SRO
Seawater Reverse Osmosis

RWO reverse osmosis desalination systems for independant and reliable fresh water
Optional features

- Backwash filter (manual or automatic)
- Injection system for scale inhibitor
- Energy recovery devices for an economic and power saving operation
- CIP-built-in cleaning and rinsing device
- Booster pumps and strainers
- UV disinfection system
- Chlorine disinfection
- Chlorine control
- Mineralising unit
- Dechlorination unit
- Demineralisation by reverse osmosis or ion-exchange

RWO reverse osmosis desalination systems for independent and reliable fresh water supply onboard ships and offshore facilities. The reverse osmosis process is ideal for fresh water generation – being easy to operate, economical and producing excellent water quality. RWO’s SRO product line covers a wide range of capacities and accessories to meet the needs of passenger, merchant and navy vessels as well as the requirements of offshore applications.

The systems typically come as a complete package, skid mounted with all necessary accessories and controls and providing the following benefits:

- All required capacities
- Perfect water quality
- Compact design
- Easy to install and easy to operate

The standard for RWO reverse osmosis units features:

- High pressure pump
- Cartridge filters
- High performance reverse osmosis elements
- Pressure vessels
- Salinity control
- Control panels with PLC for automatic operation
- Automatic concentrate displacement device

RWO’s SRO plants are designed for automatic operation. They will run unattended for long periods of time and require little or no maintenance during operation. RWO reverse osmosis systems are typically skid-mounted, completely preassembled on a frame for the least amount of onboard installation work. They are pretested in our workshop testing facilities, both electrically and hydraulically. A work certificate documents all of the performance data from the test and gives our customers the confidence of having a well-functioning unit that usually does not require RWO specialists for start-up and commissioning.
As RWO’s objective is to provide reliable and long-lasting equipment, the SRO units come with a built-in concentrate displacement device that will extend the membrane operation cycle. A chemical cleaning device (CIP) can be provided optionally with the systems in order to make cleaning of the membranes easier and less time-consuming for the operators.

All features, together with the selection of first-class electrical and mechanical components, gives our customers the opportunity to have a reliable and long lasting piece of equipment on board.

The process diagram shows the general configuration of a SRO plant. General a booster pump \[2\] is used to provide an inlet pressure of 2–6 bar. The filter system \[1\] \[3\] \[5\] protects the membranes from suspended particles in the feed water. The application of a scale inhibitor \[4\] can extend the membrane lifetime. After the pre-treatment, the high pressure pump \[6\] feeds the Reverse Osmosis modules \[7\]. Permeate, i.e. desalinated water, passes the membranes, while the remaining seawater takes up the rejected salts and leaves the modules as concentrate back to the sea.

The post treatment, i.e. chlorination \[10\] and mineralization \[11\], makes it potable and non-corrosive.

The reverse osmosis membranes remove salts and minerals, and also all kind of impurities hazardous to human health, such as viruses, bacteria, legionella – it is a safe method to produce a perfect fresh water.

The quality of the water is in accordance with European, International WHO and US Health Standards.

A specially designed 2-pass system (e.g. RWO/ Veolia’s SRO-LSO unit) will reduce salinities even further to values < 20 ppm and thus make the water suitable for technical and/or process usage onboard.
Resourcing the world

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