

Filtration systems are used to remove unwanted contaminants on various scales, including solids, bacteria, viruses and other pathogens. Filtration is used in many stages of the water treatment process. Depending on the application, different methods of filtration can be applied. Membranes are often used in wastewater treatment, desalination and other drinking water treatment processes, and in water reuse systems.

As a distributor for GE Water and Process Technologies, we are able to help you meet environmental regulations with solutions related to water availability, water quality, productivity, and cost reduction.

MEMBRANE SYSTEMS

Ultra Filtration (UF) - UF technology often serves as pretreatment before reverse osmosis and other water treatment systems.

- Nominal pore sizes in the range of 20 – 40 nm
- Greater than 6-log (99.9999%) removal of Cryptosporidium and Giardia Lamblia.
- High-quality feedwater enables RO systems to operate at peak performance with reduced fouling

Nano Filtration (NF) - When full reverse osmosis treatment is not required for an application, NF is a good alternative. NF membranes are used for a variety of applications from color removal to bivalent ion removal. NF systems are frequently used as an alternative to water softeners.

- Large electrical energy savings are a result of lower membrane pressure.
- High recovery - up to 85%
- Used for water softening, color removal, and reduction of THM formation potential

Reverse Osmosis (RO) - RO technology is used to remove dissolved impurities from water through the use of a semi-permeable membrane.

- 375 gpd to 288,000 gpd
- Process ingredient water
- Safe drinking water
- 95-98% Total Dissolved Solids rejection
- Nitrate, Arsenic, and Radium reduction



Reverse Osmosis Skid

Low energy systems are available that will lower power consumption and maximize water savings.

Let us help you pick the right elements for your process. Contact us for a free water quality analysis and design consultation.

Pretreatment systems should be integrated with membrane systems when water is difficult to treat. Depending on your water needs, pretreatment systems may be a stand alone option. Pretreatment is recommended to increase the efficiency and life expectancy of the membrane elements by minimizing fouling, scaling and degradation of the membrane.

Proper pretreatment improves the performance, increases the life expectancy and reduces the overall operating costs of membrane systems.

H2O Engineering has the ability to integrate pretreatment and membrane systems for difficult to treat water sources. Integrated technologies from a single supplier ensure reliable system operation and seamless controls.

PRETREATMENT SYSTEMS

Chemical Feed Systems

- Antiscalants are used to reduce the amount of contaminants that attach to the membrane surface and cause fouling.
- Potassium Permanganate is used in combination with a green sand filter to remove hydrogen sulfide and iron from water.
- Acid dosing prior to membrane treatment will adjust the pH of the water to prevent the precipitation of insoluble solids, such as calcium carbonate.

Carbon Filters

- If you have source waters with high levels of organics, carbon filtration will help prevent fouling of the membrane system. Carbon filtration will also prevent any chlorine in the source water from degrading the membranes.

Multi Media Filters

- These filters are used to remove the suspended solids from the feed water prior to it entering the membrane system.

Water Softeners

- Water softeners remove hardness caused by calcium carbonate and magnesium in water, preventing scale build up in plumbing systems and membrane elements.

Oxidation

- Chlorine is used prior to a membrane system to prevent biofouling. Chlorine deactivates microbes that form biofilms within membrane elements.
- Ozone is used to destroy microbials and oxidize contaminants, causing them to precipitate out of solution so they can be filtered out.
- Greensand filters are capable of reducing iron, manganese and hydrogen sulfide from water through oxidation and filtration.

