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**Sincere service, sincere communication**



# MINGMO WATER TREATMENT

**Sincere service, sincere communication**

名膜(集团)水处理设备有限公司

MingMo (Group) water treatment equipment Co., Ltd.

# BUSINESS PROFILE

Sichuan MingMo Watertreatment Co.,Ltd was established in 2006, located in Chengdu, providing professional product&service in&out China. We have been engaged in the development, production, sales of Reverse Osmosis plant, Ultra Filtration system, Ultra Pure Water System and Water recycling systems. Our products are widely used in various industries such as food and beverage, brackish water desalination, electronics, pharmaceutical, fine chemical, etc. As one of the leading enterprise in China, we have been dedicating to strict quality control and considerate customer service. Welcome friends over the world to visit and cooperate with us and earn long-term mutual benefits.

## Branches in & out China



# 企业资质

## Enterprise Qualification

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重庆名膜



成都名膜



云南名膜



贵阳名膜



曲靖名膜



缅甸名膜



环保三级资质



ISO9000质量体系认证

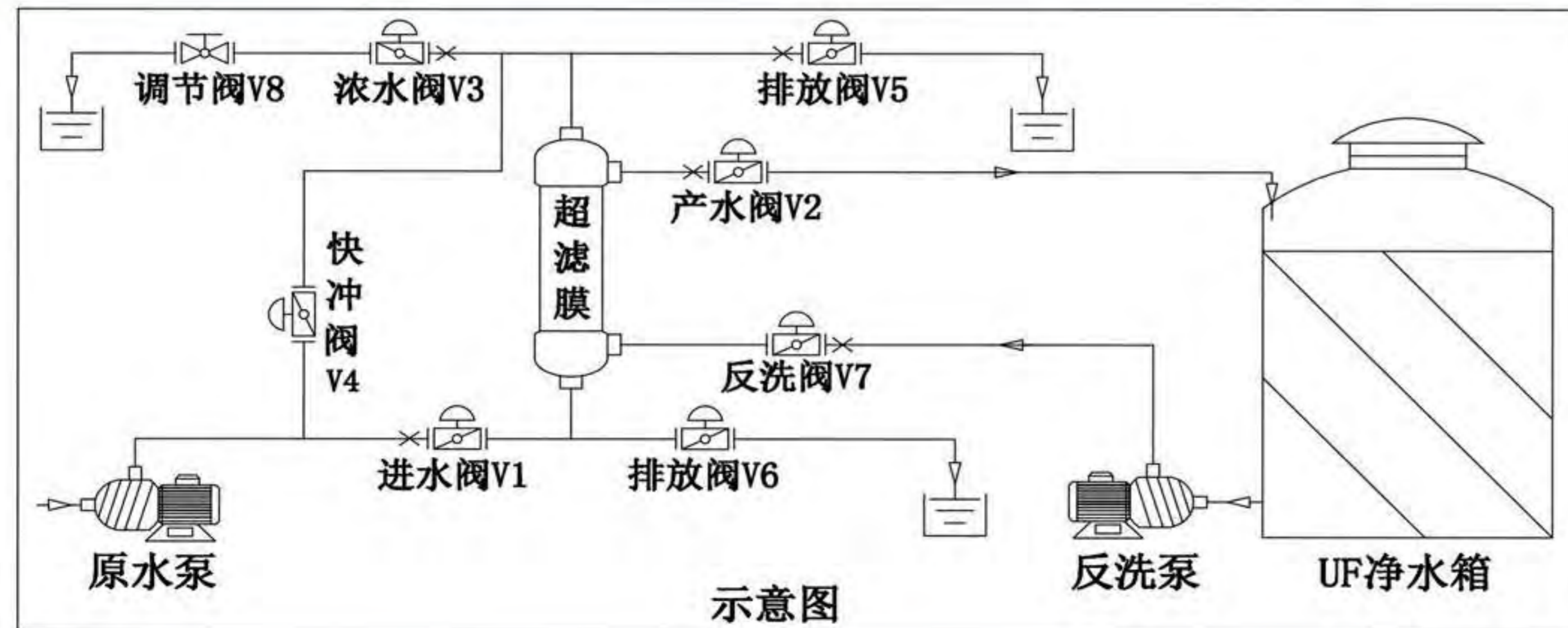


安全生产许可证

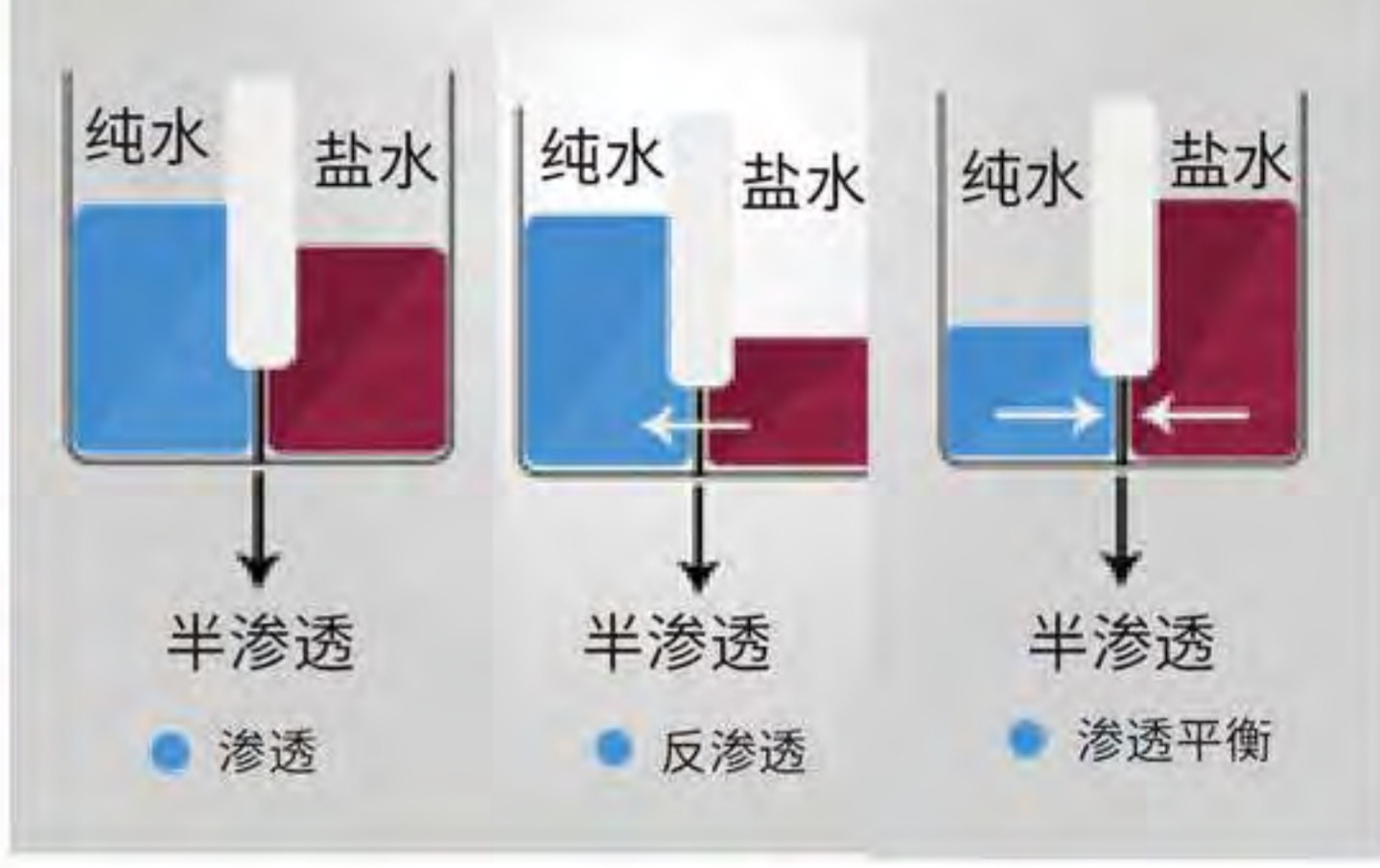
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## Ultrafiltration Equipment

Ultrafiltration (UF) is a kind of membrane separation technology which can purify and separate the solution. The ultrafiltration membrane system is a solution separation device with ultrafiltration membrane wire as the filtering medium and the pressure difference on both sides of the membrane as the driving force. It only allows solvent (such as water molecule), inorganic salt and small molecule organic matter in the solution to pass through, but intercepts suspended matter, colloid, protein and microorganism in the solution, so as to achieve the purpose of purification and separation. The filtration pore size is  $0.001-0.1 \mu\text{m}$ , and the molecular weight is  $1000-300000$  Dalton.



## 反渗透原理图及常规工艺流程



## Reverse Osmosis Equipment

Reverse osmosis (RO) is a process in which water molecules are forced to reverse (opposite to the natural osmosis direction) through the semi permeable membrane to enter the dilute solution by applying a pressure greater than the osmotic pressure of the solution on the concentrated solution side. In the process of RO, water molecules on the concentrated solution side flow to the dilute solution through the semi permeable membrane, while most of the solutes (dissolved solids, fine impurities, etc.) flow into the dilute solution colloids, organic matter, heavy metals, bacteria, viruses and other harmful substances) can not pass through the membrane and are trapped. The pore size of reverse osmosis membrane is only  $0.0001 \mu\text{m}$ . A bacterium has to be reduced by 4000 times, the virus 200 times before it can pass through. Therefore, the effective removal rate of reverse osmosis membrane is as high as 99.7%.





Water works  
Rural Drinking Water

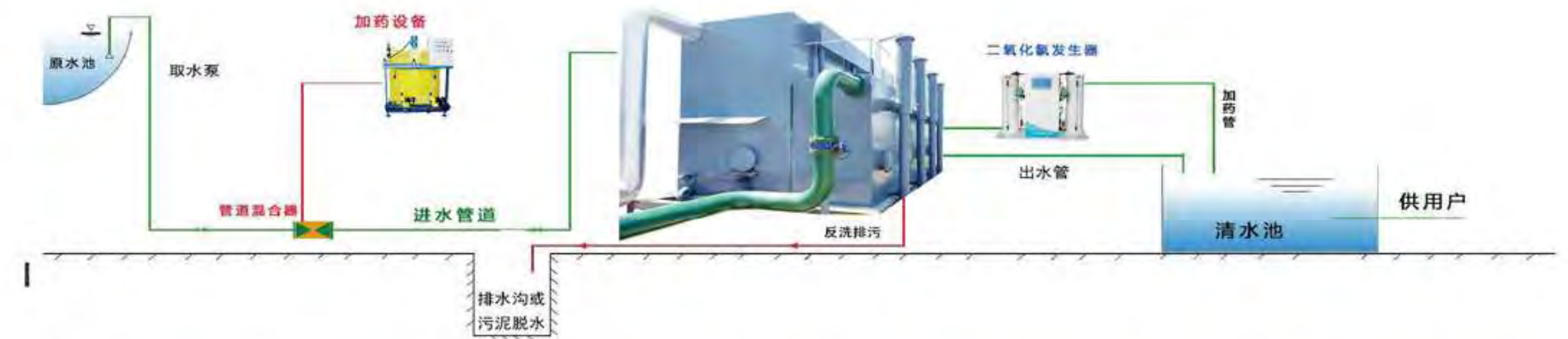


## Rural Drinking Water Equipment

Compared with ordinary filtration equipment, the size of rural drinking water purification equipment is 70% smaller. The functions of flocculation, sedimentation, filtration, disinfection and automatic control backwashing can be integrated in one, modular design can also be disassembled into parts. The transportation and installation are more convenient, not so limited by outer conditions. Simple to control & operate, and less maintenance in future.

## Integration Water Purification Equipment

The integrated water purification device consists of water distribution, reaction, sedimentation, filtration, water collection, disinfection, sludge collection, automatic backwashing etc. The main shell made of carbon steel or stainless steel, the internal and external parts treated with special anti-corrosion coating. It has long lifespan and wide application range. It can remove turbid impurity particles, suspended solids, algae, microorganisms, bacteria and viruses in the raw water. The treated water is clear and transparent, reaching the national drinking water quality standard. It is widely used in the construction and transformation of large, medium or small companies (stations).



## Water Softening Equipment

The softener uses sodium ion exchange resin to replace the calcium and magnesium ions in the raw water and the softened water will flow out through the equipment. When the resin adsorbs a certain amount of saturated calcium and magnesium ions, it must be regenerated. Soak or wash the resin with saturated brine to replace the calcium and magnesium ions in the resin, restore the exchange capacity of the resin, and discharge the waste liquid. The whole regeneration process includes: backwashing (loosening resin layer) → salt absorption regeneration (exchange reaction) → flushing (discharging calcium and magnesium) → salt tank water injection (preparation for next regeneration).



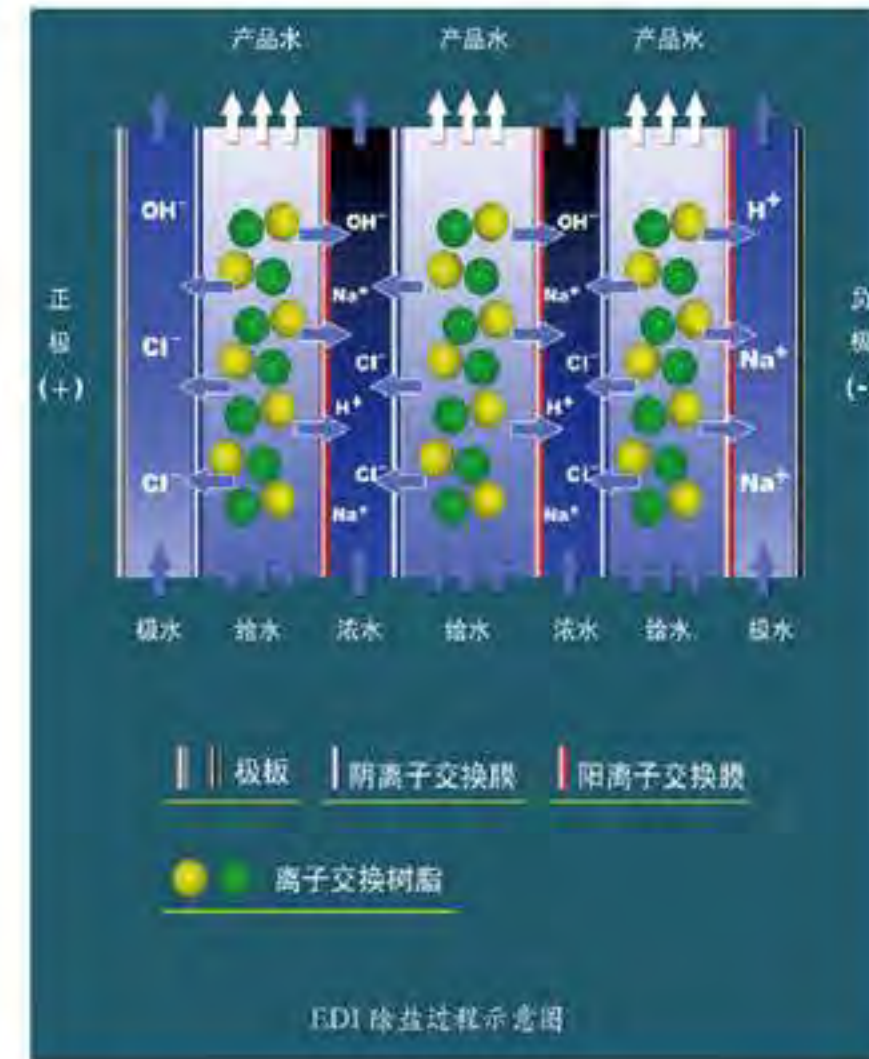
## Iron And Manganese Removal Equipment

The iron and manganese removal filter is mainly used for the iron and manganese removal of groundwater in high iron and high manganese areas, and the pretreatment of industrial water softening and water desalting. The equipment adopts the principle of aeration oxidation, manganese sand catalysis, adsorption and filtration to remove iron and manganese. The aeration device is used to dissolve oxygen (in air) into water, and then oxidize  $Fe^{2+}$  and  $Mn^{2+}$  to insoluble  $Fe^{3+}$  and  $MnO_2$ . Then the iron and manganese ions in water are removed with the catalysis, adsorption and filtration of natural manganese sand.



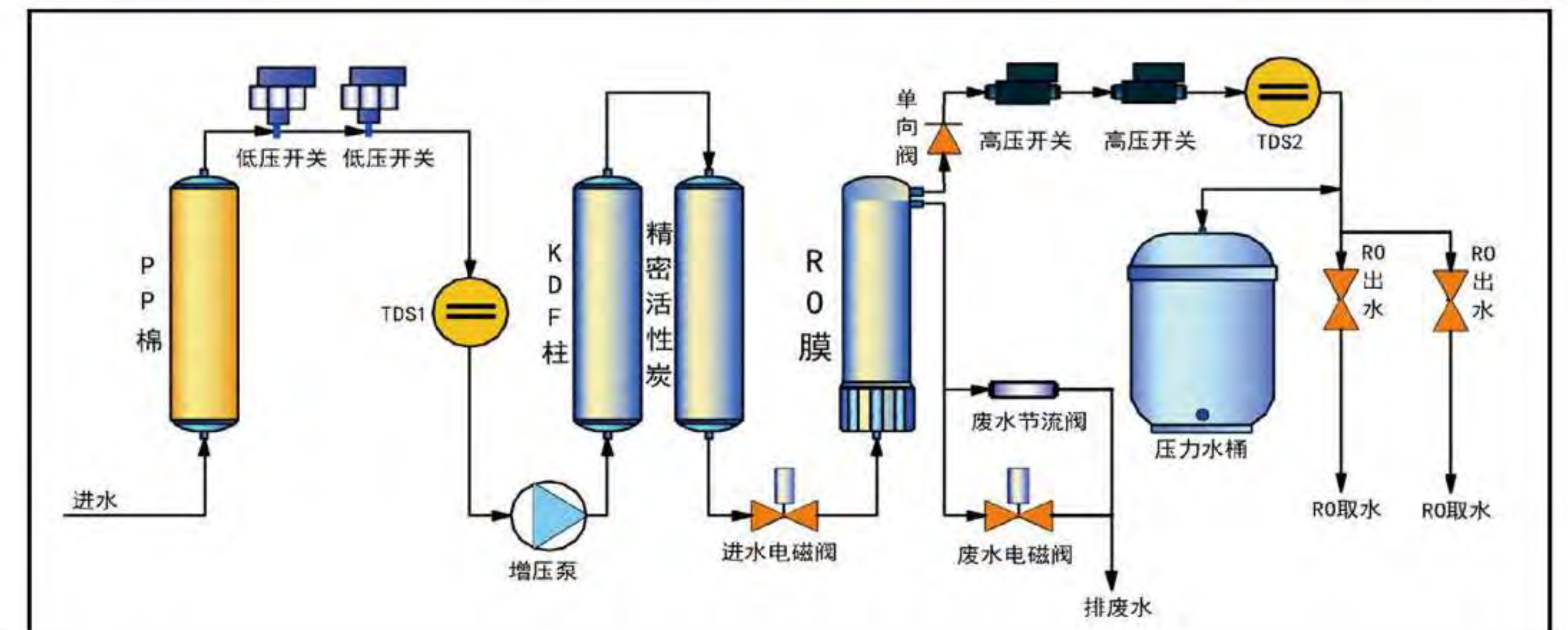
## Ultra Pure Water Equipment

EDI (electrodeionization) is a water purifying technology which combines ion exchange, ion exchange membrane and ion electromigration technology. It combines electrodialysis and ion exchange technology, uses high voltage at both ends of the electrode to make charged ions move in water, and work together with ion exchange resin and selective resin membrane to accelerate the removal of ions, so as to achieve the purpose of water purification, and make the water resistivity 2-18.25M  $\Omega$ ?cm.



## Commercial Water Purification Equipment

The capacity of commercial water purifier is much larger than that of domestic water purifier. It generally has five stages, the first is PP cotton, the second granular activated carbon, the third compressed activated carbon, the fourth reverse osmosis membrane, abbreviated as RO membrane, and the fifth is post T33. With normal water pressure and water quality, the filtration accuracy of PP cotton is 1 $\mu$ m - 5 $\mu$ m, with lifespan 3-6 months; Granular activated carbon is valued by iodine value, from 800-1000, abbreviated as UDF, with lifespan 6-12 months. Compressed activated carbon is made of powder carbon by compression, cleaning and calcination. It's also called carbon rod, abbreviated as CTO, with a lifespan of 6-12 months. The desalination rate of RO membrane is above 99% and it's the key component of the whole system. The conversion accuracy is 1/10000 micron, with a lifespan of 2 years.



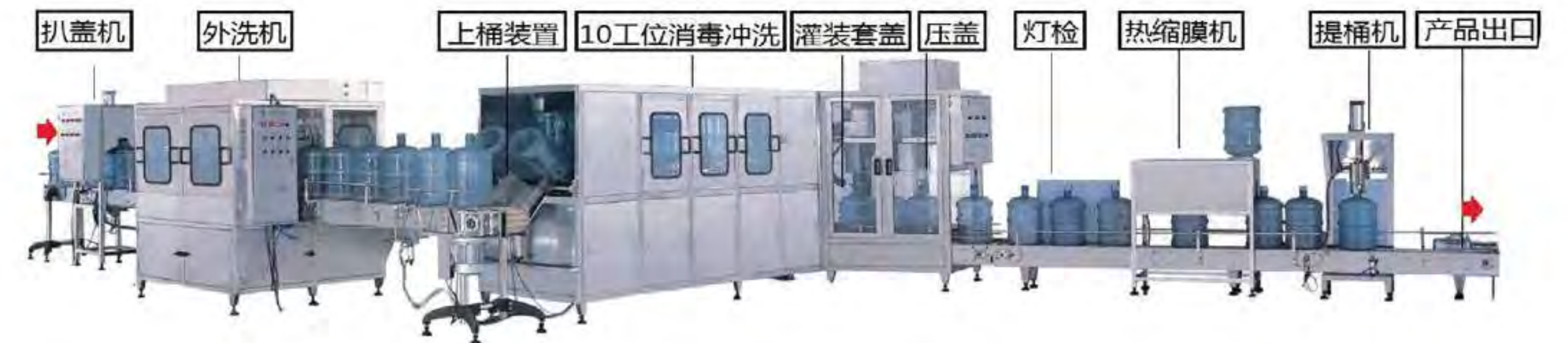
## Frequency Conversion Constant Pressure Water Supply Equipmen



The FCCP water supply system implements stepless speed regulation for the pump motor. It automatically changes the pump speed to keep the water pressure constant according to the water consumption and water pressure changes: when the water consumption rises, the pump speed will increase and the water supply increases correspondingly; when the water consumption decreases, the water supply will decrease correspondingly. That is "how much water used, how much water supplied". The system does not need high tank or water tower, so the water won't be secondary polluted. It's a high efficiency energy saving and emission reduction and an ideal water supply equipment.

## Barreled Water Equipment

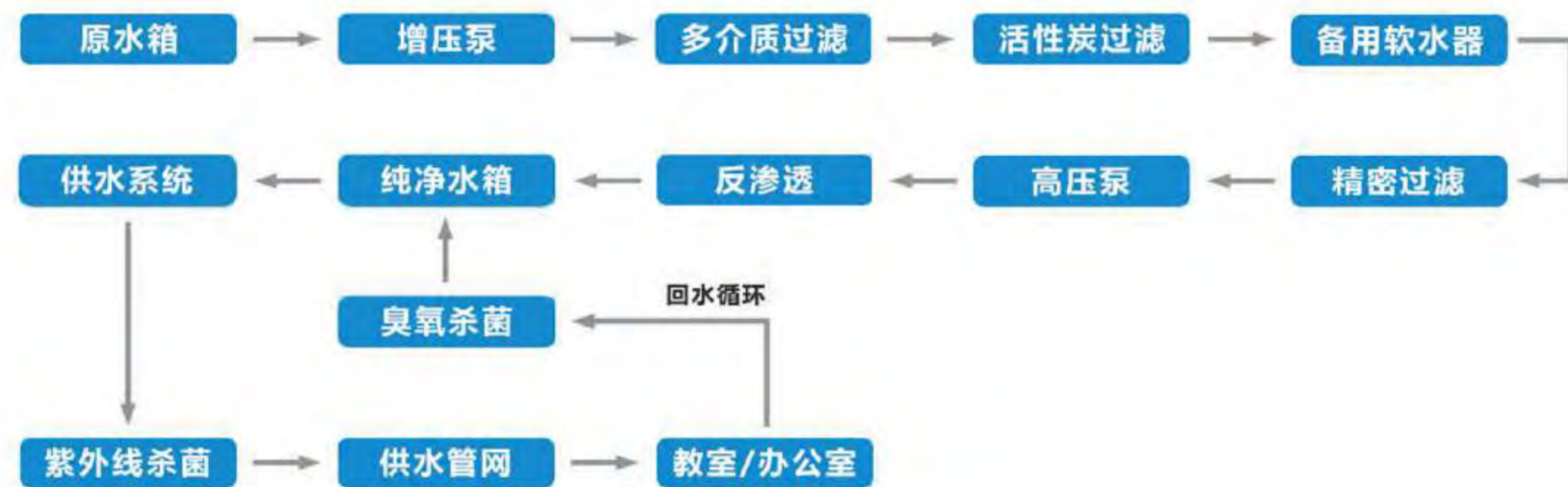
Barreled (bottled) water production uses mountain spring water, well water or municipal tap water as the source to filter with ultrafiltration, nanofiltration (for mineral water) or reverse osmosis system (for purified water) to produce water. The process flow as below: automatic bottle blowing → automatic capping → automatic brushing → automatic barrel loading machine → automatic washing and disinfection → automatic filling → automatic capping → lamp inspection → automatic marking → automatic heat shrinking → automatic inkjet → automatic bagging → stacking





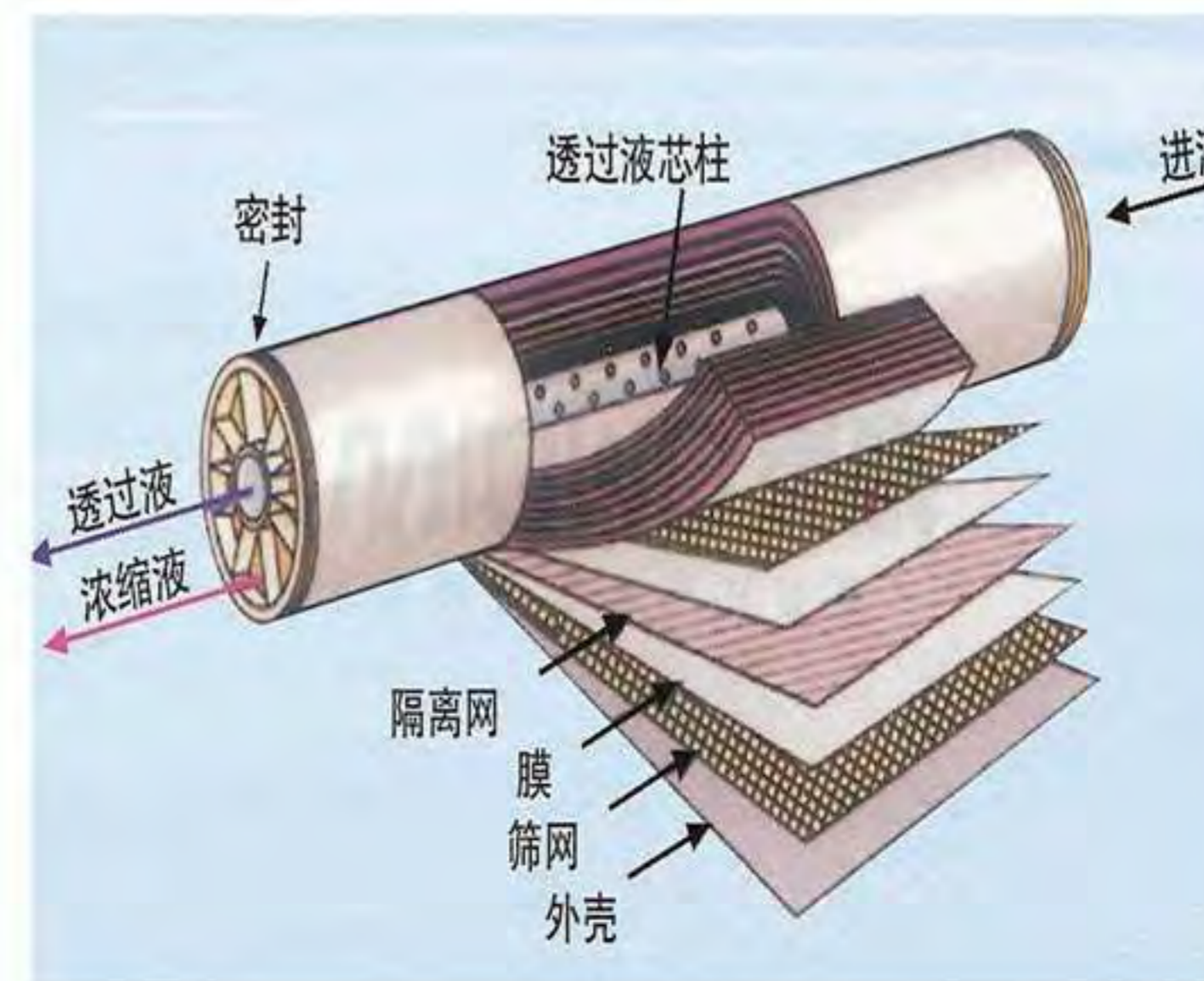
## Potable Water Equipment

The potable water equipment adopts membrane deep desalination process to remove the harmful substances in the water. The tap water will be treated into direct drinking water and transported to the point for direct drinking through the special pipeline. The treated water is with high quality and fine taste, and the pipe system regularly uses ozone or ultraviolet disinfection to keep the water fresh.



## Reverse Osmosis Membrane

The RO is a process driven by pressure difference. When the pressure exceeds its osmotic pressure, the solvent will reverse the direction of natural permeation so as to obtain the permeated solvent on the low pressure side of the membrane. Its pore size is as small as nanometer (0.0001 μm). Under certain pressure, water molecules can pass through RO membrane while inorganic salts, heavy metal ions, organic matters, colloids, bacteria, viruses and other impurities in source water can not, which makes the permeable pure water and the impermeable concentrated water more stringent.



## Sterilization Equipment

The chlorine dioxide generator is composed of reactor, hydrochloric acid storage tank, sodium chlorate storage tank, chemical feeder, chemical pump, hydrochloric acid metering pump, sodium chlorate metering pump, water ejector, indoor pipe valve etc. Sodium chlorate (Industrial first-class product, content  $\geq 99\%$ ) and industrial synthetic hydrochloric acid (concentration  $\geq 31\%$ ) are respectively injected into the reaction kettle by a metering pump, chlorine dioxide and chlorine gas are generated by chemical reaction, and then inhaled and added into the disinfected water through a water jet. The reaction formula is  $2\text{NaClO}_3 + 4\text{HCl} = 2\text{ClO}_2 + \text{Cl}_2 + 2\text{NaCl} + 2\text{H}_2\text{O}$ .



## Sodium hypochlorite generator

Sodium hypochlorite generator produces non-toxic or harmless disinfectant by electrolyzing salt water for 30 minutes. The process is: salt dissolution, dilute salt water dosing and metering and sodium hypochlorite circulation are carried out in a diaphragm free electrolytic tank. Its advantage is less investment, less land occupation, simple operation, no residue and short sterilization time. It can kill all large bacteria in 2-10 minutes including enterobacteriaceae, fungi, hepatitis virus, spores and staphylococcus aureus(99.9%). The reaction formula is  $\text{NaCl} + \text{H}_2\text{O} = \text{NaClO} + \text{H}_2 \uparrow$



## Ultraviolet sterilization

Ultraviolet is a kind of light wave invisible to the naked eye, which exists outside the ultraviolet ray. The ultraviolet sterilizer kills the microorganism by radiation. When bacteria and virus absorb  $3600 \sim 65000 \mu\text{W}/\text{cm}^2$ , the nucleic acid will mutate, hinder its replication, transcriptional blockade and protein synthesis. Meanwhile the production of free radicals can cause photoionization, leading to cell death.



## Ozone air disinfector

Ozone is a kind of strong oxidizing gas. After dissolving in water, it directly or indirectly oxidizes the inorganic and organic matter in water by using a large number of free radicals and new ecological oxygen generated in the reaction, and then enters the bacteria to oxidize the organic matter inside to kill it. Compared with chlorination disinfection, ozone disinfectant has the advantages of low consumption, fast effect and no residue. It can also improve the taste and appearance of water and recognized as a green environmental sterilizer.



## Dosing Equipment

Dosing system is a complete set of equipment with dosing, mixing, liquid conveying and automatic control, which is used for various water and wastewater treatment systems. It is mainly composed of solution tank, mixing tank (with blender), metering pump, liquid level meter, intelligent control cabinet, pipeline, valve, safety valve, check valve, pressure gauge, filter, base, escalator etc. (it can be optioned according to the demand of users). The dosing system is prepared in the mixing tank. After being evenly stirred by the mixer, it is put into the solution tank, and the metering pump (dosing pump) will deliver the prepared solution to the dosing point or the designated system.



## Activated Carbon



Activated carbon is a kind of specially treated carbon with huge quantity of micropores whose diameter between 2 - 50 nm, thus it has a large surface area (each gram of activated carbon 500-1500m<sup>2</sup>). So it becomes a good option of water purification with its great absorbing capacity.



## Quartz Sand

Quartz sand filter material is made of natural quartz ore by crushing, washing, screening, pickling, drying and secondary screening. The filtration principle is as follows:

(1) **resistance interception:** suspended particles are first intercepted in the quartz sand voids, so that the voids between the filter materials in this layer become smaller and smaller, and the interception capacity becomes higher and higher, gradually forming a filter membrane mainly composed of intercepted solid particles, which plays an important role in filtration.

(2) **Gravity settlement:** when the raw water passes through the filter material layer, many filter material surfaces provide huge settlement area, and the particles in the water are thrown to the surface of the filter material due to their own gravity and inertia.

(3) **Contact flocculation:** because the filter material has a large surface area, it has obvious physical adsorption with suspended solids. In addition, sand particles are often negatively charged in water, which can absorb positively charged colloids such as iron and aluminum, thus forming a positively charged film on the surface of the filter material, and then absorbing colloids such as clay and a variety of organic matters with negative charges, resulting in contact flocculation on the sand particles. In most cases, the surface of the filter material can also act as a medium of contact and collision for the unflocculated colloid, which promotes the flocculation process.



## Reverse Osmosis Scale Inhibitor

The scale inhibitor is a high efficiency compound liquid scale inhibitor and dispersant. It is specially used for scaling deposition caused by various inorganic salts in reverse osmosis system, such as carbonate, metal oxide, clay, etc. The high pressure difference caused by fouling on the membrane surface and the damage to the membrane caused by particle fouling are avoided. It can effectively reduce the cleaning cycle and maintenance frequency of membrane system. It is also compatible with different kinds of flocculants and not affected by the oxidizing bactericide.



## Reverse osmosis reductant

Reductant is mainly used to eliminate the oxidizing free chlorine or combined chlorine in the system, which causes irreversible damage and reduces the service life of membranes. In order to inhibit the growth of bacteria in membrane system, oxidizing bactericides with strong germicidal ability are often used in the system, so the water treatment system is brought into the oxidizing chlorine. The reductant has strong reducibility, can react with residual chlorine quickly, and can be widely used in membrane water treatment system.



## Water Treatment Filter Element

The wound filter core is made of polypropylene yarn, degreased cotton yarn and other textile fibers, which are wound on the porous plastic or stainless steel framework with medium pattern thread, so as to ensure good filtering accuracy and minimize the phenomenon of off-line. The honeycomb structure with sparse outside and dense inside has the advantages of large flow rate, large contaminant capacity, small pressure loss, long service life and high filtration pressure. It can effectively remove suspended solids, particles, rust and other impurities in the water, and has excellent filtration characteristics. With a variety of different materials to select, the filter and filtrate have good compatibility, can be widely used in different fields.



Microporous folded filter element is made of olefin fiber membrane and inner and outer support layers of non-woven fabric (silk screen). The shell, central rod and end cover of filter element are processed with hot melt welding, without leakage and secondary pollution. It has the advantages of strong solvent / acid filtration capacity and long lifespan.



The melt blown filter core is made of non-toxic polypropylene particles. The tubular filter core is made by heating, melting, spinning, traction and receiving. It is not only used in large quantities in water purification but also has excellent chemical compatibility, suitable for filtration of strong acid, strong base and organic solvent. Also it has strong pollution bearing capacity, long service life and low cost.



## Cationic Resin

Those metal cations ( $\text{Na}^+$ ,  $\text{Ca}^{2+}$ ,  $\text{K}^+$ ,  $\text{Mg}^{2+}$ ,  $\text{Fe}^{3+}$  etc.) in water will act with  $\text{H}^+$  on cation exchange resin so that the cations in water are transferred to the resin, and the  $\text{H}^+$  on resin is exchanged to water (that is the principle of cation exchange resin).

## Anion Resint

The anions ( $\text{Cl}^-$ ,  $\text{HCO}_3^-$  etc.) in aqueous solution are exchanged with  $\text{OH}^-$  on anion exchange resin. The anions in water are transferred to the resin, and the  $\text{OH}^-$  on the resin is exchanged into water, (that is the principle of anion exchange resin) and  $\text{H}^+$  and  $\text{OH}^-$  combine in produced water to achieve desalination.



## Polishing Resin

Polishing resin is a mixture of hydrogen type strong acid cation exchange resin and hydrogen oxygen type strong basic anion exchange resin. It is usually used in the end stage of ultra pure water treatment system to ensure that the effluent quality up to standard. Generally the effluent quality can reach more than  $18 \text{ M}\Omega$ , and has certain control ability for TOC and  $\text{SiO}_2$ . The ion type of polishing resin is H and OH, which can be used after loading without regeneration.



## Silicon Phosphorus Crystal



When the raw water flows through the tank, the silicon phosphorus crystal produces Brownian motion under the impact of water flow, which makes the raw water and silicon phosphorus crystal fully contact and slowly dissolve in the water. Silicon phosphorus crystal can react with calcium, magnesium and other metal ions to form a soluble complex, inhibit the formation of calcium and magnesium salts and disperse into the water, and react with iron ions to form a protective film on the pipe wall, so as to achieve the purpose of anti-corrosion and anti scaling.

## Manganese Sand

Manganese sand filter material is made of high-quality natural manganese ore through mechanical crushing and screening for many times. It has rough appearance and brown color, has good iron and manganese removal capacity. There are two principles of removing iron from natural manganese sand: one is that there is a layer of active filter membrane on the surface of manganese sand, which can play a strong role in oxidation; the other is that manganese sand itself plays a catalytic role in iron, which catalyzes the  $Fe^{2+}$  in water to  $Fe^{3+}$ , and makes the  $Fe^{3+}$  adhere to the surface of manganese sand particles, so as to remove iron.



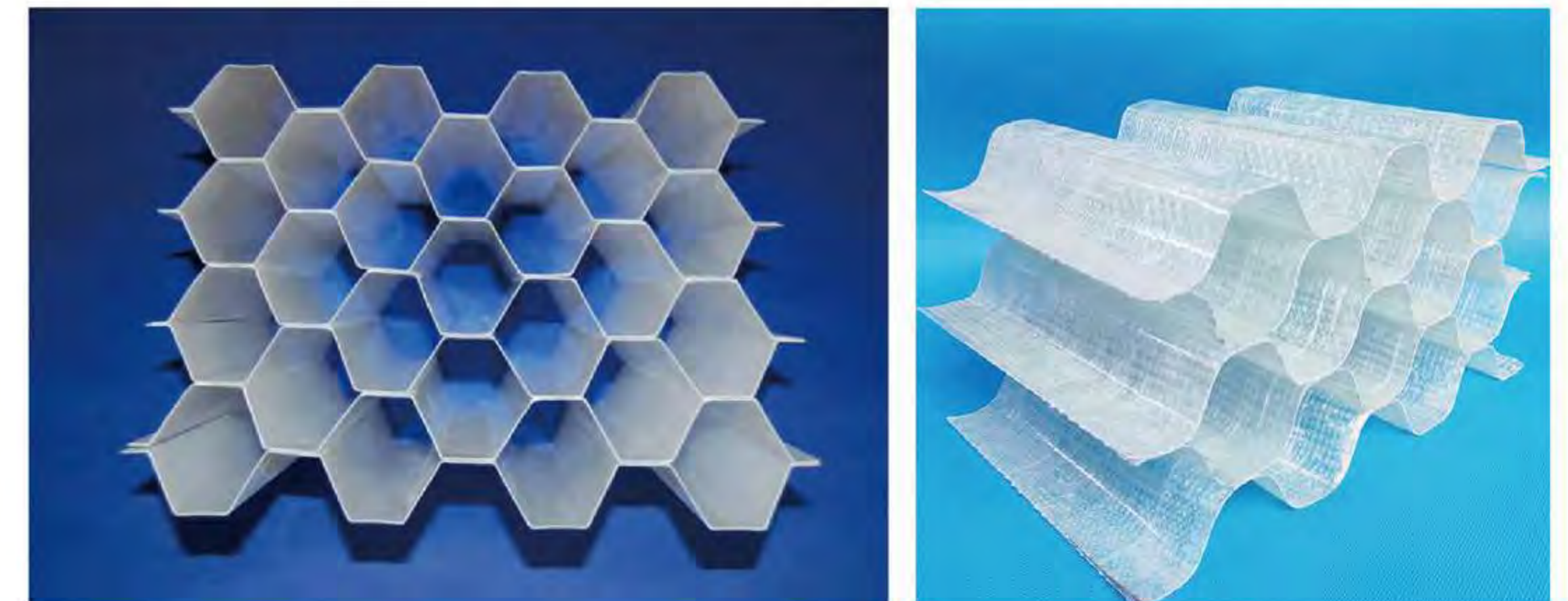
## Ultrafiltration Membrane

Ultrafiltration (UF) is a membrane separation technology which can purify, separate or concentrate the solution. It's between microfiltration and nanofiltration and is a kind of porous membrane with super "screening" separation function. Its aperture is from a few nanometers to dozens of nanometers, 1% of a hair. When the rated pore size range of membrane is used as the distinguishing standard, the rated pore size range of micro-porous membrane (MF) is 0.02-10  $\mu\text{m}$ , and that of ultrafiltration membrane (UF) is 0.001-0.02  $\mu\text{m}$ . With appropriate pressure applied on one side of the membrane, solute molecules larger than pore size can be screened out to separate particles with molecular weight greater than 500 Dalton and particle size greater than 2-20 nm.



## Inclined Tube

Inclined tube is a sedimentation device developed in shallow tank theory, which is widely used in water treatment sedimentation. The 60 degree inclined pipe assembly is used to make the suspended solids, solidified substances or flocs in the raw water form Jihua after coagulating, which can settle on the surface of the bottom side of the inclined pipe with a short settlement distance to form a thin mud layer, so as to achieve the purpose of rapid sedimentation. Then it slides back to the sludge suspension layer by gravity, and sinks to the sludge hopper, which is discharged into the sludge tank by the sludge discharge pipe for further treatment. The supernatant gradually rises to the overflow of the collecting pipe and can be directly discharged or reused.





## ▶ Available Spare parts



Piezometer



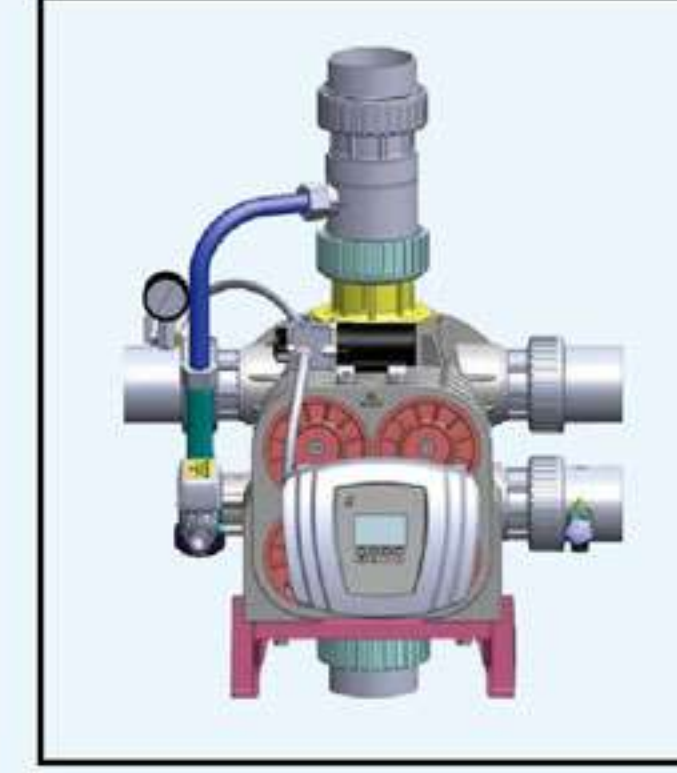
Flowmeter



Solenoid valve



Conductance pen



Auto valve



Auto valve



Pressure switch



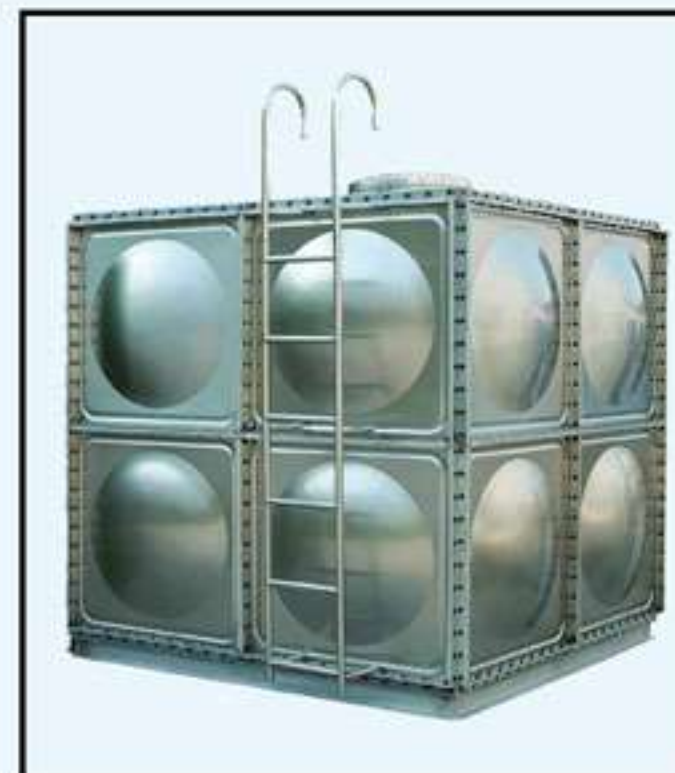
Pressure controller



Precision filter



SS tank



SS tank



FRP tank



Blender



Dosing tank



Booster pump



PE tank



Metering pump



Metering pump



Metering pump



Raw water pump



Blender



Level controller



High pressure pump



Flowmeter

## ▶ Available Spare Parts



FRP housing



UV Sterilizer



Water distributor



Water distributor



Conductometer



Electric valve



Bag filter



PP filter element



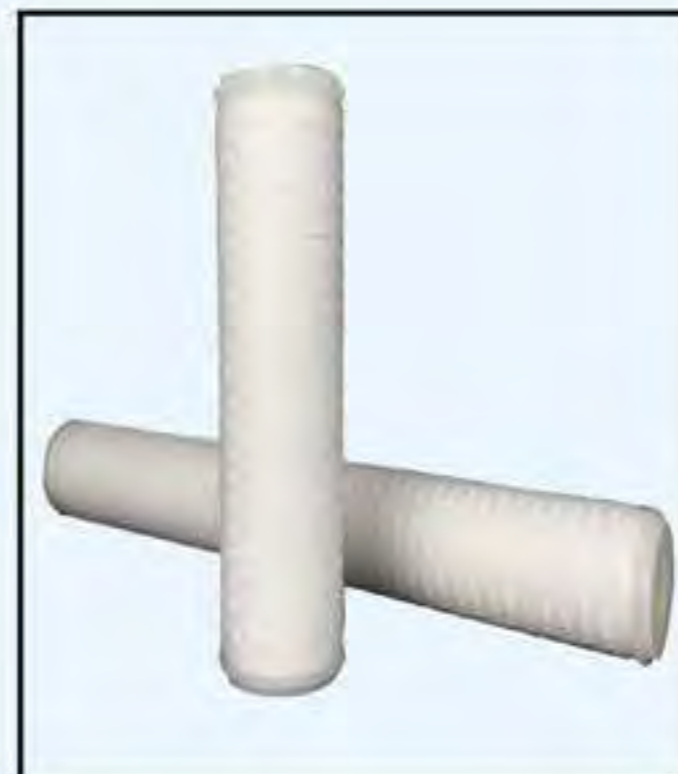
Jet mixer



Jet mixer



Wire filter element



Folded filter element



Mingmo Water Treatment

Southwest Strength  
Enterprise

名膜