ROTEK

Purification For Life

Water Treatment Solutions

Since 1990

www.rotekwater.com

PRODUCT LEAFLET

Who We Are

ROTEK
Purification For Life

Rotek Water Systems Co., Ltd. is a complete water treatment solutions provider for residential, commercial and industrial applications. Founded in 1990, We have multiple well-established partners worldwide and clients in over 30 countries using our services to provide innovative and efficient pure water solutions. Engineering design emphasises low lifecycle cost with high quality standards and responsive service support.

Our years of hands-on experience enable us to provide innovative and cost effective purified water solutions. We pride ourselves on providing clients with the lowest lifecycle costs, the highest quality and the most responsive service in the water treatment industry. We have products, technologies, experiences and knowledges to support your needs. Our attention to detail has made ROTEK as a leading manufacturer and distributor in this industry.

What We Do

ROTEK provides a complete offering of products to address all water treatment applications from point of entry (POE) to point of use (POU). ROTEK uses a variety of water purification technologies including:

Reverse osmosis, Ultra-filtration and Nano-filtration
Media filtration, water softening and chemical dosing
Electro-deionisation and resin based ion exchange
UV and Ozone sanitation systems

At ROTEK, we offer extensive technical and customer support. From applications engineering to technical on-site troubleshooting, when you purchase ROTEK products, you can trust that we are just a phone call.

Custom Water Treatment Solutions

ROTEK uses a systematic process in engineering custom solutions for our customers. This process can take up to 72 hours, while an applications engineer designs, sizes, and researches all of the needed components as well as equipment in order to make your solution as comprehensive as possible. Below are the simplified steps that ROTEK takes in designing equipment that will solve your customers' water problems

1

Water Analysis and Project Planning

After contacting ROTEK and providing us with a feed water analysis, scope of the project and the forms filled out below, a ROTEK applications engineer will be assigned to your project. Their first course of action will be to review the project and familiarize themselves with the requirements and you, the customer. The ROTEK applications engineer will carefully analyze and consult with ROTEK's expert design team to engineer a custom solution tailored to fit the specific needs of your project. It is in this stage that ROTEK's engineers will determine the systems and/or equipment that will be appropriate for your water type.

2

Design and Engineering

An ideal system design begins with the initial process and instrumentation diagram, or P&ID, which maps out the design and flow from which the system will operate. ROTEK's design team intricately details out the necessary components to each system in a timely manner while giving the upmost attention to accuracy. ROTEK utilizes decades of experience in mechanical, chemical and electrical disciplines to design the ideal solution. Once the design and materials are established, ROTEK will provide a budgetary proposal based on the needs of the application. ROTEK works diligently with our suppliers to take customer demand in to consideration in providing the most competitive pricing on the market.

3

Manufacturing

Once ROTEK is awarded the project it then moves into the manufacturing stage of the overall process. ROTEK assigns one of its engineers as a project manager who is designated to oversee the project from start to completion. At this point, ROTEK will utilize its more than two decades of water treatment manufacturing experience to ensure that the system is built exactly to specification and that all quality control measures are met. ROTEK's technical ability and flexibility in manufacturing allows the company to accommodate most requests.

4

Quality Assurance

ROTEK delivers best-in-class quality products and services, which is why quality assurance during the manufacturing and after the system is completed is overseen by both the project manager and ROTEK's quality department. This provides customers the confidence that the equipment they are purchasing has been built with a rigorous dedication to exceptional performance and a robust quality scheme. Customer satisfaction and requirements are always at the forefront at ROTEK, so ensuring that all specifications of the project have been met before shipping is mandatory. Once the system and/or equipment has met ROTEK's thorough quality assurance requirements, ROTEK's shipping department ensures that everything is professionally and carefully crated and ready for transit.

5

On-Site Startup and Troubleshooting

The product customization process does not end when the system leaves the warehouse. ROTEK's extensive offering of customer value services ensures that all systems and equipment will be up and running and maintain a high level of quality. ROTEK also provides on-site startup and training for particular projects or when this service is purchased as a standalone service. With customer satisfaction always in mind, ROTEK works hard to ensure from the beginning that our custom solutions meet and exceed your expectations.

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100 - 50,000 Liters/Hour

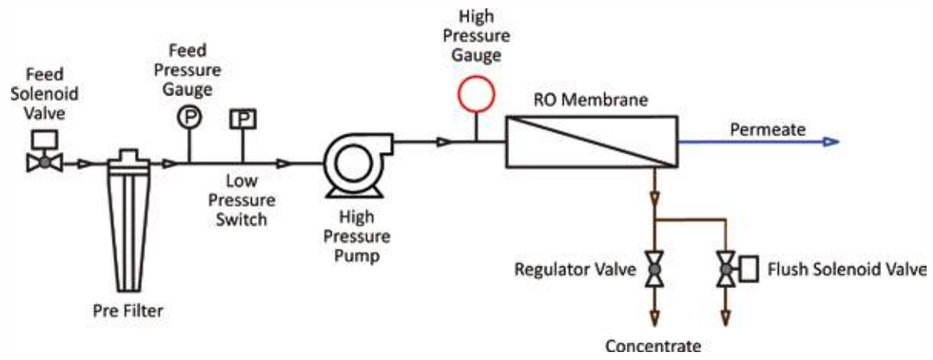
Reverse Osmosis Systems

Commercial & Industrial Reverse Osmosis Systems

We manufacture high performing reverse osmosis systems that make use of high efficiency membranes. These osmosis systems act as molecular filters for any dissolved impurities like mineral, organic and inorganic particles. It also helps in the removal of microbial matter like bacterial spores and viruses, which cannot be removed by any ion exchange technique. Maintenance costs of the system are lower and minimal usage of chemicals makes it more eco friendly. These types of reverse osmosis systems are highly preferred than the ion exchange systems as these utilise electrical energy in place of chemicals.

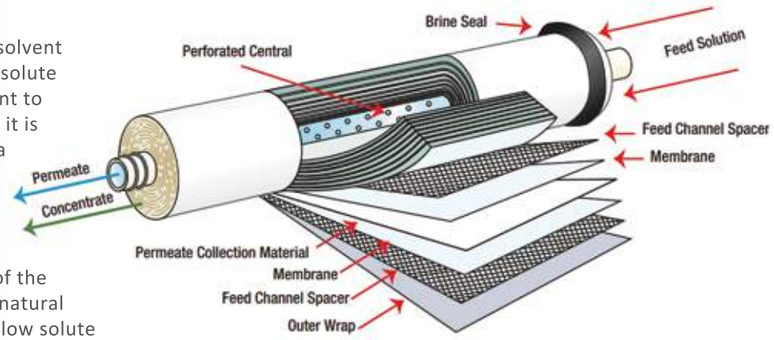
Municipalities and industrial facilities can use RO permeate as a consistently pure drinking water supply and to transform drinking water to high purity water for industrial use at microelectronics, food and beverage, power, and pharmaceutical facilities. The technology is also very effective at removing bacteria, pyrogens, and organic contaminants.

Standard RO System Schematic



Reverse Osmosis - How Does It Work

Reverse osmosis (RO) is a separation process that uses pressure to force a solvent through a membrane that retains the solute on one side and allows the pure solvent to pass to the other side. More formally, it is the process of forcing a solvent from a region of high solute concentration through a membrane to a region of low solute concentration by applying a pressure in excess of the osmotic pressure. This is the reverse of the normal osmosis process, which is the natural movement of solvent from an area of low solute concentration, through a membrane, to an area of high solute concentration when no external pressure is applied. The membrane here is semipermeable, meaning it allows the passage of solvent but not of solute.



Industry Applications

Agriculture / Automotive / Education and Institutions / Energy and Power / Entertainment and Leisure / Food and Beverage / Government / Healthcare and Medical /Life Sciences / Marine / Microelectronics / Mining and Hydrometallurgy / Oil and Gas /Textile Manufacturing

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500 - 25,000 Liters/Hour
Media Filtration Systems

Filtering water means removing its turbidity, from the coarsest particles to colloidal matter, adsorbing its tastes, odors or unsightly colors, removing iron and Manganese from it or neutralizing its acidity.

ROTEK can help you designing high quality water filtration equipment covers a wide variety of Commercial and Industrial applications. A broad range of filter media and component options ensure you of the right unit to fit your exact needs. Whether your project requires a filter for turbidity removal, iron removal, or taste and odor control, select a ROTEK unit for years of dependable, trouble-free operation.

MultiMedia Sand Filter (Turbidity Removal)

Impurities are removed from water by passing through a bed of quartzite sand of various gradation. The installation of a Sand filter is recommended when the load of turbidity (sand, lime, scales, colloids, etc.) of water is very high, affecting the water quality and resulting in deposits and encrustations on pipelines, boilers, taps and on domestic and industrial appliances in general.ROTEK Multi-Media filters typically remove particles 15 microns in size or larger. All media included in our filters are carefully selected according to particle size, so the media retains its stratification during backwash and rinse.

Activated Carbon Filter (Color & Odor Removal)

Carbon filtering is a method of water purification that uses a piece of activated carbon to remove contaminants and impurities, utilizing chemical adsorption. Each piece of carbon is designed to provide a large section of surface area, in order to allow contaminants the most possible exposure to the filter media. ROTEK carbon filters are most effective at removing chlorine, sediment, and volatile organic compounds (VOCs) from water. Coal, coconut shell and palm shell based activated carbon with variety sizes are available to choose for different applications.

Clino-X Filter (Turbidity Removal & Ion Exchange)

Clino-X is excellent as a water treatment filter. It can be used for commercial and home installations. Swimming pool filters are an especially useful application. Depending on requirement for particulate removal, Clino-X can be either substituted for sand, or used in conjuction with sand. The filter material can be disposed of readily in any outdoor location without harm to the environment, or back flushed in place with salt water. Clino-X is ideal for waste water treatment. It is the material of choice for removal of ammonium, lead and many heavy metal ions.

Iron Removal Filter (Iron, Maganese & Arsenic Removal)

DMI-65 is the most advanced catalytic water filtration media that we used in our iron removal filtration system which has extremely high capabilities of removing both Iron (Fe) and Manganese (Mn) simultaneously through low cost catalytic oxidation and retention of precipitate. The DMI-65 will also remove arsenic from a water supply given the correct conditions. DMI-65 has been shown to remove arsenic associated with iron-containing infl uent. Ferric chloride is used when treating feedwaters with high arsenic feed levels.

Water Softener (Hardness Removal)

Water softener reduces the calcium or magnesium ion concentration in hard water. These "hardness ions" cause two major kinds of problems. The metal ions react with soaps and calcium sensitive detergents, hindering their ability to lather properly and forming an unsightly precipitate. Presence of "hardness ions" also inhibits the cleaning effect of detergent formulations. ROTEK Water Softeners provide soft water to meet the demanding specifications of all types of businesses and institutions with simple and reliable equipment.ing a thin protective surface!

Evolet Anti-Scale Filter (Preventing Hard Scale Formation)

Evolet SC3 Anti-Scale systems transform calcium ions into calcium crystals, which are stable and cannot attach to pipes, surfaces, hardware, fixtures or heat exchange components. The crystals are so small they are easily rinsed away by the water flow. The trillions of microscopic crystals of activated lime provide an incredibly high total surface area for further epitaxial crystallization. The next result is removal of pre-existing lime scale from plumbing, keeping pipes and appliances lime-free whilst leaving a thin protective surface!

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Scale and Corrosion Protection Technology
Anti-Scale Reactor (ASR)

ROTEK ASR (Anti-Scale Reactor) is a physical water conditioner that creates an hydrodynamic process with electro-static and galvanic action. ***ASR*** has been installed in industrial, commercial and domestic applications throughout the world for over 20 years.

KEY FEATURES & BENEFITS

- Uniquely inhibits and removes limescale in hard water areas, but also reduces corrosion in both hard and soft water areas
- No annual running costs - operates without the use of chemicals, magnets or electricity
- Savings in energy and maintenance as the unit is self- cleaning and is 'fit and forget' once installed and earthed correctly
- Maximises heating efficiency and extends the operational life of metal pipework and equipment
- Coagulates suspended particles to enhance filtration system efficiency
- Compact, easy to install and retro-fit with no mechanical moving parts to be replaced, turely environmental friendly water conditioner that works

HOW IT WORKS

HYDRODYNAMIC ACTION

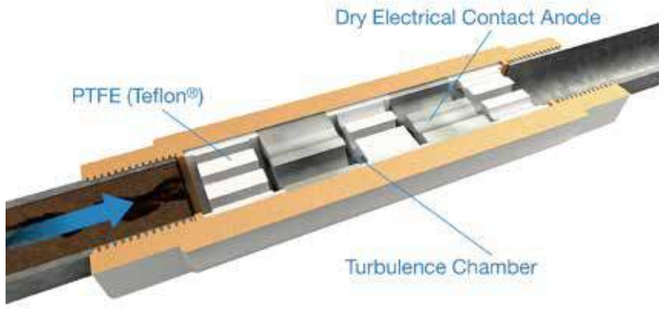
Inside each ASR carefully designed hydrodynamic chambers create microjet turbulence and pressure changes as the water passes through. This effect increases the tendency for water to yield prematurely some of the scale with which it is saturated. Sonic effects created in the water by this hydrodynamic action help to keep the inside of ASR free from fouling due to algae or scale.

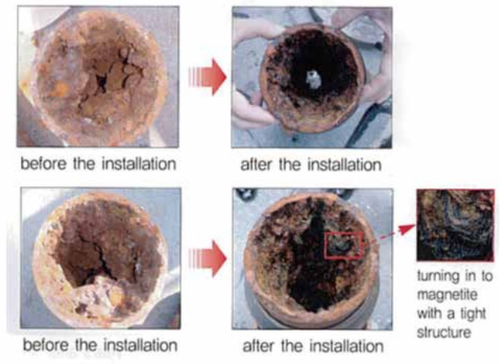
DIELECTRIC ACTION

ASR incorporates a large surface area of PTFE, a dielectric material. When water passes over the surface of the dielectric material, electrical energy is generated. This electrical energy passes harmlessly through the stream of water creating a de-stabilising effect, enabling the premature precipitation of calcium carbonate into the water stream by breaking down a significant proportion of bicarbonates.

ANODIC ACTION

ASR also contains a large surface area of zinc, which is bonded to the body of the unit by a unique patented dry connection. This ensures that electrical conductivity is not impaired due to the potential build up of corrosion at the point where the zinc anode meets the body of the unit. The electrolytic cell formed by the zinc and the body allows the slow release of zinc ions into the water stream which act as nuclei for scale formation.





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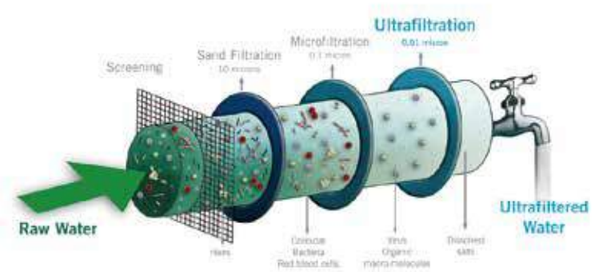
UFD/C Series (1,000-24,000LPH)
Ultra-Filtration System

Wall Mounted UF System
(1,000-3,000 LPH)

Skid Mounted UF System
(4,000-24,000 LPH)

Custom-Made UF System



Product Description:

ROTEK UF systems are suitable for removing high turbidity peaks, particles and microbiological impurities (bacteria, viruses, parasites). Even with temporary or microbiological contamination after heavy precipitation the systems provide a constant filtrate quality – free of turbidity and pathogens. The extremely robust hollow fiber membranes are operated in the dead-end or cross-flow process, A PLC guarantees fully automatic operation of the filtration system. A variety of control options ensures the highest possible degree of flexibility and operational reliability. Adapted to the untreated water quality, chemicals can be optimally added to support the cleaning process.

Applications:

RO System Pre-Treatment
Bottled Water Production
Endotoxin Removal for Hemodialysis
Surface Water Clarification
Effluent Water Reclamation
Drinking Water
Industrial Process Water

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SWDF Series (1000-3000LPH)
Sea Water RO System

Key Features

Makes The Sea Water Affordable To Drink

Powered by engineering excellence and membrane based water treatment expertise, ROTEK standard membrane systems encompass reliability and efficiency in compact designs. The SWDF Series provides a reliable source of fresh water at large production capacities, with minimal space and maintenance requirements. Its configuration provides maximum utility of space while incorporating ease of control and safety standards.

Low Maintenance
Danfoss HP Pump

Danfoss I-Save Energy
Recovery System

Low & High Pressure
Air Relief Valve

Digital Control with
Standard MODBUS

Containerized SWRO for Taiwan Military

700CMD SWRO Plant

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SWM series (1.5-5CMD)
Water Makers For Marine

SWM *series* Water Makers with Auto-Flush

Introduction

The low-hassle SWM series water makers are engineered to fit anywhere. Measuring at about 2 - 3 cubic feet, sail and small power boaters have the opportunity and the convenience of a Rotek watermaker without space restrictions. Featuring a simple interface, the SWM series can be monitored via the control panel or remote(optional).The SWM seires can produce from 300 to 5000 liters of fresh water per day and is the perfect seaworthy companion for the solo cruiser.

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SWC series (8-14CMD)
Commercial SWRO

Introduction

ROTEK SWC Series Commercial Seawater Reverse Osmosis Systems are designed and manufactured for seawater applications requiring capacities of 2,100 to 3,800 gallons per day.

ROTEK SWC Series Reverse Osmosis Systems are equipped with premium components, which include a 316 plunger–type pump for high performance and corrosion resistance, a high grade corrosion resistant aluminum frame, a programmable computer controller with many built–in features and f iberglass membrane housings for durability.

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RO-EDI Series (200-1000LPH)
Reverse Osmosis - Electrodeionisation Systems

ROTEK RO-EDI systems combine conventional reverse osmosis pre-treatment systems with high-performance electro-deionisation cells to produce ultra-pure water. ROTEK EDI cells contain semi-permeable ion-exchange membranes and permanently charged ion-exchange resins that continuously polish permeate water exiting the RO stage. The ion-exchange resins in the EDI cell are continuously regenerated by an applied electrical field and require no chemicals for normal operation. ROTEK RO-EDI systems are compact, integrated designs engineered to produce consistent water quality for most ultra-pure water applications. During manufacturing, each component has been chosen based on reliability, performance and simplicity to ensure long operational life with minimal operator intervention.

- ★ Combines RO with EDI in a single compact system
- ★ Consistent production of ultra-pure water
- ★ Continuous electrical regeneration of EDI cell
- ★ >99.9% bacterial and virus rejection
- ★ Continuous operation
- ★ Low energy and water consumption
- ★ No chemical requirements
- ★ Fully automated PLC control
- ★ Compact skid mount design

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EDI Series (200-1000LPH)
Electrodeionisation Systems

EDI Series Systems are produced by ROTEK to polish the permeate from a reverse osmosis system. The quality of the product from a ROTEK EDI system will depend on the incoming feed water quality to the EDI system. Product quality up to 18 megaohms is possible with these systems. The EDI System is superior to a conventional mixed-bed deionization system both in ease of operation and maintenance. In addition, no chemicals are used for regeneration during the water purification process. The EDI Systems are modular, so they can be designed for various capacities and easily expanded when required. EDI Systems are used in applications such as ultrapure water, USP grade water, water for injectibles (WFI), and removing trace quantities of contaminants.

EDI Systems come complete and are skid mounted.
These electrodeionization systems are tested before shipment.
The main components included are:

- ★ EDI Cells
- ★ Flow Meters
- ★ Pressure Gauges
- ★ Controller
- ★ Power Supply
- ★ Flow Switch
- ★ Resistivity Monitor
- ★ All Safeguards & Alarms
- ★ Incoming water conductivity meter
- ★ Auto incoming water diverter valves w/ controls
- ★ Auto product water diverter valves w/controls

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UV Series (200-10,000 LPH)
Ultraviolet Sterilizer

ROTEK ULTRAVIOLET SYSTEMS

P rovide a compact design and economical ultraviolet water t reatment for low flow and medium flow applications such as; Light C ommercial Reverse Osmosis Systems, water vending machines, f ood industry, laboratory, medical facility water, pharmaceutical, c o smetic processes, final electronic component rinsing and recircu- l ation loops to name a few.

P roduce little change in water temperature even after prolonged p eriods of no water flow, making them ideal for many application r equirements.

May also be configured for TOC reduction in high purity or ultra p ure water processes.

- COMPACT DESIGN WITH 304 0R 316 STAINLESS STEEL REACTOR CHAMBER
- OPERATING TEMPERATURE AND SEALING EFFICIENCY

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CTO/UVOH Series (1-80 GPH)
Ozone Generators

CTO Series Ozone Generator Features:

- ★ Oxygen concentrators feature professional rotating distribution valves for reliable and long service life
- ★ Adjustable flow meter indicates oxygen flow
- ★ Module designed for easy service and maintenance
- ★ Extra oil-less pump synchronization socket outlet
- ★ Current overdraw circuit breaker and fuse(s)
- ★ 0 -100% ozone output variable
- ★ Door switch, overheating switch
- ★ Air cooled, wall mount

Patented Corona Discharge Ozone Module

Patented PSA Oxygen Concentrator Module

UVOZ Series Ozone Generator Features:

- ★ By air pump pressure the ozone through the check valve (no return valve) and diffuser into the water that in the contact tank.
- ★ By the Venturi (Injector) vacuum draw the ozone into the water through the check valve (no return valve) and bypass loop flow to the contact tank.
- ★ Uses ambient air as feed air, without using air dryers or oxygen gas
- ★ Uses nitrous oxides free 185nm UV ray generating module, easy maintenance
- ★ UV lamp changeable AL housing
- ★ Digital smart soft preheat start ballast universal voltage(120~277V) for longer reliable use
- ★ UV lamp made by Heraeus, Germany, with a life-span of more than 9,000 hours
- ★ Extra air pump synchronization socket outlet, Optional air pump and injector
- ★ White powder coated steel enclosure
- ★ Air-cooled, wall mount

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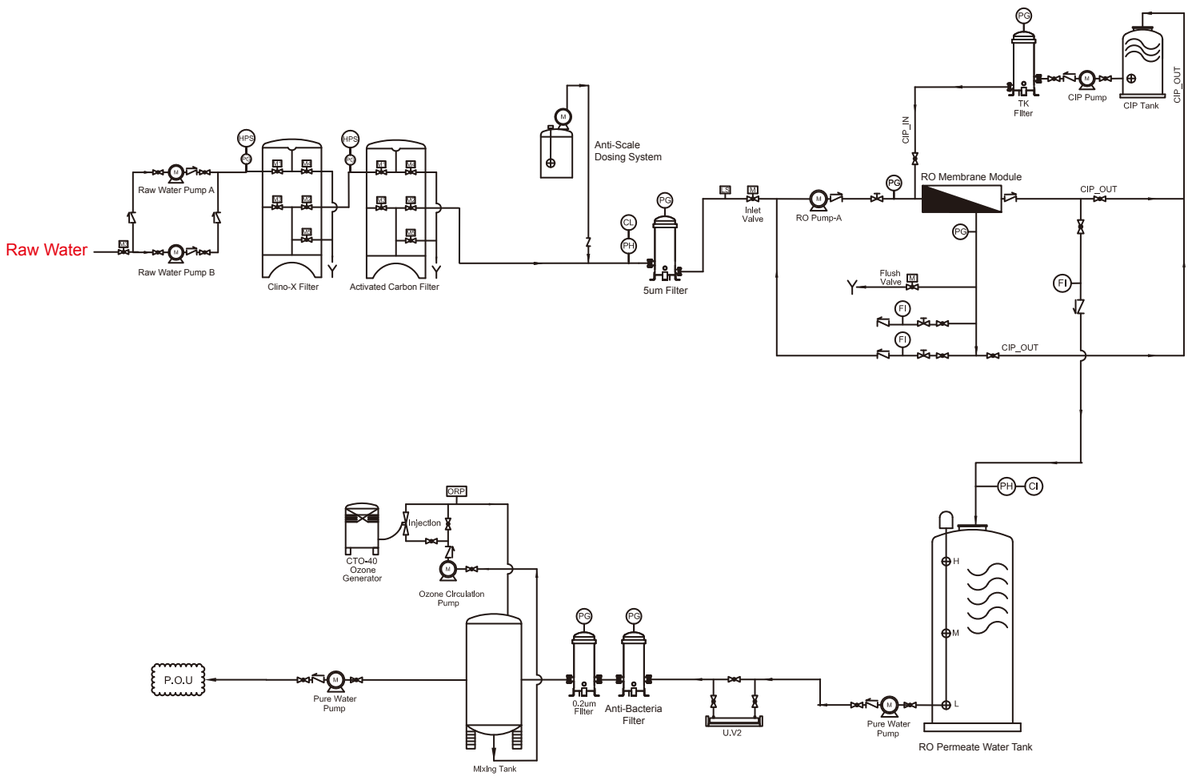
Custom-Made Solutions
Water Treatment for water bottling

ROTEK has years of experiences in supply water treatment systems for water bottling plants, including few of the major brands. **ROTEK** supplies equipments for varies types of product water that customers needs, including oxygenated water, high alkaline water and high quality mineral water. We have the know-how to provide the most economical and high standard water treatment systems in shortest lead time.



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Custom-Made Solutions
Containerized Water Treatment

ROTEK supplies any type of water treatment in a containerized version.
From desalination plants to emergency relief units. **ROTEK** designs ready-to-use containerized desalination plants that can produce up to 1000 m3/day of drinking water from different sources and with varying salinities.