



## **HDU REVERSE OSMOSIS UNITS**

### **General Description**

Canadian Water Technologies offers reverse osmosis units designed specifically for hemodialysis, designated the "HD" Series. Each unit is a single pass RO system mounted on a powder coated aluminum frame. The RO unit includes a high pressure feed pump, stainless steel, side entry pressure vessels, spiral wound thin film composite RO membranes, polypropylene low pressure feed piping, 304L stainless steel high pressure piping, polypropylene reject and reject/recirculation piping, polypropylene product piping, and a control panel. The unit is pre-assembled, pre-wired, and hydrostatically tested at the manufacturers facility. The RO membranes can be factory installed and tested or shipped separately for field installation.

### **Mechanical Description**

The major components are supported by the powder coated aluminum frame and designed in such a way to provide easy access for servicing, maintenance, and monitoring system performance. The frame is a full frame configuration designed to offer maximum support and protection for the RO unit's components. The pressure vessels are arranged to accommodate future expansion if necessary, without disturbing the existing components.

The RO unit's piping is neatly arranged and supported on the frame. The feed piping, low pressure reject, product and low pressure reject recycle piping is polypropylene. The high pressure piping is constructed of 304 stainless steel tubing with 316 stainless steel compression fittings. All high pressure valves, including the pump discharge throttling valve, reject needle valve, and reject/recycle needle valves are 316 stainless steel.

Dual stage prefiltration is supplied integral to the reverse osmosis system. Three(3) 0-100 PSIG pressure indicators are mounted on the reverse osmosis mechanical instrument panel to provide pressure drop indication across each pre-filter.

Pre-membrane and post-membrane pressure is also indicated utilizing 0-300 PSIG pressure gauges. These indicators are located on the reverse osmosis mechanical instrument panel and are useful for system calibration and determining routine membrane cleaning intervals.

The reject and reject/recycle valves are mounted on the reverse osmosis mechanical instrument panel in close proximity to the flow rate and pressure indicators for ease of field adjustment.

Feed, product, and reject piping is designed for minimal removal during RO membrane loading and unloading.

The RO unit has two rotameter type flow indicators. They give a direct reading of the product and concentrate reject flows.

### **Electrical Description**

The RO unit's control system is comprised of a control panel and frame mounted wiring. The control panel is a polyurethane coated NEMA 4 rated enclosure housing a programmable logic controller (PLC) for the integral control of the RO unit as well as discrete inputs and outputs for communicating with the pretreatment and post treatment equipment. The PLC is fully programmed and the control system is integrity tested at the factory prior to shipment. Electrical service to the RO unit is a dual voltage supply of 575V/460V/208V-3Ph-60Hz and 110V-1Ph-60Hz to this cabinet.



The control panel is mounted to the RO's structural frame in such a way to allow easy access to process monitors and control devices such as lights and switches. The RO unit comes standard with a percent rejection monitor. The monitor will display the system percent rejection, feedwater temperature, feed conductivity and product conductivity. One alarm contact from the monitor will cause the system to automatically divert low quality water to drain and sound an alarm.

## GENERAL TECHNICAL SPECIFICATIONS

**Model #:** HDU

### Reverse Osmosis System Design Specifications

Feed Water Specifications	Not Supplied (2000 mg/l)
Capacity @ 25°C	1.4 – 6.5 usgpm
Designed Recovery	50%
Maximum Recovery	75%
NaCl Rejection	99%
Designed Membrane Pressure	200 psi
Maximum Pressure	400 psi
Configuration	Single Pass
Feed Water Pressure	40 psi (assumed)

### Electrical Component Specifications

Enclosure	Nema 4 Rated
Voltage/Amps	575/460/208 - 110 - 3ph/1ph
CSA Certification	Manufacturers Site Approval

### General Component Specifications

Pre-Filters\Housings	2 X Natural Polypropylene (5 Micron & 1 Micron)
High Pressure Pump	Stainless Steel Enclosed (Silent)
Membrane Model\Type	Filmtec BW30-4040 - Polyamide
Number of Membranes	One (1) – Six (6)
Membrane Housing\Type	Stainless Steel - Victaulic Closures - 500psi
Number of Membrane Housings	One (1) – Three (3)
Membrane Housing Orientation	Vertical
Frame	Powder Coated Aluminum
Dimensions (approx.)	32"W - 26"D - 90"H
Weight (approx.)	600 – 820 lbs.

### Feed Water Parameters

Feed Water Temperature	5°C to 40°C
Feed Water Pressure	30psi - 80psi
Feed Water SDI	<3
Feed Water Turbidity	Maximum 1 NTU
Feed Water Chlorine	Maximum .01ppm
Feed Water pH	2 to 11
Feed Water TDS	<1000ppm