

Energy Saving **SWDF** *series*

Modular R.O. System
Sea Water Desalination



Makes The Sea Water Affordable To Drink

Powered by engineering excellence and membrane based water treatment expertise, ROTEK standard membrane systems encompass reliability and efficiency in compact designs. The SWDF Series provides a reliable source of fresh water at large production capacities, with minimal space and maintenance requirements. Its configuration provides maximum utility of space while incorporating ease of control and safety standards.

Key Features



Low Maintenance Danfoss HP Pump

This HP Pump has flexible installation options that don't require frames, belt drives or gear boxes. The Danfoss Pump is water lubricated, corrosion resistant (Super Duplex) and completely eliminates oil leaks and membrane fouling caused by oil leaks. This innovative HP Pump provides constant flow regardless of variations in pressure while delivering a total efficiency of up to 97%.



Danfoss I-Save Energy Recovery System

The SWDF water system consumes the least amount of power while producing almost unlimited amounts of fresh water. Thanks to Danfoss's energy efficient I-Save energy recovery system is capable of reducing up to 49% of energy consumption. This feature saves a significant amount of energy lowering running costs and lowering the ships carbon footprint.



Low & High Pressure Air Relief Valve

Air bubbles within the sea water desalination system are extremely dangerous, as "cavitation" will easily generated under high pressure environment. When entering high pressure areas, cavitation bubbles that implode on a metal surface cause cyclic stress through repeated implosion. Overtime, pressure vessel can explode along with the membranes. Unlike most of the systems in the market, ROTEK has invested extra cost to assembled low & high pressure air relief valve to ensure the system can run for longer period of time without worry about explosion.



Digital Control with Standard MODBUS

The SWDF's digital controller gives the operator full automation and comes equipped with integrated performance monitoring and optimization software. With its automatic control and detection capabilities, the SWDF system is easy to operate. The SWDF's standard MODBUS communications package allows real time remote monitoring of essential system functions. Press a button and walk away knowing your system is running at peak efficiency.

Other Features

Hydranautics Low Fouling Membrane

The SWC5-LD gives you the highest flow rates, highest ion rejection and the lowest energy consumption combined with reduced biological and colloidal fouling.

1000PSI FRP Pressure Vessel

SWDF series system is using the thickest pressure vessel and end caps in the industry, which also certified by ASME, NSF, OHSAS, WRAS, ACS..etc.

Danfoss High Pressure Hose

It is used to connect high pressure pump to the duplex high pressure pipe. which can reduce the vibration from the pump and can be easily dismantled for maintenance

Duplex SS High Pressure Pipe

Duplex 2205 grade is used for the high pressure piping which has superior corrosion resistance compare to stainless steel.

Feed & Design Operating Parameters

Feed Water Parameters	Sea Water	
	Normal	Maximum
TDS (mg/l)	35,000	38,500
pH	7.5	7.7
Turbidity (NTU)	< 0.2	0.2
SDI	< 3	3
Oil & Grease (mg/l)	0	0
Chlorine (mg/l)	0	0
TOC (mg/l)	< 1	1

Operating Parameters	Maximum Condition
Temperature °C	35
Recovery Rate	45%
Feed Pressure	65 Bar
Back Pressure	1 Bar

* Permeate Water Quality: TDS < 250 mg/l

ROTEK SWDF System Specifications

Model	Flow Rate	Membrane Array	Est. Power	Est. Weight	Dimension (LxWxH)
SWDF-120	5 M3/hr	5 elements x 2	10.6 kW	2500 KG	700 x 110 x 220 cm
SWDF-150	6 M3/hr	6 elements x 2	12.5 kW	2700 KG	700 x 110 x 220 cm
SWDF-250	9 M3/hr	6 elements x 3	18.2 kW	3000 KG	700 x 110 x 220 cm
SWDF-300	12 M3/hr	6 elements x 4	23.9 kW	3500 KG	700 x 110 x 220 cm

Above Spec is calculated based on:

feed TDS 35,000ppm, 35% recovery rate, 13.5 l/m²/hr average flux

With proper pre-treatment and chemical dosing, the system will not required for CIP within 1 year.