



# Molecular™ Water Purification System

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## About Molecular

Molewater System Co., Ltd, a manufacturer in China, established in 2003, 20,000m2 new factory is under construction. After years concentrated in water treatment , Molecular has got 36 patents & new technology under the guidance of our CEO---Marco Ma.

- Certifications:ISO9001:2008,CE,14001,18001,ISO13485:2003.
- Production Capacity:500sets of industrial water system & 3000 sets of lab water system per year.
- Quality Control:100%inspected and operated by our technician or customers before shipment.
- Design(ODM):The water treatment system can be customized according to your request.
- Our clients from: USA, UK, Australia,Tajikistan, Belarus, Mongolia, India , Thailand, Vietnam, Bangladesh,Indonesia,Nigeria,Colombia, Bolivia,Ecuador, Chile, Peru, etc;
- Solutions for industry: Food drinking & Beverage industry,Pharmaceutical industry, Medical industry,Chemistry industry, Electronic industry, Seawater & salt water desalination.etc;
- Partial Customers: Morethan 40% of world top 500 domestic companies did cooperation with us.



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## Why choose us?

Professional team & technology to guarantee the high quality product



## Certificates of product

GB/T19001-2008/ISO9001: 2008

GB/T24001-2004/ISO14001: 2004

GB/T28001-2011/OHSAS 18001:2007

YYT0287-2003/ISO13485:2003

Bureau Veritas Certification

CCC (China Compulsory Certification)

10 Patents for water purification machine

## Multimedia Filter and Activated Carbon Filter

### Brief introduction

- Multimedia filter (MMF) used to reduce suspended solids, sand in the water. Generally it adopts Quartz sand anthracite as filter medium.
- Activated Carbon Filter (ACF) used to removes chlorine and chemicals in the water. It adopts activated carbon as filter medium.

### Features

- Multimedia filter and activated carbon filter usually as preparation part before reverse osmosis system
- High filtration efficiency
- No chemicals needed
- Good stability of outlet water
- Easy operation and maintenance



### Specifications

Capacity	1T/H-200T/H	Filling material life	2-3years
Control	Manual or Automatic	Working temperature	5-45degree
Working pressure	<0.6Mpa	Filling height	1000-1200mm

## Reverse Osmosis System

### Brief introduction

Reverse osmosis removes salt and most other dissolved inorganic material present in the water. It is a kind of membrane separation techniques, when external pressure is applied to the more concentrated (feed water) side of the membrane to reverse the natural osmotic flow. This forces the feed water through the semipermeable membrane. The impurities are deposited on the membrane surface and sent to drain and the water that passes through the membrane as product water is, for the most part, free of impurities. The system which is made up of reverse osmosis components is reverse osmosis system.



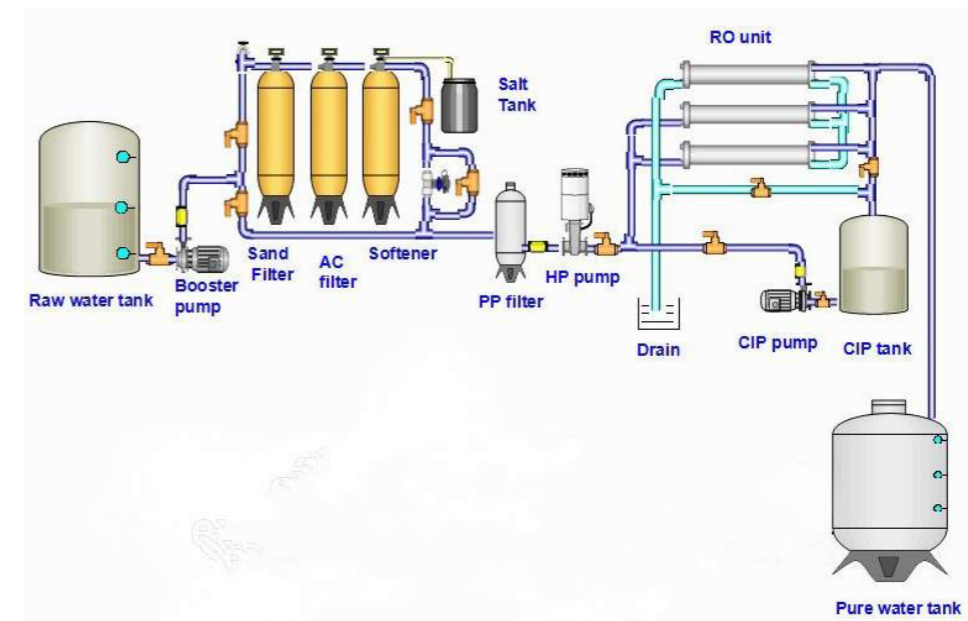
### Reverse Osmosis System features

- Single pass reverse osmosis and double pass reverse osmosis technology available
- Support fresh water treatment, such as tap water, underground water, river water etc
- To varying degrees, removes most types of contaminants, bacteria, pyrogens, and 90-99% of inorganic ions
- The purity of the product water depends on the purity of the feed water
- Requires minimal maintenance

### General Process recommended

- Feed water- Feed water pump- Multimedia filter- Activated carbon filter- Softener / Scale inhibitor device- Precision filter- High pressure pump- Reverse osmosis unit- Pure water tank
- Feed water- Feed water pump- Multimedia filter- Activated carbon filter- Softener / Scale inhibitor device- Precision filter- 1st stage high pressure pump- 1st stage reverse osmosis unit- 2nd stage high pressure pump- 2nd reverse osmosis unit- Pure water tank

### Flow diagram:



### Parameter

Model	Capacity(M3/H)	Diameter	Mpa	Material
MOLRO-5	5	Dn50	≤1.6	Stainless steel/carbon steel
MOLRO-10	10	DN75	≤1.6	stainless steel/carbon steel
MOLRO-20	20	DN100	≤1.6	stainless steel/carbon steel
MOLRO-30	30	DN125	≤1.6	stainless steel/carbon steel
MOLRO-50	50	DN200	≤1.6	stainless steel/carbon steel
MOLRO-100	100	DN250	≤1.6	stainless steel/carbon steel
MOLRO-150	150	Dn300	≤1.6	stainless steel/carbon steel

## Ultra filtration Water Purification

### Brief introduction

Ultrafiltration (UF) is used to remove essentially all colloidal particles (0.001 to 1.0 microns) from water and some of the largest dissolved contaminants. The pore size in a UF membrane is mainly responsible for determining the type and size of contaminants removed. In general, membrane pores range in size from 0.005 to 0.1 micron.

### Application

- suitable to purify the surface water, underground water, tap water
- Pretreatment before RO
- Wastewater treatment, gray water recycling, etc



### Parameter

Capacity: 0.5-100T/H. Turbidity <50NTU Particle: < 5μm  
 SS: <200mg/l pH: 1-13 Temp: 5-40°C

### Parameter

Model	Capacity(M3/H)	Diameter(mm)	Mpa	Material	Size (L*W*H,mm)
MOLUF-0.5	0.5	DN20	<0.3	SS/ABS	1650*1500*2300
MOLUF-1	1	DN25	<0.3	SS/ABS	1850*1500*2300
MOLUF-2	2	DN32	<0.3	SS/ABS	2000*1500*2300
MOLUF-3	3	DN40	<0.3	SS/ABS	3500*2000*2300
MOLUF-4	4	DN50	<0.3	SS/ABS	3500*2000*2300
MOLUF-5	5	Dn50	<0.3	SS/ABS	4500*2000*2300

## Boiler Feed Water Demineralization

Proper treatment of boiler feed water is an important part of operating and maintaining a boiler system. As steam is produced, dissolved solids become concentrated and form deposits inside the boiler. This leads to poor heat transfer and reduces the efficiency of the boiler. Dissolved gasses such as oxygen and carbon dioxide will react with the metals in the boiler system and lead to boiler corrosion. Molecular provide boiler feed water demineralization system to solve those problems.

### Boiler feed water technology:

- Feed water- Water Softener
- Pretreatment --- RO----- EDI
- Pretreatment----RO-----Cation / anion ion exchangers(Mixed bed)



### Specification

Model	Capacity(M3/H)	Material	Technology
MOLPO-5E	5	Stainless steel/carbon steel	RO+EDI
MOLPO-10E	10	stainless steel/carbon steel	RO+EDI
MOLPO-20E	20	stainless steel/carbon steel	RO+EDI
MOLPO-30E	30	stainless steel/carbon steel	RO+EDI
MOLPO-50E	50	stainless steel/carbon steel	RO+EDI
MOLPO-100E	100	stainless steel/carbon steel	RO+EDI
MOLPO-150E	150	stainless steel/carbon steel	RO+EDI
MOLPO-5M	5	stainless steel/carbon steel	RO+Mix bed
MOLPO-10M	10	stainless steel/carbon steel	RO+Mix bed
MOLPO-20M	20	stainless steel/carbon steel	RO+Mix bed
MOLPO-30M	30	stainless steel/carbon steel	RO+Mix bed
MOLPO-50M	50	stainless steel/carbon steel	RO+Mix bed
MOLPO-100M	100	stainless steel/carbon steel	RO+Mix bed
MOLPO-150M	150	stainless steel/carbon steel	RO+Mix bed

## Pure Water System for Hospital

Water purification systems play an important role in both public and private health-care systems, often providing large volumes of high purity water throughout the hospital. Molecular has medical equipment manufacturing & sales license, with ISO14001, ISO13985 certification, we can provide whole water solution for hospitals:

- RO system for dialysis machine
- Supply room pure water system
- Centralized pure water system
- Clinic/Dental/Obstetrics-Gynecology/Operating department use pure water
- Purified water for endoscope reprocessing, equipment washing, the production of clean steam for autoclaves.



Photos of water purification machine in hospital

### System features:

- Purified water system for dialysis machine, the chemical impurities and microbial index of the water are compliance with registered enterprise product standards, USA AAM/ASIO standard and YY0572-2010 Standard.
- Ion removal rate of >99.3%;
- Bacteria and endotoxin removal rate >99.9%;
- System water coefficient >50-70%;
- USA DOW Filmtec RO membrane with good performance & long lifespan;
- Sanitary grade valve and pipe and material;
- Outlet water quality online real time monitoring;
- System control: PLC fully automatic control, remote data transmission;
- Design as per onsite room dimension or customer's requirement.

### Parameter for dialysis use reverse osmosis water system

Model	Capacity	Feed for dialysis machine
Moldialysis40D	40	1
Moldialysis125D	125	2
Moldialysis 250D	250	3-4
Moldialysis500D	500	5-10
Moldialysis750D	750	11-15
Moldialysis1000D	1000	15-20
Moldialysis1500D	1500	26-30
Moldialysis2000D	2000	30-40
Moldialysis3000D	3000	50-60
Double stage ro module		

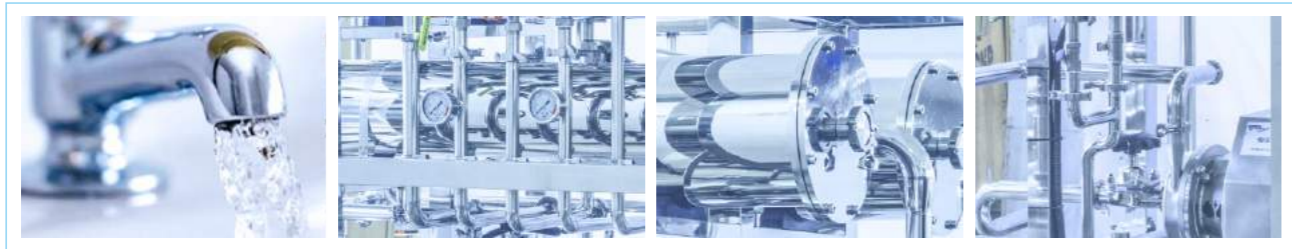
## Food Production & Beverage Water Treatment

### Brief introduction

Food production sites and drinking water plant must now comply with numerous requirements in the sanitary, economic and environmental domains cities worldwide are turning to Molecular’s drinking water treatment solutions to help optimize resources and provide high-purity water to their residents.

### Our pure water system has following features:

- . Membrane technology: complete UF+RO membrane / pretreatment filters+ RO membrane
- . With UV/Ozone Generator for disinfection
- . PLC+HMI touch screen fully automatic control
- . 0.25-100T/H capacity available
- . Conductivity<10us/cm, meet bottled water standard
- . Support tap water, well water,river water purification



### Process

- . Feed water- Feed water pump- Multimedia filter- Activated carbon filter- Softener / Scale inhibitor device- Precision filter- High pressure pump- Reverse osmosis unit- Pure water tank- Pure water pump- UV sterilizer - (Ozone disinfection for pipeline)
- . Feed water- Feed water pump- Multimedia filter- Activated carbon filter- Softener / Scale inhibitor device- Precision filter- 1st stage high pressure pump- 1st stage reverse osmosis unit- 2nd stage high pressure pump- 2nd reverse osmosis unit-Pure water tank

## Water Softener

### Brief introduction

Water softener adopts ion-exchange resins technology to remove calcium, magnesium, and certain other metal cations in hard water. And the ion exchange resin reduce the hardness by replacing magnesium and calcium (Mg<sup>2+</sup>and Ca<sup>2+</sup>) with sodium or potassium ions (Na<sup>+</sup>and K<sup>+</sup>)."



### Water softener features

- . Main technology: Ion exchange resin technology
- . Output water hardness can be less than 0.03mmol/L
- . Support tap water, well water,river water softening
- . Auto multi-way control valve for system softening and resin regeneration
- . Soft water capacity from 1ton/h to 40ton/h(It can be customized)

### General Process recommended

- . Raw water - Water Softener
- . Raw water - Multimedia Filter - Softener
- . Raw water - Multimedia Filter - Activated Carbon Filter - Softener

### Application

- . Supply soft water for industrial and domestic use,such as boiler feed water,make up water for heating air conditioner
- . Preparation system before Reverse Osmosis System

## GMP Purified Water for Pharmaceutical Industry

Purified water is widely used for preparation, solution and cleaning process in pharmaceutical industry. It has strict requirement for bacterial and pyrogen. Our PW/WFI system is totally designed according to GMP standard and customer's requirement, all joints using automatic orbital argon-arc welding, whole system can realize fully automatic PLC control and sterilization. Over past decade, we have supply and design GMP or UPS standard pure water system for above 100 pharmaceutical factories.

### Molecular multiple effect distilled water machine

Molecular multiple effect distilled water machine is designed and produced according to standard of YY0229 multiple effect distilled water machine, all the parts of it are made of SS304 and connecting parts are SS316L. The produced distilled water is in high purity and heat-free, absolutely according with each quality target of Injection Water in Chinese Pharmacopoeia with was published in 2005. The multiple effect distilled water machine is a perfect device to produce diversified blood goods, injection, biological bactericide and soon.

This machine have three control types: automatic, semi-automatic and manual to meet users different requirements.

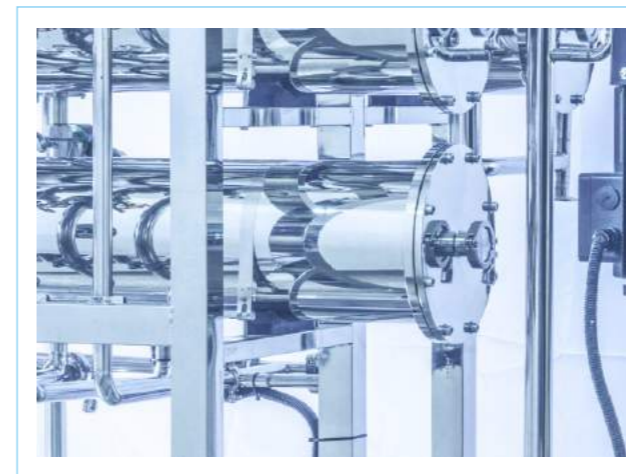


## Specifications

- Typical flow
  - Pre-treatment + Double stages RO
  - Pre-treatment+Double stages RO+EDI
  - Pre-treatment+Double stages RO + EDI+ Multi-effect distillator

## Parameter

Model	Capacity(M3/H)	Diameter(mm)	Working pressue Mpa	Material
MOLPW-250	0.25	Dn20	<1	Stainless steel
MOLPW-500	0.5	DN20	<1	Stainless steel
MOLPW-750	0.75	DN25	<1	Stainless steel
MOLPW-1000	1	DN25	<1	Stainless steel
MOLPW-1500	1.5	DN32	<1	Stainless steel
MOLPW-2000	2	DN32	<1	Stainless steel
MOLPW-3000	3	DN40	<1	Stainless steel
MOLPW-4000	4	DN50	<1	Stainless steel
MOLPW-5000	5	DN50	<1	Stainless steel
MOLPW-6000	6	Dn50	<1	Stainless steel





## Ultrapure water system

### Brief introduction

Ultrapure water (also UPW or high-purity water) is water that has been purified to uncommonly stringent specifications. Ultrapure water is a commonly used term in the semiconductor industry to emphasize the fact that the water is treated to the highest levels of purity for all contaminant types, including: organic and inorganic compounds; dissolved and particulate matter; volatile and non-volatile, reactive and inert; hydrophilic and hydrophobic; and dissolved gases.



### Application

- Electronic industry process and cleaning water: like semiconductor, display, LEDs, Polysilicon material...etc
- Solar cell, Optical instruments, Optical lens products process or clean water
- Petroleum chemical industry product production use ultrapure water

### Typical technical flow:

- Feed water→Multimedia filter→Activated Carbon filter→Water softener→ Precision filter→High pressure pump→1st RO module→PH adjustment→2nd RO module→Mixed bed
- Feed water→Multimedia filter→Activated Carbon filter→Water softener→ Precision filter→High pressure pump→1st RO module→PH adjustment→2nd RO module→EDl module→Water tank
- Feed water→Multimedia filter→Activated Carbon filter→Water softener→ Precision filter→High pressure pump→1st RO module→PH adjustment→2nd RO module→EDl module→Water tank→Polisher

## Containerized/mobile water treatment system

### Brief introduction

Containerized, mobile water treatment plants are an optimum and highly flexible way of the fast obtaining of pure water from wells, open resources, side and shore wells, sea and brackish water. They provide and ensure perfectly clean water for permanent as well as emergency assurance of different water quality standards.

### Project case

Following are two mobile water system we designed for customers:

Inlet water: bore well water or river water

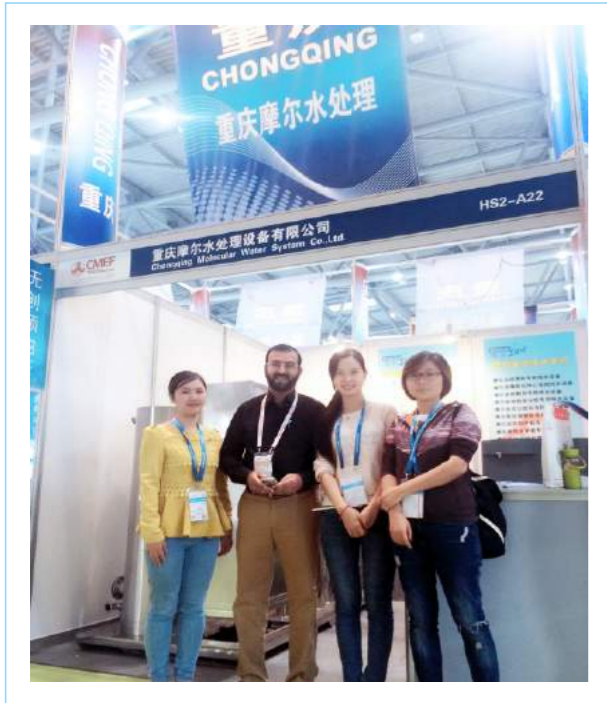
Outlet water: drinking water, conductivity<10us



### Features of containerized water treatment system

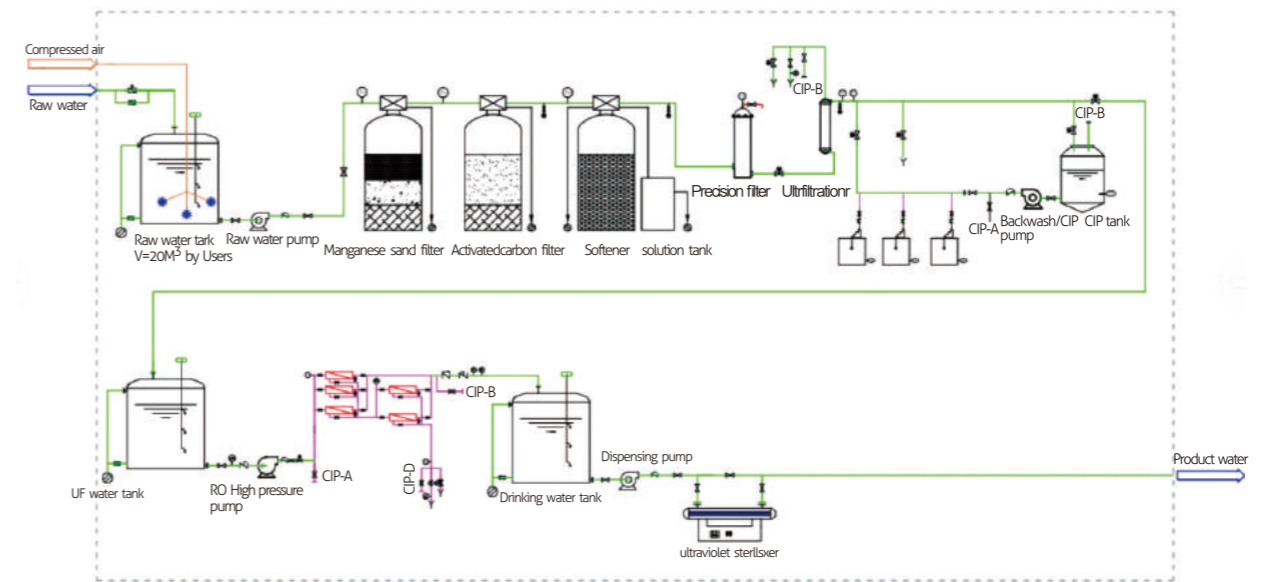
- Installed in the ISO 20ft and 40ft container, trailer and truck or other packed unit.
- Suitable to purify different water sources, such as tap water, underground water, sea water etc.
- Used for drinking water plant, industrial application, production of ultra pure water.
- Can be moved to anywhere outside, it very useful to supply clean water to people when earthquake, flood, tsunami happened and other disasters reliving.

MOLECULAR on Fair

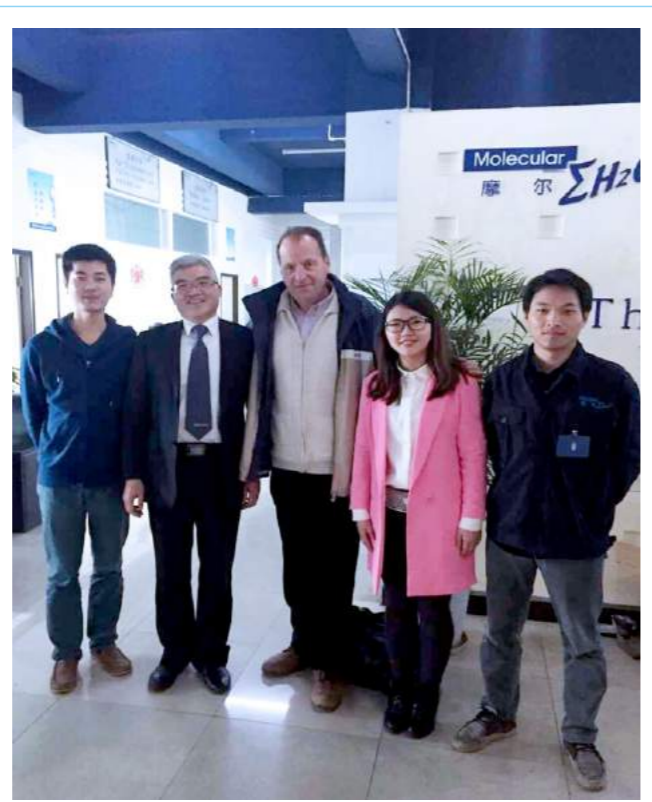


P&ID Drawing for some water purification projects

1. Reverse osmosis water purification system



Customers in MOLECULAR



2. Purified water system for pharmaceutical factory

