

REVERSE OSMOSIS SYSTEM

DOUBLE PASS REVERSE OSMOSIS SYSTEM

System Features and Functional Highlights

The PRIME 8,000 x 6,000 GPD-DP Series is designed with advanced features that enhance performance, monitoring, and water efficiency for dialysis-grade water treatment. Below are the key system components and capabilities:

PLC-Based Control System: Equipped with a Programmable Logic Controller (PLC) for precise and efficient system management.

Individual Membrane Monitoring: Each RO membrane includes a dedicated in-line flow meter to allow real-time monitoring of product flow.

Flexible RO Membrane Configuration: Supports variable membrane configurations, including parallel and parallel-series setups, allowing adaptability to operational demands.

Comprehensive Pre-Filtration Monitoring: Integrated pressure gauges and sampling ports at each pre-filter stage enable accurate diagnostics and quality control.

Manual RO Membrane Flushing: Manual flushing function post-operation helps extend membrane life and maintain optimal performance.

Automated Water Recycling: Automatically recycles RO 2 reject water back to the raw water tank, significantly improving water use efficiency.

Integrated Flushing & Declogging Line: Built-in lines facilitate RO membrane flushing and declogging for simplified maintenance and consistent output.

Variable Reflux System: Enables reflux control, allowing a portion of the reject water to be recirculated back into the feed for improved processing.

Advanced RO 2 Reflux System: Allows a portion of RO 2 reject to be returned to the raw holding tank to dilute the raw water. The system includes a manual option to divert this to the RO 1 holding tank. Once both tanks are full, flow is automatically diverted to the reject line to prevent overflow.

4040 RO Membranes

Individual Flow Meter

Individual Valve Control

High Pressure Pump

HMI CONTROL
PANEL WITH
MANUAL OPTION

Description

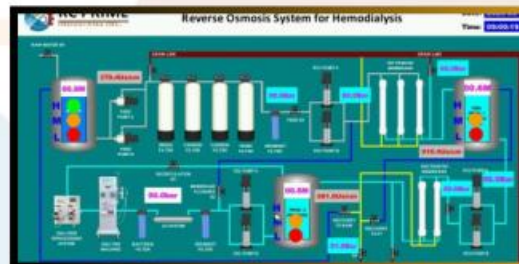
PRIME 16k x 12k DP Series

The PRIME 16,000 x 12,000 GPD-DP Series is a locally manufactured and assembled water treatment system specifically designed for dialysis use. Built with versatility in mind, the system allows end-users to configure and program settings tailored to their operational requirements—delivering both functionality and convenience.

At the core of the system is a Programmable Logic Controller (PLC), ensuring efficient and reliable control of the entire treatment process.

At RC PRIME, we are committed to innovation and continuous improvement. Our systems are developed with an emphasis on ergonomic design, quality, and affordability, positioning them to compete with international brands.

Safety and compliance remain our top priorities. The system is designed to fully comply with AAMI Water Quality Standards and the regulatory guidelines of the Department of Health (DOH), ensuring it meets the highest standards for dialysis applications.



HMI TOUCH SCREEN
CONTROL PANEL



RC PRIME
INDUSTRIES INC.

Your Water and Renal Technology Specialist



REVERSE OSMOSIS SYSTEM

16,000 X 12,000 GPD DOUBLE PASS RO SYSTEM



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Control System

Main Controller : Using PLC Module

Low and High-Water Level Sensors : A float switch controls the systems operation as part of the interlocking components.

Raw Water Input Control : A 220 VAC solenoid valve that controls the incoming raw water. Equipped with a by-pass ball valve in case the solenoid is faulty.

Drain Control Valve : Controls the flow of the drain line when backwashing is interrupted due to lack of raw water supply. This prevents the continuous flow of water by gravity while filling up the raw tank.

Low- and High-Pressure Switch : Yes, using a digital pressure controller for a more sensitive and accurate response.

Auto and Manual Switches : Yes, every stage has its own auto and manual switches with the corresponding indicator lamp which motor is running. These include overload indicators.

Back Up System (Automatic) : Yes. Pumps are controlled by a 24-hour timer that switches automatically triggered every 1-hour (default settings).

Back Up System (Manual) : Yes, can be manually triggered in the event of failure of the main pumps.

RO Inlet Pressure Gauge (Oil) : 0-350 PSI

Concentrate Pressure Gauge (Oil) : 0-350 PSI

RO Pre Filter Pressure Gauge (Oil) : 0-100 PSI

Conductivity Meter (Feed) : PPM/ uS/cm

Conductivity Meter (Product) : PPM/ uS/cm

Conductivity Meter (Return/Loop) : PPM/ uS/cm

Low- and High-Pressure Alarm : 14 mm Pilot Lamp

Emergency Stop Switch : Yes, Manually Pressed during Emergency

Auto Flushing : Yes, with 14 mm Pilot Lamp Indicator

RO Pump on Delay : Yes, with 14 mm Pilot Lamp Indicator

Recirculation Mode : Yes, Manually Triggered during night mode (Optional)

RO Pressure Alarm off Delay : Yes, (When High Pressure Is detected)

Double Pass to Single Pass Conversion: Manual By-pass Valve connection and Electronic Valve Connection. End user can switch the system from double pass to Single Pass Configuration. By-pass valve can be manually open and close whenever electronic valve is faulty.



Pre Treatment System

Feed Pump with Pressure Controller (with Back up Pump) : Horizontal Pump
Rated Power: 3.0 kW, 4.0 hp, Three Phase, 220/240 VAC, Q: 8 m³/h

Multi-Media Filter : 21" X 62" FRP Tank (PENTAIR/CANATURE), 4.0 Inches Base

Carbon Filter (2 Units) : 21" X 62" FRP Tank (PENTAIR/CANATURE), 4.0 Inches Base

Water Softener : 21" X 62" FRP Tank (PENTAIR/CANATURE), 4.0 Inches Base

Backwashing Release Valve : Yes, automatically triggered when backwashing is activated. This prevents high pressure build up at the FRP Control Head to avoid gear displacement of head controller.

Brine Tank : 200 Liters PVC Tank

Pressure Gauges and Sampling Outlets : Equipped with pressure gauges every after stage with corresponding sampling port.

Storage and Distribution Module

RAW Water Holding Tank (Blue) : 1,500 Liters PE Tank w/ 304 S/S Frame (Flat Bottom)

Permeate Holding Tank 1st Pass : 1,050 Liters Polyethylene Storage Tank

Permeate Holding Tank (White) : 1,050 Liters Polyethylene Storage Tank

Distribution Pump with back up : 2 Units, Horizontal Pump, 1.5 kW, 2.0 hp, 3 Phase, 220/240 VAC

Recirculation System : Rated Power: Solenoid Ball Valve (220 Vdc) with By-pass Valve and manually triggered during night shift. Programmable 24-hour timer.

UV System Distribution Side : 1 Unit 6-12 GPM UV Water Sterilizer depending on the # of Machines.

Sediment Filter with Housing (Pre UV) : 1 Unit SL 20 Sediment Filter with Housing

UF Filter with Housing : 0.2 Micron Bacteria Filter 2.5" x 20" Clear Housing

Piping and Fittings : Grey Pipe and Fittings Scheduled 40



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