

SYDROS Desal - 4000



TECHNICAL DATA SHEET

4000 LPH Seawater Reverse Osmosis Plant (SWRO)

4.0 m³/h – Heavy-Duty Industrial Desalination System

1. System Overview

Parameter	Specification
System Type	Seawater Reverse Osmosis (SWRO)
Nominal Capacity	4000 L/h
Configuration	Multi-membrane array (10-12 membranes, parallel configuration)
Design	Heavy-duty skid-mounted stainless steel frame
Operation	Continuous industrial duty (24/7)

2. Performance Data

Parameter	Value
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Permeate Flow Rate	4000 L/h (±15%)
Daily Production	Up to 96.0 m ³ /day
Recovery Rate	35–45%
Salt Rejection	≥ 99.2%
Feed TDS (max.)	35,000 ppm
Permeate TDS	< 500 ppm (feed dependent)
Design Conditions	25°C / 35,000 ppm TDS

3. Membrane Section

Parameter	Specification
Membrane Type	Thin Film Composite (TFC), seawater grade
Membrane Size	10–12 × 4040 SWRO membranes
Pressure Vessel	FRP, 600 psi rating
Operating Pressure	55–70 bar
Max. Operating Pressure	70 bar
Flush System	Manual flush (standard) / Automatic flush optional

4. Pre-Treatment

Parameter	Specification
Stage 1	Industrial multimedia / quartz sand filter vessel
Stage 2	Activated carbon filter vessel
Stage 3	5 µm high-flow cartridge filtration (multi-housing)
Required SDI	< 3

Free Chlorine	< 0.1 mg/L
Antiscalant Dosing	Chemical dosing skid with metering pump & tank

5. Pump System

Parameter	Specification
Raw Water Pump	Stainless steel centrifugal, high-capacity
High-Pressure Pump	Seawater-rated multistage stainless steel
Motor Power	30 – 37 kW
Pressure Range	55–70 bar
Protection	Low-pressure / dry-run / overload protection

6. Instrumentation & Control

Parameter	Specification
Display	Digital conductivity monitor
Pressure Gauges	4–5 (feed / HP / membrane / concentrate / final)
Flow Meters	Feed / permeate / concentrate
Emergency Stop	Yes
Automatic Shut-off	Low pressure / high pressure
Optional	PLC control / SCADA-ready remote monitoring / Auto flush

7. Hydraulic Connections

Parameter	Specification
Feed Connection	3"
Permeate Outlet	2½"

Concentrate Outlet	2½"
Piping Material	High-pressure SS316 / FRP; PVC-U (low pressure)
Flow Regulation	Manual or automated concentrate control valve

8. Electrical Data

Parameter	Specification
Voltage	380–415 V / 50 Hz / 3-Phase
Optional	60 Hz configuration
Power Consumption	30 – 45 kW
Control Panel	Industrial stainless enclosure, IP54

9. Mechanical Data

Parameter	Specification
Frame Material	Stainless Steel 304 (316 recommended for marine environments)
Dimensions (L × W × H)	approx. 4500 × 1700 × 2100 mm
Weight	approx. 3000 – 3800 kg
Installation	Floor-mounted, heavy-duty anchor-ready base

10. Feed Water Requirements

Parameter	Limit
Temperature	5 – 35 °C
SDI	< 3
Iron (Fe)	< 0.05 mg/L
Manganese (Mn)	< 0.02 mg/L
Oil & Grease	< 1 mg/L



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