

# REVERSE OSMOSIS DESALINATION SYSTEM

## REVERSE OSMOSIS

The environmentally friendly Technology for desalination of seawater, processwater, wellwater, brackish-water. The physical technology without adding chemicals.

## RO PROCESS

RO plants are working with semipermeable membranes. The process of osmosis, well known in nature for the metabolism of cells, is the passing of a solvent, e.g. water, through a semipermeable membrane. The semipermeable membrane does not allow dissolved solids to pass through. The flow direction of the water always follows the gradient of concentration that is determined as osmotic pressure. The reverse osmosis process is the inversion of the natural process. The pressure of the liquid on the higher concentrated side of the semipermeable membrane is increased by means of a fluid-pump. As soon as the differential pressure between both sides of the membrane is higher than the osmotic pressure, the water flow will be towards the lower concentrated, desalinated water.



## RO SYSTEM DESIGN

These systems are skid mounted turnkey plants. Installation of feed, permeate and concentrate will be executed steel /non corrosive piping. The control system is custom designed for RO System, covering all function to guarantee a safe long-term operation. The cleaning system provides a long-term protection of the membranes from scaling and fouling. The cleaning system will operate based on the running time of the RO System respectively after 12 or more hours of shut down.



## OPERATION

The Feed Water passes the safety filter to the Feed Water Pump. The High Pressure feed is led to the pressure vessels equipped with RO membranes. The water passing through the RO membrane (permeate) can be used continuously. The retained salt leaves the membrane in a concentrated solution (Concentrate).

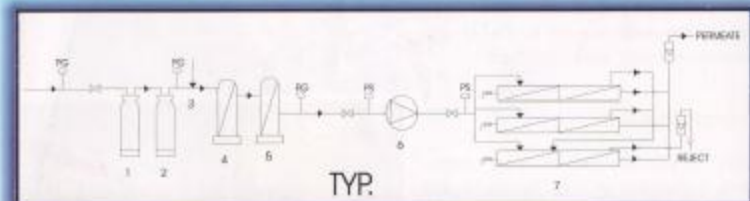
## WATER QUALITY

The permeate quality is dependent on the water analysis of the feed water. The retention rate for salt varies between 95-99% (reference NaCl), bacteria and pyrogenic are retained almost completely.

## APPLICATIONS

RO system are used for continues production of pure water when economic operation is mandatory e.g.

- Removal of High Total Dissolved Solids.
- Drinking Water out of Wells.
- Mineral Water Systems.
- Sea Water Desalination.
- Process Water for Industries.
- Steam and Hot Water production.
- Removal of unwanted matter from Water.
- Disinfection, Removal of Bacteria and Pyrogenic.
- Process Water for Hospitals, Medical Centres and Nursing Homes.
- Drinking Water for Housing Colonies, Residential Apartments, etc.



1. DUAL MEDIA FILTER
2. ACTIVATED CARBON FILTER
3. ANTISCALANT DOSING SYSTEM
4. MICRON FILTER
5. MICRON FILTER
6. HIGH PRESSURE PUMPSET
7. REVERSE OSMOSIS MODULE

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