

Process / Potable Water Treatment

Reverse Osmosis Technology

(NANO, BWRO, SWRO, Special Membrane Applications)



Product Applications:

The Reverse Osmosis process was successfully applied in the mid-1950s. The RO Process plays a major role in water treatment & wastewater recycling. The process uses a partially permeable membrane to remove ions, unwanted molecules and in some special applications a selective ion removal such as Total Hardness and Sulfate from different water types such as Brackish, Seawater & Wastewater.

Different membrane types are being used for different applications mainly:

- **Nano Membrane:** widely used for water softening for potable and process applications
- **Reverse Osmosis Membrane:** used for brackish and sea water desalination for potable and process applications
- **Sulphate Removal Membrane:** used for sulphate removal from seawater for injection water applications
- **Reverse Osmosis Membrane:** used as tertiary treatment for wastewater recycling for process (boiler, cooling) water applications

Process Description

In Reverse Osmosis membrane, the natural osmosis effect must be reversed. This can be achieved by overcoming the osmotic pressure. In order to force the feed water to flow towards the permeate water stream, the feed water must be pressurized at an operating pressure greater than the osmotic pressure. As a result, the feed water is separated into two streams, permeate water (Low Salinity) and Brine Stream (High Salinity).

The System is mainly consisting of Pretreatment, Chemical Dosing Stations, Membrane modules and a High-Pressure pump. Membrane working pressure depends on the feed water quality and can reach 60 bar in the case of seawater.

Product Benefits:

- Due to the spiral wound membrane, the system become very compact and require minimal footprint
- Salt rejection can reach 99.7%
- Can be delivered in Containers
- RO is standardized equipment for standard requirements, customized packages also available to meet performance guarantees and specification
- Modular design, easy to expand and to maintain
- Produces safe potable water according to WHO

Service and Features:

- Supply customized design
- Complete supply including Pretreatment, Dosing Station, etc. to achieve the performance guarantee values
- Provided in different membrane types and configurations
- Fast track delivery
- Retrofit for existing plants
- Installation and supervision commissioning
- Operation and maintenance services