

Standard Models & Main Features

Due to continuous updating and improving of technology, we do not publish or distribute brochures or catalogs, but keep all information updated and available on our web site www.HOHUSA.com, wherefore this document is a short introduction to our standard models and main features.

The container concept – No building required:

We specialize in modularized low energy reverse osmosis seawater desalination plants (SWRO-plants) with individual capacities up to 1,000m³/day ~ 250,000 GPD. The SWRO-plants, including the pre-treatment, the post-treatment and the CIP (clean-in-place) facilities are assembled in 20-ft and 40-ft steel containers, wherefore no building is required.



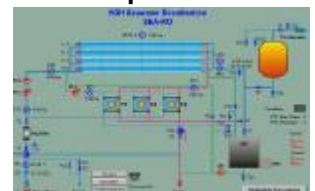
ERS-“Pressure Exchangers” = 60% energy saving:

As a standard feature our SWRO plants are designed with the most up-to-date and efficient energy recovery system “Pressure Exchangers”, using less than 3.0 to 3.5 kWh/m³ ~ 11.3 to 13.2 kWh/1000 gallons, which is a 60% energy reduction in comparison to a conventional SWRO plant using 7.0 to 8.0 kWh/m³ ~ 25.5 to 30.2 kWh/1000 gallons.



Remote control system for off-site monitoring and control:

The plants can be operated remotely and by taking advantage of this function, no daily on-site person is required as all flows can be monitored and supervised as well as the plant will shut-down automatically should anything fail. The flows from the well pump, the booster pump and the high-pressure pumps can be adjusted remotely by signals to the frequency converters. Water temperature, salinity and pressure in different flows can likewise be monitored and historical data is saved for printout graphs showing the plant operation at any given time.



Centrifugal pumps for minimum maintenance:

Using multistage centrifugal high-pressure pumps from a recognized international manufacturing company, with service centers worldwide, and frequency converters and all seawater related pipelines manufactured in high-quality 904-stainless steel, only a minimum of maintenance is required.



Frequency converter for soft start operation & automation:

The high-pressure centrifugal pumps are controlled by frequency converters, which also provide soft start for the plant and thereby prolong the lifetime of all vital components. The automatic start and stop function of the plant is likewise controlled by the submersible well-pump and the top and bottom sensors in the external holding tank.



Low noise level & minimum maintenance costs:

With the high-pressure pumps and booster pump installed inside the feed-water pipeline, the pumps do not generate any heat or noise to the surrounding areas, and the use of multistage centrifugal high-pressure pumps, instead of conventional piston pumps; assure the maintenance work & cost to be at an absolute minimum.

Installation, Commissioning & Training:

Due to the container concept, all functions are tested and pre-commissioned at our manufacturing plant, which makes it possible to complete the entire installation, commissioning and operator-training process within one week of delivery at customer sites worldwide.
(See installation pictures below)



Areas of expertise:

Our concept is *"to make the water where the water is needed"* and our areas of expertise is hotels and beach resorts, golf courses, municipalities, organizations and departments dealing with emergency situations and disaster areas and any consumer group with access to seawater.

Standard Models and Capacities:

SeaRO-20ERS: 250 m³/day ~ 66,000 gal/day (20-ft container)
SeaRO-25ERS: 300 m³/day ~ 80,000 gal/day (20-ft container)
SeaRO-42ERS: 500 m³/day ~ 132,000 gal/day (40-ft container)
SeaRO-84ERS: 1,000 m³/day ~ 264,000 gal/day (40-ft container)

Standard Models Electricity Requirement:

SeaRO-20ERS: 62 kW
SeaRO-25ERS: 62 kW
SeaRO-42ERS: 92 kW
SeaRO-84ERS: 161 kW

Product water quality:

The quality of the product water is first-class (TDS < 500 ppm) and follows the WHO (World Health Organization) guidelines for drinking water for human consumption. However, the product water can be made to any purity-level required - such as process water with a TDS < 50 ppm.

Product water prices:

Based on the actual electricity price at the location of the plant, the following table is a guideline of the total production costs to produce either 1 cubic meter – or 1,000 gallons of drinking water. Included in the costs is the amortization, the electricity consumption, the membrane replacements and the maintenance costs.

TOTAL PRODUCTION COSTS RELATIVE TO THE PRICE OF ELECTRICITY					
Electricity price:	\$0.05/kWh	\$0.10/kWh	\$0.15/kWh	\$0.20/kWh	\$0.25/kWh
SeaRO-20ERS	\$0.59/m ³	\$0.73/m ³	\$0.87/m ³	\$1.01/m ³	\$1.15/m ³
SeaRO-25ERS	\$0.60/m ³	\$0.74/m ³	\$0.88/m ³	\$1.02/m ³	\$1.16/m ³
SeaRO-42ERS	\$0.57/m ³	\$0.71/m ³	\$0.85/m ³	\$0.99/m ³	\$1.13/m ³
SeaRO-84ERS	\$0.52/m ³	\$0.66/m ³	\$0.80/m ³	\$0.94/m ³	\$1.08/m ³
SeaRO-20ERS	\$2.21/gal	\$2.78/gal	\$3.27/gal	\$3.80/gal	\$4.33/gal
SeaRO-25ERS	\$2.25/gal	\$2.69/gal	\$3.31/gal	\$3.84/gal	\$4.37/gal
SeaRO-42ERS	\$2.14/gal	\$2.67/gal	\$3.20/gal	\$3.73/gal	\$4.26/gal
SeaRO-84ERS	\$1.95/gal	\$2.48/gal	\$3.01/gal	\$3.54/gal	\$4.07/gal

Installation, Commissioning & Training:

A HOH technician will install and commission the plant within one to two days. However, we always recommend the technician to stay at the customer for a week to be able to submit a thorough training course for the future plant operators and maintenance people.

The following pictures show Model SeaRO-25ERS, with a daily capacity of 300 m³ ~ 75,000 gallons - fully assembled in a 20-foot container. The pictures give an idea of the simplicity of the container concept and how easy it is to handle and install a HOH modularized seawater desalination plant.

Hotel Playa Roca
Island of Lanzarote



August 3, 2001



Plant installation
site prepared with:

- Electricity.

& connections for:

- Feed water.

- Brine disposal.

- Product water to
Holding tank

The 20-ft container
plant with model
SeaRO-25ERS
arrives at the hotel.



Friday, August 3, 2001 – 8:00 AM



A local crane
company arrives and
prepare for lift-of.



Friday, August 3, 2001 – 8:15 AM





Friday, August 3, 2001 – 8:30 AM



Container plant
installed at location
ready for
commissioning.



**Interior view of container plant model SeaRO-25ERS
With a capacity of 300m³/day ~ 75,000 GPD
Producing water at \$0.70/m³ ~ \$2.65/1000 gallons**

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