

**SYDROS Desal - 500**



**TECHNICAL DATA SHEET**

**500 LPH Seawater Reverse Osmosis Plant (SWRO)**

**0.5 m<sup>3</sup>/h – Industrial Desalination System**

**1. System Overview**

Parameter	Specification
<b>System Type</b>	Seawater Reverse Osmosis (SWRO)
<b>Nominal Capacity</b>	500 L/h
<b>Configuration</b>	Dual membrane system
<b>Design</b>	Skid-mounted, corrosion-resistant stainless steel frame
<b>Operation</b>	Continuous industrial duty

## 2. Performance Data

Parameter	Value
Permeate Flow Rate	500 L/h (±15%)
Daily Production	Up to 12.0 m <sup>3</sup> /day
Recovery Rate	35–45%
Salt Rejection	≥ 99.2%
Feed TDS (max.)	35,000 ppm
Permeate TDS	< 500 ppm
Design Conditions	25°C / 35,000 ppm TDS

## 3. Membrane Section

Parameter	Specification
Membrane Type	Thin Film Composite (TFC), seawater grade
Membrane Size	2 × 4040 SWRO membranes
Pressure Vessel	FRP, 600 psi rating
Operating Pressure	55–70 bar
Max. Operating Pressure	70 bar
Flush System	Manual flush valve (standard)

## 4. Pre-Treatment

Parameter	Specification
Stage 1	Multimedia / quartz sand filter
Stage 2	Activated carbon filter
Stage 3	5 µm cartridge filter

<b>Required SDI</b>	< 3
<b>Free Chlorine</b>	< 0.1 mg/L
<b>Antiscalant Dosing</b>	Standard dosing system included

## 5. Pump System

Parameter	Specification
<b>Raw Water Pump</b>	Stainless steel centrifugal
<b>High-Pressure Pump</b>	Seawater-rated multistage stainless steel
<b>Motor Power</b>	3.0 – 4.0 kW
<b>Pressure Range</b>	55–70 bar
<b>Protection</b>	Low-pressure / dry-run / overload protection

## 6. Instrumentation & Control

Parameter	Specification
<b>Display</b>	Digital conductivity monitor
<b>Pressure Gauges</b>	3 (feed / HP / concentrate)
<b>Flow Meters</b>	Permeate & concentrate
<b>Emergency Stop</b>	Yes
<b>Automatic Shut-off</b>	Low pressure / high pressure
<b>Optional</b>	PLC control / Auto flush / Dual conductivity monitoring

## 7. Hydraulic Connections

Parameter	Specification
Feed Connection	1"
Permeate Outlet	¾"
Concentrate Outlet	¾"
Piping Material	High-pressure FRP / SS / PVC-U (low pressure side)
Flow Regulation	Manual concentrate control valve

## 8. Electrical Data

Parameter	Specification
Voltage	380–400 V / 50 Hz / 3-Phase
Optional	60 Hz configuration
Power Consumption	4.0 – 6.0 kW
Control Panel	Stainless steel enclosure, IP54

## 9. Mechanical Data

Parameter	Specification
Frame Material	Stainless Steel 304 (316 optional)
Dimensions (L × W × H)	approx. 1600 × 900 × 1600 mm
Weight	approx. 400 – 550 kg
Installation	Floor-mounted, vibration-damped feet

**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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