

# Medical pure water treatment system



**Chongqing Molecular Water System  
Co., Ltd**



# About Molecular

Found in 2003, Chongqing Molecular Water System Co., Ltd is recognized as a hi-tech enterprise by Ministry of Science and Technology of the PRC. Molecular has three high-tech products recognized by Chongqing Science and Technology Commission. Adhering to the spirit of "professional, high-quality, efficient, honest ", after recent years of exertion and innovation, we have developed into a professional and experienced high-tech company in research, production, sales and construction. In China, we have established subsidiaries or offices in 22 provinces, which are mainly responsible for the sale and service of our product.



Molecular' s products consist of five categories of water purifier: laboratory ultrapure water machine, industrial pure/ultrapure water system, secondary water supply equipment, medical use water purifier and water recycle equipment.

Our products are now widely used in various fields and recognized by many users, e.g. pharmaceuticals, beverages, beer, electronics, electric power, automobile, motorcycle, petroleum, chemical industry, scientific research, etc. We sincerely appreciate the trust and support from more than 10,000 customers.

Molecular sticks to producing superior quality products in the past ten years and has provided service to hundreds and thousands of customers. With love in our hearts, our responsible staff insists on serving high quality products and services to the customers. Molecular beholds the philosophy of "Fulfilling one thing in one lifetime".

# Medical Water Purification System

Water purification systems play an important role in both public and private healthcare systems, often providing large volumes of high purity water throughout the hospital and clinic. And most laboratories, hospitals and doctors offices follow the strictest guidelines for the operation as well as the sterilization of their instruments and equipment.

Molecular offers a complete range of water purification systems designed to match the needs of small through large volume applications. These systems are economical, easy to use, save water and improve productivity and results

Molecular medical pure water systems use a two step industrial water treatment that includes a **(RO) Reverse Osmosis filtration system** and a **Deionization Post Filter**, this process removes not only bacterial contaminants, but also the high mineral content found in tap water which reduces staining of surfaces when those minerals are present.

## Features

Our medical water system can deliver consistent pure water for hemodialysis, department of oral cavity and disinfection and supply center of hospital with many features tailored to customers.

- Easy to install and replace the consumables
- Consistent pure water production
- Saves space
- PLC control system
- Advanced water quality online monitoring

## Which medical water purification system should you use?

It is very important to use the right quality of water which meets the application's requirements and standards.

# Molecular™ Hemodialysis Water Treatment System

## Moldialysis double pass D -10 model chemical pure water for hemodialysis

### System functions

- The machine adopts the sanitary materials, the structure is compact and simple in appearance
- Control device of intelligent operation, touch screen interface
- Automatic stop function, the operation is more simple
- Online monitoring the water quality of pure water, with alarm function when pure water quality exceeds the standard.
- Multifunctional monitoring device can realize online supervision of the conductivity and flow, pressure, and has fault alarm.
- With the perfect water quality protection, pressure, power protection and other safety self-locking function
- Concentrated water can fulfill cyclic utilization, to realize the most reasonable utilization rate of water resources
- Intelligent balance system to further ensure the stability and safety of water quality
- Various working modes and emergency control measures, which can realize the free change-over of single and double pass, ensure normal outlet of water, improve the reliability of clinical equipment operation
- Disinfection parameter setting function, can fulfill the automatic disinfection and online monitoring and displaying the working state at any time, with easy operation and safety and reliability
- System sound and light alarm recording function and the running fault and solving function
- Reverse osmosis host automatic timing cycle and cleaning maintenance function. At the standby mode, this equipment can realize the automatic timing cleaning, avoid the growth of bacteria
- Reverse osmosis membrane is with automatically flush and protection function when start-up, can remove inorganic salt, bacteria and other magazines, ensuring the best operation state of reverse osmosis membrane, improve the using cycle



of reverse osmosis membrane.

- The circulation line with dead space design, adopting automatic welding technology using double- sided argon orbit, ensuring the inner wall of pipe is smooth, effectively avoid the growth of bacteria
- Can integrate the water treatment equipment with heat sterilization device
- Various water supply mode selection function(optional)
- Remote online monitoring (optional)

## Technical indicators

- 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 creotoxin removal rate >99.9%
- System water coefficient >50-70%
- System control:PLC, automatic running and monitoring

## Technical specification

Model	Capacity(M3/H)	For hospital beds
Moldialysis 40D	40	1
Moldialysis 125D	125	2
Moldialysis 250D	250	3-4
Moldialysis 500D	500	5-10
Moldialysis 750D	750	11-15
Moldialysis 1000D	1000	15-20
Moldialysis 1250D	1250	21-25
Moldialysis 1500D	1500	26-30
Moldialysis 2000D	2000	30-40
Moldialysis 2500D	2500	40-50
Moldialysis3000D	3000	50-60

Note: 1. Our system is customized, we can provide best solution according to your requirements.

2. The products model are not all listed in this table. For more items, please consult Molecular Water System's sales engineer.

# Water Treatment Equipment for Biochemical Analyzer –Molbiochem Series

## Optional configurations

Pre-filter—when  $200 < \text{TDS} < 250\text{ppm}$ , the tap water has much sediment suspension, it is advisable to adopt external pre-filter with model b  
 Softener— when  $250 < \text{TDS} < 400\text{ppm}$ , the tap water is high in hardness of calcium and magnesium, it is advisable to adopt external softener with model c  
 Desalter—when  $\text{TDS} > 400\text{ppm}$ , the tap water is high in hardness of calcium and magnesium and salt, it is advisable to adopt Molecular desalter with model d



Rust preprocessor—it is advisable to be used when iron content in water is  $> 0.3\text{ppm}$

## Parameters

Applicable scope	Model	Capacity	Description
Pure water purifier supporting to biochemical analyzer, department of laboratory in hospital, blood station.	Molbiochem520a	20L/H	Outlet 1: the conductivity of stage III pure water displays at $0-10\mu\text{s.cm}$ , which meets the stage II water standard of GB6682-92 and ASTM CAP NCCLS standard.  Outlet2: Stage II ultrapure water resistance can reach $8-12\text{M}\Omega.\text{cm}@25^\circ\text{C}$ : which meets the stage II water standard of GB6682-92 and ASTM CAP NCCLS standard.
	Molbiochem530a	30L/H	
	Molbiochem540a	40L/H	
	Molbiochem550a	50L/H	
	Molbiochem560a	60L/H	

# **Molecular Purified Water Preparation System and Water for Injection (WFI) System**

## **Molecular Purified Water Preparation System**

Purified water preparation system can affect pharmaceutical water directly, it submits to GMP critical system.

RO and EDI equipment are designed for application in a wide range of purified water preparation of pharmaceutical plant and core equipment.

Reverse osmosis is also called opposite osmosis relative to “osmosis”.

Osmosis is a process of water from the dilute solution flows to concentrate through the semi-permeable membrane automatically.

For the reverse osmosis, in the action of applied pressure, water from the concentrate flows to the dilute solution, it is un-optional.

EDI is also called continuous electro deionization, it brings electro-dialysis and ion exchange technology together as one, By the action of electric field, ion directional movement then removes the salts. The working of EDI also a process of resin rebirth continuously, EDI device is after RO system.

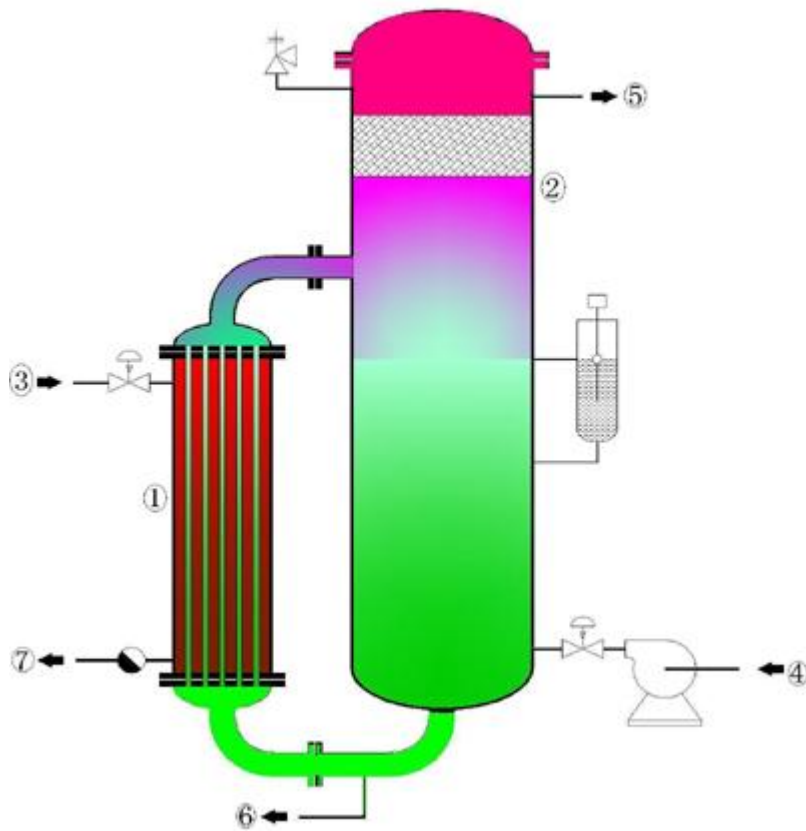
## **Molecular Pure Steam Generator**

Pure steam generator is one of important equipment using for tank, pipeline (SIP), filter and sterilized cabinet. Ultra-pure pyrogen-free pure steam generator produced by MOLECULAR, according to WFI requirements of U.S Pharmacopoeia, Europe Pharmacopoeia, Japan Pharmacopoeia and China Pharmacopoeia. The design and manufacture submit to specification of pressure vessel, can be used to technical product line of food, pharmaceutical and biological gene engineering etc.

Technical characteristic

- Material: The contact parts with feed water, pure steam and WFI are 316L.
- Electro-polish: To assure the quality of WFI and increase the life of equipment, stainless steel surface treated by polishing.
- Double tube sheets design: The design for external pre-heater, condenser and I effect evaporator are double tube sheets, comply with requirements of GMP, can prevent the possibility of low sanitation level media polluting system.
- All heat surfaces is having jackets and outside is crossed by 304 stainless steel.

- On the equipment, no removed parts, operate quietly and safely.
- Controlled by PLC, standard procedure.
- Integrated documents validation and service system.
- Operation and maintenance easily.
- Control system: to reach the different customer's requirements, using PLC control technology. From the determine and distribution of pure steam quality to higher control, such as each media continuous regulation, storage system linkage, classification password control and evaporation quantity etc, we can check carefully.
- Whole machine performance plant test: in the plant of whole machine test, according to decided procedure, test for the whole machine



Model	Capacity
MPSG100G	100
MPSG150G	150
MPSG200G	200
MPSG300G	300
MPSG400G	400
MPSG500G	500

Working pressure 0.3MPa

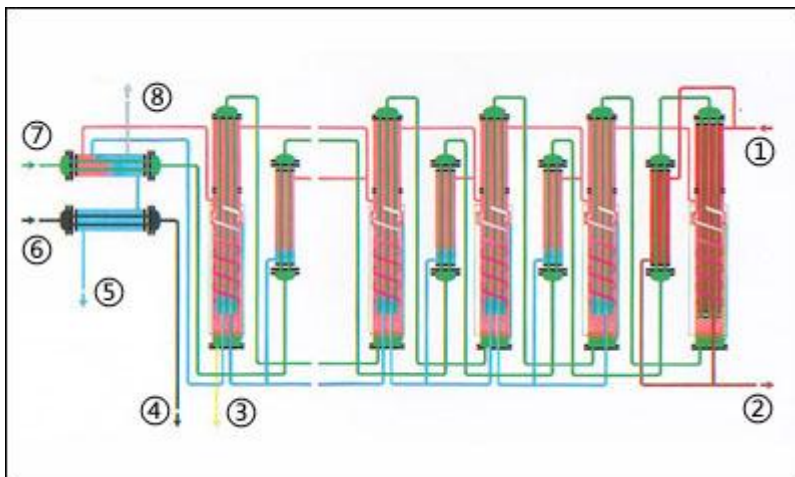


## Molecular Multi-effect Water Stiller

**WFI preparation system is the key system for GMP. Multi-effect distillation unit is crucial equipment for WFI preparation system. The multi-effect distillation unit produced by Molecular using high temperature and pressure operation, to assure pyrogen-free WFI producing stable.**

- Distilled water produced by Multi-effect distillation unit complies with requirements of U.S., Europe, Japan and China pharmacopoeia for WFI. Multi-effect distillation unit is the strongest product of Molecular, our goal is to design and manufacture the best distillation unit in China.
- Technical characteristic
- Material: pressure vessel body and pipeline connecting with distilled water, rebirth pure steam are 316L, sealed material is PTFE, other materials including frame are 304.
- Three stage separator: feed water in equipment can separate by film evaporation, gravity and special separator.
- Electro-polish: to assure WFI quality and increase the life of equipment, stainless steel surface treated by electro-polish.
- Double tube sheets: The design for external pre-heater, condenser and I effect evaporator are double tube sheets, comply with requirements of GMP, can prevent the possibility of low sanitation level media polluting system.
- Heat-exchange tube using seamless: the intensity and wearing property of seamless tube is better, can keep a good state in the process of machine, welding, expansion joint and contraction, to avoid any plant steam, feed water and cooling water leakage into clean distilled water and rebirth steam.
- Three dimensional bend: To avoid welding, using stainless steel tube in the pipeline.
- Automatic welding: To assure welding quality, make use of automatic argon protection orbit welding in the connection of pipeline and parts.
- Heat insulation: For evaporator and pre-heater, using un-chlorine, un-asbestos mineral heat insulation, external covered by stainless steel.
- Feed water pre-treatment: No expensive purified water equipment, deionized water or RO water which conductivity is less than 5 $\mu$ S/cm can as feed water.
- Economic and energy-saving: Rebirth steam in each effect utilizes step by step, so the operating factor of plant steam is very high, has a obvious energy-saving effect. Along with the effects of evaporator increase, the effect is more obvious. At the same time, quantity of cooling water can decrease considerably.
- Control system: to reach the different customer`s requirements, using PLC control technology. From the determine and distribution of pure steam quality to higher control, such as each media continuous regulation, storage system linkage, classification password control and evaporation quantity etc, we can check carefully.
- Non-paper recorder: to record the actual producing situation using non-paper recorder.

- Whole machine performance plant test: in the plant of whole machine test, according to decided procedure, test for the whole machine



- plant steam
- condensate drain
- concentrate drain
- cooling water out
- distilled water
- cooling water in
- feed water in
- uncondensed air exhaust

# Molecular Pure Water Equipment for Test and Research

## The quality of outlet water

The quality of water for test can influence the test result directly, therefore, as the media of biological reaction, the diluent or solvent of sample or reagent, and as the cleaning fluid of instrument, pure water's quality can influence the reliability of testing result. The pure water equipment produced for detection and analysis, can purify the tap water by multiple key treatment devices, and the quality of water flow meets the primary standard of GB 6682-2008



Water for Analytical Laboratory Use - Specification and Test Methods, the resistance is  $\geq 10\text{M}\Omega\cdot\text{cm}@25^{\circ}\text{C}$

## Standard performance

- ① This equipment can pure water from tap water directly, and it is easily installed.
- ② With precision instrument, which can analyze the data on-line and in a timely manner and display the quality of water flow;
- ③ Full-automatic operation system, one-touch operation, the equipment can start and stop the water production according to the water volume, with water shortage protection with alarm, power-off protection function;
- ④ Professional process and design, it occupies a limited area and has simple and aesthetic appearance;
- ⑤ Modular design method, more easy and simple to replace and maintain.

## Application

Water for analysis and detection use;  
Water for reagent liquid;  
Water for microorganism cultivation;  
Water for washing and cleaning of ware

## Parameters

Model	Water flow(L/H)	Dimension(L*W*H)	Power(kVA)
Molresearch 1010a	10	500*400*600	0.1
Molresearch 1020a	20	500*400*600	0.1
Molresearch 1030a	30	500*400*600	0.1
Molresearch 1040a	40	620*400*1100	0.3

# Pure Water Equipment for Sterilization and Supply Center of Hospital

Hospital supply room is an important department in hospital, the key to prevent nosocomial infection. It is mainly responsible for cleaning, packaging, sterilization, distribution the hospital sterile supplies. The steam is supplied for pulsating vacuum sterilizer for high pressure sterilization. Ministry of Health's requirement to the supplies in sterilization and supply center of hospital:



1. Washing water: hot and cold tap water, soft water, purified water or distilled water shall be supplied. Water quality of tap water shall be in line with the provisions of GB5749: pure water's conductivity shall be in accordance with  $15 \mu \text{ S/cm}$  ( $25 \text{ }^\circ\text{C}$ );
2. Steam sterilizing water: shall be soft water or purified water.

## Advantages

- ❖ Full automatic control, easy to operate;
- ❖ Have waterless protection, pressure protection and other safety protection devise;
- ❖ Have the function of water saving, effectively improve the utilization rate of raw water;
- ❖ Can be directly connected to cleaning and disinfection equipment;
- ❖ Can be designed according to customer requirements and the actual situation field
- ❖ Deep filtration, removal rate of bacterial and endotoxin are  $\cong 99\%$

## Standard configuration and basic functions

- ❖ With automatic protection and alarm function: self test after the power is on, water shortage protection alarm, power failure automatic reset, high/low voltage automatic shutdown protection and treatment;
- ❖ Reverse osmosis host with RO membrane anti scaling procedure design function, automatic

timing flushing the RO membrane surface, which can effectively protect RO membrane operation;

- ❖ Automatic control of water level, and meanwhile protecting each pump not to idle and damage;
- ❖ Online monitoring to the outlet water quality and automatic drainage for unqualified water;
- ❖ Without human care, which can achieve 24 hours continuous work automatically.

## The main function of the intelligent configuration

- ❖ Automatic calendar display, temperature detection and display;
- ❖ Customize the standby screen to display the name of customer;
- ❖ Can be connected to the computer through the RS232, print the current information and historical records
- ❖ User settings, information query, record query, system query, time setting
- ❖ Filter alarm for cleaning, RO membrane alarm for cleaning, ultra purification alarm for cleaning

## Parameters

Standard form	Intelligent configuration	Capacity	Inlet water interface	Dimension(MM)
MOLDSC-50S	MOLDSC-50i	50	3/8	490X550X850
MOLDSC-100S	MOLDSC-100i	100	DN15	650X850X1300
MOLDSC-150S	MOLDSC-150i	150	DN20	650X850X1300
MOLDSC-200S	MOLDSC-200i	200	DN25	1000X850X1600
MOLDSC-250S	MOLDSC-250i	250	DN25	1000X850X1600
MOLDSC-500S	MOLDSC-500i	500	DN25	1000X850X1600
MOLDSC-750S	MOLDSC-750i	750	DN32	1200X850X1800
MOLDSC-1000S	MOLDSC-1000i	1000	DN32	1200X850X1800
MOLDSC-1500S	MOLDSC-1500i	1500	DN40	1500X850X1800
MOLDSC-2000S	MOLDSC-2000i	2000	DN50	1500X850X1800

# Oral Special Pure Water Equipment

## Equipment Description

This system is designed for oral use

## Description about the standard configuration

1. Monitoring instrument applies the operating parameters of flow meter, pressure gauges, liquid level switch, conductivity meter, monitoring system;
2. Controlled by PLC programmable controller control system automatic operation
3. One-piece design



## The system of water process

Tap water → Regulator valve → Automatic sand filter → Full automatic carbon filter → Automatic water softener → Security filter → 1 RO reverse osmosis → 2 RO reverse osmosis → UVO3 disinfection → MF sterilization → dental pure water

## Parameter

Model	Capacity (L/H)	$\mu\text{S/cm}$	1RO Rate of recovery	2RO Rate of recovery	Dimension L*W*H (cm)	Weight KG
MOLMRO-250A/D	250-300	2-5	50-60	80-90	120*80-170	425
MOLMRO-500A/D	500-550	2-5	50-60	80-90	120*80-170	455
MOLMRO-750A/D	750-800	2-5	50-60	80-90	120*80-170	505



# Customer list

After decades of development, Molecular has become one of the leading brand in China about water treatment, and gains highly praise from our customers. Over 10,000 well known and emerging brands, including 100 of the top 500 companies have selected Molecular. We believe our success in building these relationships reflect the innovative and high value added services along with our ability to positively impact our clients' business. Great work can only come from great partnerships. Here are just partial clients of Molecular.



Home » Contact » Contact

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