

PRODUCT DATA SHEET

SEA300

Reverse Osmosis Desalination System

316.8 m³/day - Seawater (SWRO)

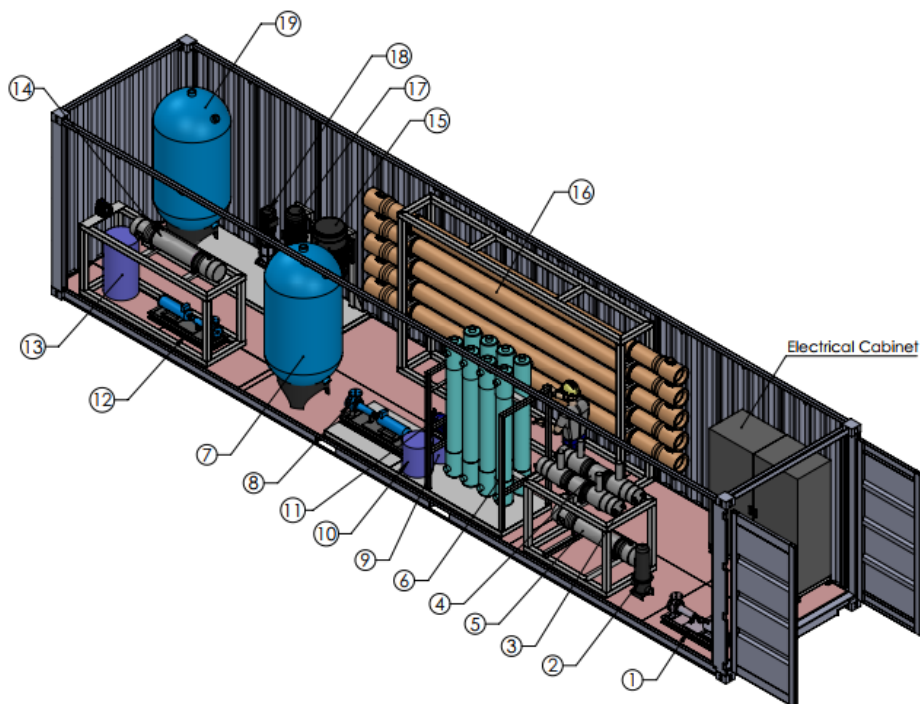
Description

The SEA300 is a seawater reverse osmosis (SWRO) desalination system designed and built according to advanced engineering standards. It produces 316.8 m³/day of high-quality fresh water from seawater, with a specific energy consumption of 1.9 kWh/m³ (among the most efficient in its class).

The system incorporates the Danfoss iSave® energy recovery device, which reduces the net energy requirement to 25.1 kW, saving 28.0 kW compared to a conventional configuration.

The system is fully customizable and can be integrated into a 20 or 40-foot ISO container. The containerized configuration ensures transportability by sea, road, or rail, and rapid commissioning with minimal civil works.

POS	DESCRIPTION
1	FEED WATER PUMP (Optional)
2	BASKET FILTER 3000 µm
3	SELF CLEANING FILTER 500 µm
4	SELF CLEANING FILTER 50 µm
5	CARTRIDGE FILTER 50 µm
6	ULTRA FILTRATION UNIT (x8)
7	ULTRA FILTRATION TANK
8	BACKWASH PUMP
9	CHEMICAL TANK (Sodium Hypochlorite)
10	CHEMICAL TANK (Citric Acid)
11	DOSING PUMP
12	RO FEED WATER PUMP
13	CHEMICAL TANK (Antiscalant)
14	CARTRIDGE FILTER 5 µm
15	HP PUMP
16	SWRO SYSTEM (x5)
17	ENERGY RECOVERY DEVICE
18	CLEANING PUMP
19	CLEANING TANK



Technical Data

TECHNICAL DATA — SEA300

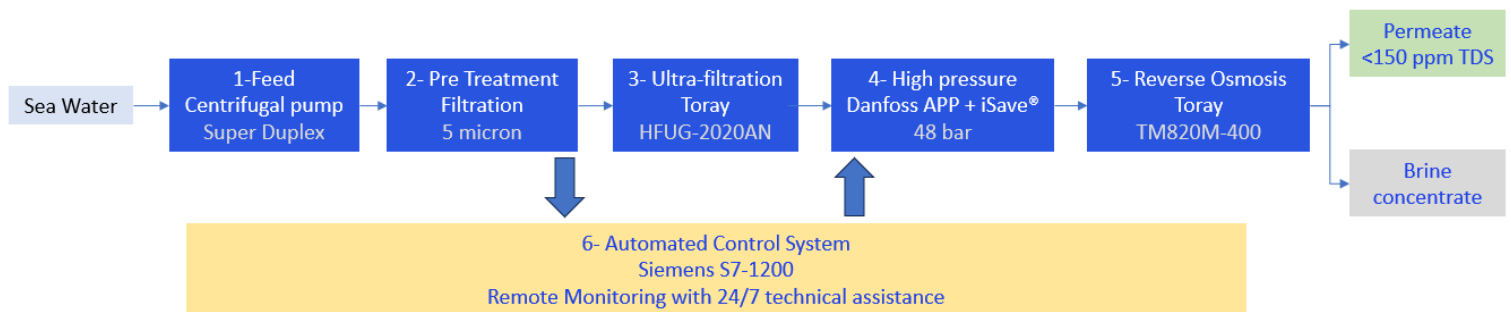
Performance	
Produced water flow rate (permeate)	13.2 m³/h — 316.8 m³/day
Feed water flow rate (seawater)	33.0 m³/h
Recovery rate	40 %
High-pressure pump pressure	48 bar
Permeate quality (TDS)	< 150 ppm
Specific energy consumption	1.9 kWh/m³ (official Danfoss data iSave®)
Installed electrical power (net)	25.1 kW (with iSave® system)

Main Components	
Feed pumps	Centrifugal in Super Duplex
Filtration system	Basket and self-cleaning filters — efficiency up to 5 microns
Ultrafiltration	Membrane Toray HFUG-2020AN
High-pressure pump	Danfoss APP
Energy recovery system	iSave® Danfoss — saving 28.0 kW
Reverse osmosis membranes	Toray TM820M-400
Control system	Siemens S7-1200 — remote monitoring with 24/7 technical assistance

Plant Data	
Plant configuration	ISO 20' or 40' container
Plant weight	Depending on selected options
Electrical supply	400 Vac / 50 Hz / 3F + N
Seawater inlet connection	DN 3" (flanged)
Permeate outlet connection	DN 3" (flanged)
Feed water	Seawater (SWRO)

Plant configuration

Section / Components	Description
1. Feed <i>Single-stage centrifugal pump</i>	Duplex / Super Duplex material for maximum corrosion resistance in marine environments
2. Pre-treatment <i>Basket filter + 2 self-cleaning filters + 1 cartridge filter</i>	Removal of suspended solids and particulate; final filtration to 5 microns to protect the membranes
3. Ultrafiltration <i>Toray HFUG-2020AN</i>	Hollow-fibre membranes for removal of bacteria, viruses, and colloids upstream of the RO section
4. High Pressure <i>Danfoss APP + iSave®</i>	Danfoss high-pressure pump with integrated iSave® energy recovery — saving 28.0 kW
5. Reverse Osmosis <i>Toray TM820M-400</i>	High-efficiency SWRO membranes for seawater desalination — permeate < 150 ppm TDS
6. Control system <i>Siemens S7-1200</i>	Automated control system for continuous management and monitoring of all process parameters. Remote monitoring with 24/7 technical assistance available.



Key Features

Design Quality

Design compliant with international standards using FEM and CAD methodologies.
Complete P&IDs, as-built documentation.

Fully Customizable System

Thanks to SEA's integrated engineering, the system is fully configurable to meet specific requirements (flow rate, filtration level, accessories).

iSave® Danfoss — Energy Recovery

Integrated iSave® system saving 28.0 kW: specific consumption 1.9 kWh/m³ (official Danfoss data), among the lowest in the SWRO category.

Containerized

Complete system in 20' or 40' ISO container: ready for rapid installation, transportable by sea, road, or rail.

Recovery 40%

Optimized ratio between production and brine discharge, reducing environmental impact and operating costs.

Scheduled Maintenance

Structured O&M plan with multi-year contracts, guaranteed spare parts, and dedicated technical support.

Typical Applications

- ▶ Petrochemical industry and refineries
- ▶ Power plants (demineralised water for boilers)
- ▶ Food and beverage industry (process water)
- ▶ Pharmaceutical industry
- ▶ Port terminals and offshore platforms
- ▶ Coastal communities and islands

Why SEA Engineering Solutions

SEA Engineering Solutions designs and builds water treatment systems with a structured and documented engineering approach:

- Design to international standards — the same used in critical industrial environments
- Complete technical documentation: P&IDs, datasheets, Operating Manuals
- Systems custom-designed for the specific needs of each client
- Structured O&M contracts with dedicated technical support and guaranteed spare parts
- Single point of contact from design to commissioning
- 24/7 support

SEA Engineering Solutions

Water Treatment Division

info@seaprogetti.it

www.seaprogetti.org

The data contained in this datasheet are indicative and subject to change without notice. For customized quotations, please contact our technical office.