

# CHALLENGE THE FLOW



ROTEC offers ultra-high recovery desalination via its unique Flow Reversal technology Flow Reversal (FR) technology, which challenges conventional design thinking. Engineered to maximize Reverse Osmosis (RO) and Nano Filtration (NF) recovery while minimizing brine, ROTEK delivers the most robust and cost-effective solution on the market - boosting desalination performance, enhancing sustainability and improving public health.

## THE GOLD STANDARD IN HIGH RECOVERY DESALINATION

Operators of desalination facilities are under pressure to constantly improve their outputs, while minimizing costs and environmental impact. They need a partner as focused on efficiency as they are and that's why they turn to ROTEK.

We offer peace of mind by providing an exclusive retrofit or full scope solution that prevents scaling and biofouling while maximizing recovery by up to 98%, and increases water production while decreasing chemicals and cost. We aim to set the novel Flow Reversal technology as the golden standard in the industry, in order to maximize water recovery worldwide. ROTEK boldly and vigorously pushes the boundaries of desalination to new levels, providing clear water value.

**90-98%**  
RECOVERY  
RATE

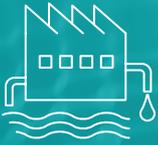
**20-30%**  
INCREASED  
PERMEATE

**50-70%**  
DECREASED  
BRINE

**100%**  
FIELD  
PROVEN

# RISK-FREE RETROFIT & TURNKEY SOLUTIONS

Our end-to-end service offering spans from design, to manufacturing, construction, O&M and support.



**HIGH RECOVERY  
DESALINATION  
PLANTS**



**HIGH RECOVERY  
RETROFIT  
PACKAGES**



**ENGINEERING  
DESIGN  
SERVICES**



**BRINE  
CONCENTRATOR  
SYSTEMS**

ROTEC's desalination solutions are safe and easy to install and don't require special operator training. Among our applications you will find brackish water, ground water, surface water, municipal wastewater, industrial wastewater, Ultra-Pure Water (UPW) and SWRO improving recovery rate of 2nd pass. Using conventional, non-proprietary equipment for simple operation and easy maintenance, all FR-RO systems are fully automated with remote control and monitoring software, ensuring optimal performance and constant communication with local operators.

## FLOW REVERSAL TECHNOLOGY

### TOTAL RO DESALINATION OPTIMIZATION

Flow Reversal (FR) is designed to inhibit mineral scaling and biofouling, two of the limiting factors in high-recovery RO, by periodically reversing the flow of feed water inside the pressure vessel, ensuring the scale does not have time to form on membranes surfaces before being swept away by under-saturated feed solution conditions. FR is equally adept at inhibiting biofouling, due to large fluctuations in water chemistry and hydraulic conditions between the front and tail elements. Changes in osmotic pressure prevent bacterial growth from clogging. This game-changing technology delivers more high quality permeate, reduces concentrate volume while minimizing chemical consumption, CIP frequency and membrane replacement. FR technology outperforms conventional RO, increasing water and cost savings while diminishing eco-footprint.

## WE SERVE A WIDE VARIETY OF MARKET SECTORS, INCLUDING:



**Heavy & Light Industry**



**Agriculture**



**Municipalities**



**Food & Beverage**



**Pharmaceutical**



**Oil & Gas**

# PROJECT HIGHLIGHTS

## RISK-FREE ENHANCED RECOVERY



### Customer

Public Utility Board (PUB),  
Singapore National Water  
Agency, Kranji, Singapore

### Project Type

Retrofit of Existing RO  
Desalination Facility

### Capacity

10,680 m<sup>3</sup>/day

PUB, a world leader in the water desalination field, needed to increase water production from their NEWater wastewater treatment desalination plants. ROTEC's Flow Reversal technology was used to deploy a retrofit solution into an existing RO system at PUB NEWater in Kranji, Singapore; **increasing recovery from 75% to 90%, leading to a 20% increase in water production capacity, 60% reduction in waste brine volume for disposal, with minimal interference or downtime during installation.** This project was completed successfully and ROTEC is looking into the possibility of doing more projects with PUB.

## GO AGAINST THE FLOW



### Customer

Fujian Yanjing Huiquan  
Brewery, Fujian Province,  
China

### Project Type

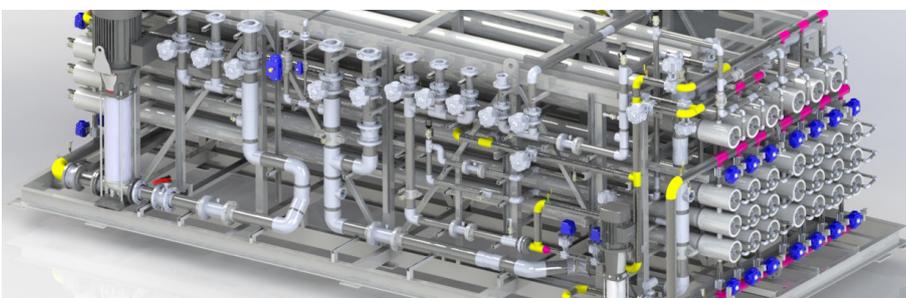
Turnkey High-Recovery  
BWRO Desalination Plant

### Capacity

1,600 m<sup>3</sup>/day

The Chinese local brewery needed to build a new water treatment plant, demonstrating ultra-high recovery, without compromising on permeate quality, by converting industrial brackish water to clean high-quality permeate for the beer production process. The installed ROTEC RO facility has been operating successfully since 2016, **delivering increased recovery from 75% to 90%, the highest performance for a Low-Pressure RO solution, lower CIP frequency and decreased energy consumption due to low feed pressure operation (10 bars).**

## LOWER BRINE, COST AND ECO-FOOTPRINT



### Customer

Jinma Energy, Henan,  
China

### Project type

Industrial Wastewater  
Reuse Facility

### Capacity

7,200 m<sup>3</sup>/day

The Jinma Energy plant in China was testing innovative technologies to treat wastewater from their Coke production process. Their goal was to operate the highest achievable RO recovery. **ROTEC's unique technology delivered lower brine concentrations, resulting in water and cost savings and a smaller eco footprint.** The successful pilot demonstrated the FR technology's ability to handle a high level of COD with a stable operation at 80% recovery. Thus, the full-scale facility was installed for flows of up to 300 m<sup>3</sup>/hour.



## GROWING WITH WATER

A business unit of the WFI Group, the Israel based ROTEC provides holistic modular RO desalination solutions and boutique services, from detailed engineering to on-site operation. Utilizing the groundbreaking Flow Reversal (FR) technology, over the last decade we have deployed dozens of successful integrated retrofit and turnkey solutions of RO facilities around the world. FR has been validated by global water leaders like Suez, Coca Cola, PUB Singapore, Mekorot and more. By enhancing recovery and plant efficiency, minimizing brine, and upgrading operational reliability, ROTEC's solutions increase production and decrease costs. As a result, we enhance your organization's eco-responsibility and provide you with enduring peace of mind, while saving water worldwide. Our customers enjoy long-term top-notch service by our dedicated team of water experts, driven by genuine care for water scarcity and challenges.



**LET'S CREATE MORE VALUE FROM WATER - TOGETHER**

[info@rotec-water.com](mailto:info@rotec-water.com) | +972-4-6209154 | [www.rotec-water.com](http://www.rotec-water.com)