



**INDUSTRIAL WATER TREATMENT SYSTEMS**

## REVERSE OSMOSIS SYSTEMS



Osmosis is a natural phenomenon. In short, it is the transition of water from less dense to very dense environment. This process continues until osmotic balance is achieved. Reverse osmosis is the reversal of this osmotic flow. To achieve this, pressure is applied to the high concentration liquid. If the applied pressure is greater than the osmotic pressure, the process is reversed. Synthetic membranes are operated in reverse osmosis principle in water treatment systems. These membranes permeate water molecules. Other molecules are retained by membranes. High pressure causes very dense media to pass through the membranes. During this time, a decomposition occurs and as the water passes to the less dense side, the molecules in the water are held by the membrane and form the concentrate. Reverse osmosis systems are used to obtain low concentrations of water close to pure water by treating 90-99% of high concentration water with chemical salts.

### Product Specifications

- Capacity: 1 m<sup>3</sup>/Day – 5000 m<sup>3</sup>/Day
- Membrane cases FRP and stainless steel
- TFC spiral winding membranes 2,5" and 4" radius
- 304 quality stainless steel vertical centrifugal high pressure pump
- Brass body rotary type pump high pressure pump
- AISI 304 quality stainless steel chassis
- 5 micron precision cartridge filtration
- Low and high pressure pipes
- Inlet solenoid valve pump outlet and waste water line
- Pressure regulating needle valves
- Low and high pressure switch
- Clean and waste water flowmeters
- Glycerin manometers
- Product water conductivity indicators
- Auto flush system
- On-off switch
- Alarm and status lamps
- 220V/50hz/3ph
- 380V/50hz/3ph

## ELECTRODEIONIZATION (EDI) SYSTEMS



Electrodeionization (EDI) is a technology in which anionic and cationic ions in water are removed from the water by the integrated operation of ion exchange resins and electrical energy to obtain ultra-pure water.

Prior to electrodeionization systems, reverse osmosis units are used as the first step. Purified water (<50mS / cm) is obtained by providing 95-99% ion removal with membranes used in reverse osmosis unit.

Electrodeionization systems are the second step in obtaining ultra-pure water. These are the systems that remove the ions left in the water produced by the reverse osmosis unit to obtain ultra-pure water (<0,05mS / cm).

### The Benefits Of Electrodeionization (EDI) Systems

- The desired water quality is continuously provided, as it does not require regeneration during service, such as resin deionization (DI) units.
- No operator intervention is required and there is no complex operating procedure.
- No storage of toxic chemicals is required as regeneration chemicals are not used.
- EDI Concentrated water can be reused, because it does not contain chemicals.
- The chemicals in the concentrated wastes of resinous deionization systems should be neutralized.
- It covers an area of one quarter compared to resin deionization systems. For this reason, transportation is advantageous in terms of operating weights and floor space.
- Easy to assemble because there are systems mounted on the chassis.
- In case the inlet water values change, it is sufficient to clean the stalls. Resin Deionization systems will require additional regeneration.

## SEA WATER TREATMENT SYSTEMS



Reverse osmosis technology is the most sensitive membrane filtration technology known. It is a high pressure system used to remove or recover dissolved inorganic and organic substances used in industrial wastewater treatment in order to ensure the reuse of waste water. Waters with a TDS value above 35,000 mg/l have high salinity. In these waters, sea water reverse osmosis systems are used. Sea water reverse osmosis systems are used in operation and settlement units where water resources are insufficient and sea water usage is required. It is designed for high-capacity enterprises, power plants, hotels, sites, ships, municipalities and any type of water-intensive enterprise. According to the process, energy recovery systems are also used. In this way, operating costs are greatly reduced.

### Product Specifications

- 1 m<sup>3</sup>/day - 3000 m<sup>3</sup>/day
- Membrane covers FRP or stainless steel
- TFC spiral winding membranes 2.5" and 4" diameter
- AISI 304 quality stainless steel vertical centrifugal high pressure pump
- Brass body rotary type pump high pressure pump
- 304 quality stainless steel chassis
- 5 micron precision cartridge filtration
- Low and high pressure pipes
- Inlet solenoid valve at pump outlet and wastewater line
- Clean and waste water flowmeters
- Manometers with glycerin
- Product water juice conductivity indicator
- Auto flush system
- On-off switch
- Alarm and status lamps
- 220v / 50hz / 3ph
- 380V / 50Hz / 3ph

## ULTRAFILTRATION (UF) SYSTEMS



Ultra filtration systems are membrane filtration systems with a membrane structure with a pore diameter of 0.02 micron, allowing the removal of suspended solids up to 99% of turbidity, bacteria, viruses and other micro-organisms without the use of chemicals. Ultra filtration is a pressure-driven purification process in which water and low molecular weight materials pass through a membrane, while particles, colloids and macromolecules are excluded. Flow through the semipermeable membrane is achieved by applying a pressure gradient between the inner and outer walls of the membrane structure.

The typical pore size of ultrafiltration membranes is in the range of 0.01-0.10 microns and has high removal capacities for bacteria, most viruses, colloids and silts, thus allowing separation and purification. Ultrafiltration offers the possibility to concentrate high molecular weight components without heat treatment and phase change. In UF applications, the pressure is between 1-15 bar. These pressure values are quite small compared to reverse osmosis applications. Capacity: 1m / h-100m / h

## SURFACE PIPING TANDEM WATER SOFTENER SYSTEM



With tandem water softener systems, calcium and magnesium ions in water are removed by ion exchange principle. Equipped with fully automatic control systems, this system consists of two softener units. The system can be controlled volumetrically according to the amount of water passing. In the tandem system, each softener device enters the regeneration circuit respectively and waits for the unit in the process to saturate and transfer the process to itself when ready. In this way, the need for human intervention and regeneration processes.

### Product Specifications

- Corrosion resistant FRP or stainless steel body
- Pressure loss 0.3 bar
- PVC piping
- Sub-distribution structure: Octopus Diffuser
- Solenoid type valves up to 2 "connection size
- Double acting butterfly valves with pneumatic actuators for connections above 2 "
- Valve material: Ductile iron disc, Rilsan coated GG25 body, AISI 420 shaft, butterfly valve with EPDM seal
- Resin conforming to food regulations
- Flow-related regeneration process
- IP65 class enclosure and directional valves box with PLC to control regeneration and service automation
- Operating pressure 2-6 bar
- Maximum 50 ° C operating temperature

## SURFACE PIPING ACTIVATED CARBON FILTER SYSTEM



Activated carbon filtration systems are used for the purification of unwanted chlorine, color, taste, odorous gases, residues and organic substances in water. Activated carbon is charcoal, but has a very large surface area (1000-1500 m<sup>2</sup>/gr). The efficiency of the activated carbon filter is determined by the characteristics of the activated carbon used in the filter bed and the correct rate of filtration of the water. In the activated carbon filter systems, the absorption mechanism acts as well as the filtration mechanism during the treatment of water. For this reason, activated carbon filters are physicochemical purification systems. Activated carbon filtration systems, with the adsorption feature of activated carbon, attracts molecules and ions in the water through their mineral pores to ensure that the water is colorless, odorless and clear, free from organic substances. Our activated carbon filters operate fully automatically without the need for human intervention by means of electric or pneumatic actuated valves controlled by PLC automation system. The activated carbon filter with automatic backwash regenerates itself.

- Corrosion resistant FRP and stainless steel body
- Material content in 3 different granule sizes
- Pressure loss 0.3 bar
- PVC piping
- Solenoid type valves up to 2 "connection size, double acting butterfly valves with pneumatic actuators for connections above 2"
- Valve material: Ductile disc, Rilsan coated GG25 body AISI 420 shaft, butterfly valve with EPDM seal
- Sub-distribution structure: Octopus Diffuser Time-dependent backwash process
- IP65 class panel and directional valves box with PLC to control backwash and service automation
- Operating pressure 2-6 bar
- Maximum 50 ° C operating temperature.

## SURFACE PIPING MULTIMEDIA SAND FILTER SYSTEM



Sand filtration systems are used to remove insoluble particles of various sizes and suspended solids in water. Sand filtration system consists of 3 main equipment as control unit consisting of valves with electric or pneumatic actuators controlled by PLC, filter body and filter media. The industrial multimedia sand filter, with the help of the media contained in it, keeps particles of different sizes and densities causing water turbidity in different layers of the media to be removed from the water. The purpose of using different particle sizes is to create a minimum gap between the layers and to provide a maximum level of sediment holding capacity. Residues and impurities accumulated on the filter are automatically cleaned by backwashing.

### Product Specifications

- Corrosion resistant FRP body up to 30 m<sup>3</sup>/h
- ST 37 Epoxy Carbon Steel or AISI 304 stainless steel tanks at flow rates of 30 m<sup>3</sup>/h and above
- Material content in 4 different granule sizes
- Pressure loss 0.3 bar
- PVC piping
- Sub-distribution structure: Octopus Diffuser
- 2 "solenoid type valves up to connection size,
- Double acting butterfly valves with pneumatic actuators for connections above 2 "
- Valve material: Ductile disc, Rilsan coated GG25 body, AISI 420 shaft, EPDM gasket butterfly valve
- Time-dependent backwash
- IP65 class panel and directional valves box with PLC to control backwash and service automation
- Operating pressure 2-6 bar
- Maximum 50 ° C operating temperature

## SURFACE PIPING TANDEM WATER SOFTENER SYSTEM



With tandem water softener systems, calcium and magnesium ions in water are removed by ion exchange principle. Equipped with fully automatic control systems, this system consists of two softener units. The system can be controlled volumetrically according to the amount of water passing. In the tandem system, each softener device enters the regeneration circuit respectively and waits for the unit in the process to saturate and transfer the process to itself when ready. In this way, there is no need for human intervention and for the regeneration process, soft water is produced continuously 24 hours a day without stopping the process.

### Product Specifications

- Corrosion resistant FRP or stainless steel body
- Pressure loss 0.3 bar
- PVC piping
- Sub-distribution structure: Octopus Diffuser
- Solenoid type valves up to 2 "connection size
- Double-acting butterfly valves with pneumatic actuators for connections above 2 "
- Valve material: Ductile disk, Rilsan coated GG25 body, AISI 420 shaft, butterfly valve with EPDM seal
- Resin conforming to food regulations
- Flow-related regeneration process
- IP65 class enclosure with PLC to control regeneration and service automation and directional valve box
- Operating pressure 2-6 bar
- Maximum operating temperature of 50 ° C

## ACTIVATED CARBON FILTRATION



Sand filtration systems are used to remove insoluble particles of various sizes and suspended solids in water. Sand filtration system; control unit, filter body and filter media. The multimedia sand filter, with the help of the media in it, removes particles of different sizes and densities that cause turbidity in the water by keeping them in different layers of the media. The purpose of using different particle sizes is to create a minimum gap between the layers and to provide a maximum level of sediment holding capacity. Residues and impurities accumulated on the filter are automatically cleaned by backwashing.

### Product Specifications

- Corrosion resistant FRP (fiber wound) body
- Programmable automatic valve Automatic backwash timer
- 3-6 bar working pressure
- Max. 10 bar test pressure
- Max. 50 ° C working temperature
- Material content in 4 different granule sizes
- Power supply 220V / 50Hz

## MULTIMEDIA SAND FILTER SYSTEM



Sand filtration systems are used to remove insoluble particles of various sizes and suspended solids in water. The sand filtration system consists of 3 main equipment: control unit, filter body and filter media. The multimedia sand filter, with the help of the media in it, removes particles of different sizes and densities that cause turbidity in the water by keeping them in different layers of the media. The purpose of using different particle sizes is to create a minimum gap between the layers and to provide a maximum level of sediment holding capacity. Residues and impurities accumulated on the filter are automatically cleaned by backwashing.

### Product Specifications

- Corrosion resistant FRP (fiber wound) body
- Programmable automatic valve
- Automatic backwash timer
- 3-6 bar working pressure
- Max. 10 bar test pressure
- Max. 50 ° C working temperature
- Material content in 4 different granule sizes
- Power supply 220V / 50Hz

## DEMINERALIZING SYSTEMS



The important advantages of demineralizing units, which are one of the important technologies used in pure water production, are low operating costs, no need for permanent personnel and better results in leaving water quality compared to other systems. The demineralizing units, which are specially designed for processes that require high quality pure water, are used to obtain pure water as a result of de-watering all ions after passing through pre-treatment units. These systems, which are designed especially for well water, glass industry, dialysis centers, hot water boiler feed water, cosmetics, cleaning agents and factories with high demand for pure water, are still widely used today.

Fully automatic demineralizing units are designed in two stages. In the first unit, cation ions in the water are trapped by using cation-removing synthetic resins to provide the hydrogen cycle. In the second unit, all anion ions in the water are retained in order to provide the hydroxide cycle. Thus, the  $H^+$  ions from the first unit and the  $OH^-$  ions from the second unit combine to form  $H_2O$ .

### Product Specifications

- AISI 316 quality stainless steel pumps
- Carbon steel tanks
- Pneumatic actuated diaphragm valves system
- 4-6 bar working pressure
- PVC surface piping
- Control panel, PLC S7-200 and pump operator panel
- Blower
- Strong cationic and strong feed and circulation
- Acid and caustic regeneration
- Dilution panel and stainless steel dilution
- Neutralization system
- Capacity: up to 100 m<sup>3</sup>/ hour

## ULTRAVIOLET (UV) FILTER SYSTEMS



Ultraviolet systems are used for disinfection purposes. Ultraviolet systems enable the inactivation of micro-organisms without adding any chemical or oxidant to the water. Ultraviolet devices are one of the most effective and economical disinfection systems used in waters where microbiological pollution is involved. In these devices, inspired by the effect of sun rays on living organisms, the DNA of microorganisms in water is disintegrated by the effect of UV rays and is crystallized and removed from water. To get the best efficiency from the system, water should be exposed to ultraviolet radiation as much as possible.

### Product Specifications

- AISI 304 stainless steel body
- 0.5-10 bar working pressure
- Control Panel
- High quality Quartz case
- 2-7 bar working pressure, 2-45 ° C working temperature
- LED lights indicating that UV lamps are working
- Counter showing the operating time of the lamps
- Main electrical fuse, electronic board for each lamp

## MECHANICAL FILTERS



Mechanical filters are automatic backwash filters that are generally used for filtration accuracy of 50 microns or more in well waters and network waters where physical pollution is not relatively high.

Mechanical filters are capable of working 24 hours a day without interruption. It holds all particles up to 70 microns. It can work in high capacity ranges. It has automatic self-cleaning feature. Water does not need to be cut off during cleaning. No spare parts, no moving parts. Its maintenance consists only of cleaning the container where solids are collected. Pressure loss is constant, no change in flow even at high capacities. It can be programmed from 4 minutes to 3 months with automatic time blowdown system or hydraulic differential pressure control.

The power supply is 220V/50 hz for automatic models.

## CHEMICALS AND MINERALS



ACTIVATED CARBON TYPES  
RESIN TYPES  
QUARTZ TYPES  
ANTHRACITE  
TURBIDEX  
MEMBRANE CHEMICALS  
DOSING CHEMICALS



+90 (324) 329 4374 +90 (532) 243 8289 +90 (534) 299 4101

Güvenevler Mah. 1912 Sk. No:8/A 33140 Yenişehir / MERSİN

www.azcsuaritma.com info@azcsuaritma.com