

# PureBox™ ROWPU

## Reverse Osmosis Water Purification Unit

The RODI Systems PureBox™ Reverse Osmosis Water Purification Unit (ROWPU) is a self-contained, fully functional water treatment system housed in a durable steel enclosure. The PureBox™ ROWPU can produce up to 7,000 GPD from naturally occurring water supplies including fresh water, brackish water, or seawater. It is designed with simplicity and durability in mind and is easy to transport, install, operate, and maintain. The PureBox™ ROWPU is suitable for a number of uses:

- **Emergency Relief**
- **Small Communities**
- **Remote Work Camps**
- **Military Facilities**
- **Hotels and Resorts**

### Benefits

The PureBox™ treatment systems have a number of benefits that makes them an excellent choice for your water treatment or desalination application.

**Portability** — The system is completely self-contained in a steel enclosure (or optional military quadcon). Simply position the system, make piping and electrical connections, and start treating water.

**Flexibility** — As your water treatment needs change, additional PureBox™ systems may be added or changed easily.

**Security** — The lockable enclosures and containers provide excellent security for the water treatment equipment.

**Quality** — PureBox™ is designed and built by RODI Systems Corp., a leader in the construction of portable water treatment systems.

**Dependability** — RODI's portable systems are serving as dependable sources of clean water around the world.

### Treatment Technologies

The standard PureBox™ ROWPU design incorporates the following treatment steps:

**Primary Filter** — The primary media filter consists of a fiberglass composite pressure vessel containing anthracite filter media. The primary filter is backwashable and removes larger suspended solids which might otherwise have a detrimental effect on the other system components.

**Secondary Filter** — The secondary media filter consists of a fiberglass composite pressure vessel containing Turbidex™ high performance filter media. Turbidex™ granules consist of a high surface area alumino-silicate mineral that provides exceptional suspended solids filtration. The secondary media filter is backwashable and the macro porous nature of Turbidex™ al-

lows for filtration at levels approaching five microns in particle size.

**Cartridge Filter** — The secondary media filter is followed by a cartridge filter to insure that stray particulate does not inadvertently enter the high pressure pump or RO membrane elements.

**Reverse Osmosis** — Reverse osmosis (RO) is the heart of the ROWPU. By utilizing high rejection thin film composite membrane elements, the ROWPU is capable of removing a vast number of contaminants from the feed water. This includes salinity, heavy metals, arsenic, organic compounds, not to mention viruses and bacteria.

**Disinfection (Optional)** — As an option, the ROWPU can be equipped with one or more disinfection steps to further disinfect the RO permeate. This may include chemical (bleach) injection or ultraviolet (UV) treatment.



7,000 Gallon per Day Brackish Water ROWPU Mounted Inside Standard Fabricated Steel Enclosure

The RODI Systems PureBox™ ROWPU systems incorporate a number of specifications which make them a high quality choice for your water purification application. Specifications of the ROWPU systems may vary depending upon the intended service and the options chosen by the customer.

**Container** — The system is totally self-contained inside a fabricated steel enclosure or optional quadcon shipping container. Installation is easy and consists of unloading the container and making the necessary piping and electrical connections.

**Construction** — The PureBox™ ROWPUs are constructed of new, industrial quality materials. Piping, vessels, and other system components are supported inside the container with fiberglass, steel, or aluminum structural members.

**Piping** — All low pressure piping is Schedule 80 PVC or other non-metallic materials. High pressure piping utilizes 304 or 316 stainless steel depending upon intended service. Welded joints are used wherever possible and threaded joints are avoided as much as possible to prevent leaks. All valves and fittings are of industrial quality.

**Pressure Vessels** — Membrane pressure vessels are filament wound using fiberglass roving and sealed with an epoxy resin. This results in a corrosion-proof vessel that will last for years with little or no maintenance.

**Membrane Elements** — The PureBox™ ROWPU utilizes spiral wound membrane elements with thin film composite membrane. This results in high quality permeate with only a single pass, low operating pressures, and a long service life.

**High Pressure Pump** — The PureBox™ ROWPU units utilize a variety of high pressure pumps depending upon the intended service and system size. Brackish water systems are equipped with rotary vane or multistage centrifugal pumps. Systems intended for seawater service are equipped with positive displacement pumps.

**Electrical** — All electrical construction is done to recognized standards. Rigid or flexible PVC conduit and PVC junction boxes are used to prevent corrosion. Only NEMA 4X non-metallic enclosures are used. All electrical systems are thoroughly tested before the treatment system is shipped.

**Documentation** — All systems are provided with a complete set of documentation which includes component O&M manuals and wiring diagrams.



5,000 Gallon per Day Seawater ROWPU Mounted Inside Optional Military Grade Quadcon Container

## Major Components



# PureBox™ ROWPU

# Specifications

ROWPU Version	Product Capacity (Gal/Day)	Power Required	Feed Required (Gal/Min)	Container Size L x W x H Weight	Primary Filter Vessel	Secondary Filter Vessel	RO Array
Brackish Water (<2500 ppm TDS)	7,000 @ 14 GFD	240 VAC, 1 Phase, 22 Amps, 50/60 Hz	7 gpm Service 12 gpm Backwash	4' 9-3/8" x 8' x 6' 10" 2500 lbs	12" diameter x 54"	12" diameter x 54"	Six 4" x 40" Elements in Series
Seawater	5,000 @ 10 GFD	240 VAC, 1 Phase, 35 Amps, 50/60 Hz					

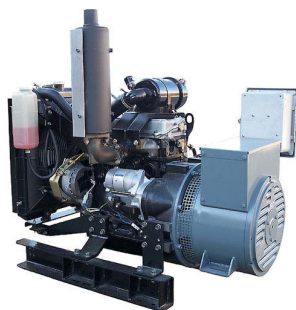
# PureBox™ ROWPU

# Options

The RODI Systems PureBox™ ROWPU water treatment systems are available with a number of options. This allows clients to customize a system to fit their particular water treatment application.

**Military Grade Quadcon** — The standard ROWPU is housed in a fabricated steel enclosure suitable for most applications. However, as an option, the ROWPU may be housed in a military grade quadcon shipping container.

**Integral Generator** — The system can be equipped with an integral diesel genset. This option also includes an integral fuel tank for extended operation. The genset is capable of operating the entire treatment system in addition to providing auxiliary power for other uses related to the site.



**Filter Aid Injection** — A chemical injection system can be provided to inject a filter aid into the inlet of the primary filter. This chemical filter aid helps coagulate small suspended particles thus increasing the efficiency of the filter. The filter aid injection system includes an injection pump and chemical day tank.

**Hypochlorite Injection** — A chemical injection system can be provided to inject sodium hypochlorite (bleach) into the RO permeate to insure disinfection of the stored permeate. The hypochlorite injection system includes an injection pump and chemical day tank.

**Automatic Filter Backwash** — The standard ROWPU is equipped with manual valves to control filter backwash. Automatically actuated valves are available as an option to insure proper backwash without operator attention.

**Ceramic Membrane Pretreatment** — This option includes a ceramic membrane microfilter in place of the primary and secondary media filters. The membrane pretreatment is useful when the ROWPU is used on surface water sources with high amounts of suspended solids.

**Feed Booster Pump** — The optional feed booster pump is required when the customer's site does not have sufficient pressure to feed the system (less than 30 psig or 2 barg).

**Climate Control** — The container housing the system can be equipped with approximately 2 inches of solid foam insulation covered with rigid waterproof plastic. The container may also be equipped with an electric heater.



**Ultraviolet Treatment** — Additional bacterial protection can be provided in the form of a UV treatment system on the filtered water before final chlorination.

**Operator Training** — Training is available at RODI's facility for those individuals responsible for operating and maintaining the PureBox™ systems. Training and technical support are also available on-site for most locations.

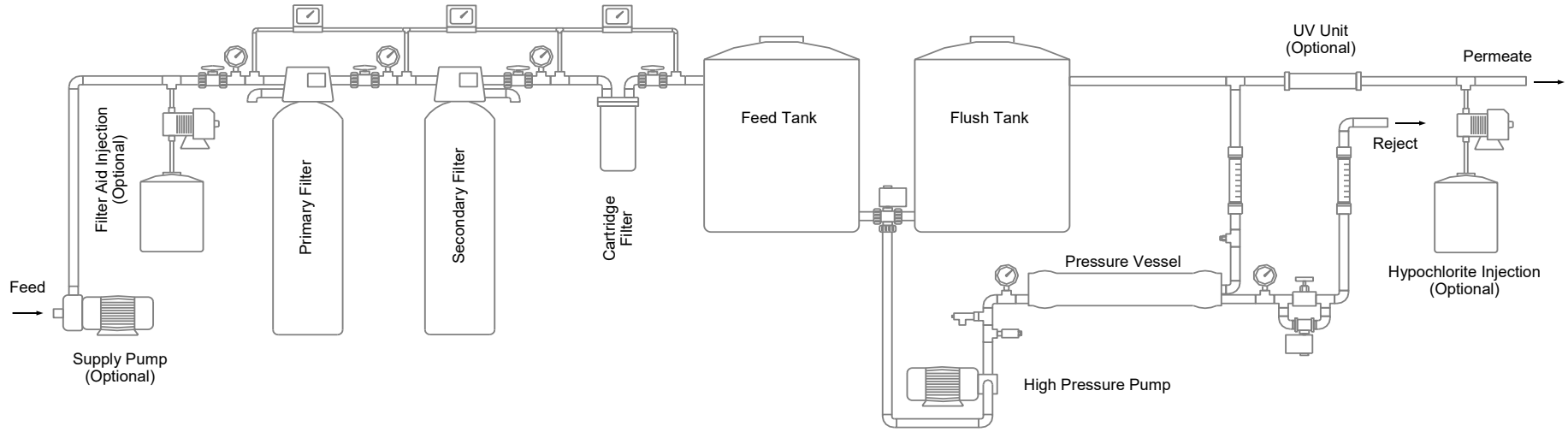











**Remote Monitoring** — This option allows the system to be monitored remotely via an internet network connection or cellular phone network.

# PureBox™ ROWPU

# Basic System Diagram

The basic version of the RODI Systems PureBox™ ROWPU is illustrated in the diagram below. NOTE: This diagram is for general information only. Certain components on the actual system will vary depending upon system service and selected options. Refer to the system proposal or quotation for specific information on a given system configuration.



- |  |   |   |
|--|---|---|
|  Differential Pressure Switch |  Conductivity Sensor                   |  Relief Valve                        |
|  Pressure Indicator           |  Variable Area Flowmeter (Rotameter)   |  Isolation Valve                     |
|  Pressure Switch              |  Electrically Actuated Three-Way Valve |  Electrically Actuated Two-Way Valve |

**NOTE: All specifications are subject to change without notice.**

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