate), for increased scaling resistance. It allows for superior operational flexibility compared to conventional RO by allowing independent control of water recovery, cross-flow velocity, and permeate flux.

The technology also minimizes the volume of brine generated, resulting in savings in liquid waste disposal costs. The system also reduces energy costs and creates the potential to optimize the use of antiscalants. Additionally, the semi-batch process automatically adapts to changes in salt concentration in effluent reclaim applications, allowing it to run continuously at an optimum recovery rate.



Demonstration Unit Specifications

A containerized mobile demonstration plant in a 40 ft long sea container (plug-and-play) that is available for pilot testing in 40 – 150 GPM range, depending on application. It is automated with PLC for remote control and monitoring for 24/7 operation with minimal onsite supervision. It also includes automated chemical dosing pumps.

Pressure Rating of System:

Rated for 600 psig

Vessels:

Six 8-inch diameter x 7 element pressure vessels (can use less vessels for lower flow rate applications)

Salt rejection:

Various membranes available, conventional and low energy brackish RO

Feed Water Requirement:

SDI 5 maxi, NTU maxi 1 NTU, temp. less than 100° F
(other components and requirements to be validated for each case)

Connections:

Qty (5) 3" 150# flange, PVC. Qty (1) ½" FNPT (instrument air)

Power Requirements:

480 VAC / 3 phase / 60 Hz- 200 amps

Weight:

Maximum 12,000 lbs (dry)



What Are The Benefits of High Recovery Reverse Osmosis Technology?



Increased Water Efficiency

High recovery RO systems have the ability to recover a greater percentage of clean water from the feed water, resulting in less wastewater. This means that more water can be conserved and used for other purposes, such as irrigation or other industrial processes.



Cost Savings

With higher recovery rates, less wastewater is produced, reducing the amount of water that needs to be treated and disposed of leading to significant cost savings in terms of water treatment and disposal expenses. RO membrane life is increased and less chemical are consumed.



Environmental Sustainability

By reducing the amount of wastewater produced, high recovery RO systems contribute to a more sustainable water management approach by helping conserve water resources and minimizing the environmental impact of water treatment processes.



Reliable System Performance

High recovery RO systems typically incorporate advanced technologies and components that optimize system efficiency and performance which results in improved water quality, reduced energy consumption, and extended membrane life.



Flexibility

High recovery RO systems are often designed to handle a wide range of feed water quality and are less sensitive to off-spec feed water quality compared to conventional RO. This flexibility allows for the utilization of diverse water sources and enables water treatment in regions with limited freshwater availability.



Regulatory Compliance

High recovery RO systems can help meet regulations by minimizing wastewater generation and providing a more sustainable water treatment solution.

Additional Mobile Water Services

Technologies In Our Fleet



Reverse Osmosis

A modular mobile trailer mounted RO system providing capacities up to 440 GPM (single-pass mode) or 180 GPM (double-pass mode).



Ultrafiltration

A trailer-mounted asset that produces up to 1,450 GPM (340 m³/hour) of treated water and is the largest mobile ultrafiltration technology available on the market today.



Discfiltration

The Hydrotech Discfilter is a woven media filter for fine solids removal and product recovery offering a large filter area in a small footprint. Polishing range in excess of 3,000 GPM.



Chemical Softening

The ACTIFLO® Turbo technology can be utilized for hardness, alkalinity and silica reduction through lime and soda ash addition. Flows up to 1100 GPM per trailer.



Clarification

The ACTIFLO® Turbo high-rate clarification trailer is excellent for turbidity/TSS reduction, metals removal, color, organic removal, and other precipitation/settling applications. Flows range up to 1,400 GPM.



Pump Skid

Duplex skid mounted pump system which is supplied complete with associated pipe work and valves, instruments and control panel. Each pump is installed with its own dedicated variable frequency drive to ensure optimal and efficient pressure and flow control to meet a variety of applications.

Resourcing the world

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