

PureBox™ FX

Self-Contained Portable Water Treatment System

The RODI Systems PureBox™ water treatment systems are built inside intermodal dry cargo shipping containers that have been specifically modified for water treatment applications. This results in a fully self-contained, fully functional water treatment system that can be delivered to a site and put into operation with a minimum of site preparation. The PureBox™ FX is one of several versions of the PureBox™ product and is designed to treat naturally occurring fresh waters (such as rivers, streams, lakes, or fresh water wells) that do not require removal of dissolved solids. The PureBox™ FX is suitable for a number of applications:

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

Benefits

The PureBox™ series of treatment systems has a number of benefits that makes it an excellent choice for your water treatment application.

Portability — The system is completely self-contained in an intermodal shipping container. Simply unload the container, make piping and electrical connections, and start treating water.

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

Security — The lockable 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 FX version of the PureBox™ series of treatment systems has four basic treatment steps to produce pure water from fresh water sources.

Inlet Screen — A backwashable inlet screen removes large debris which might plug valve ports or otherwise have a detrimental effect on the treatment system.

Primary Filter — The primary media filter consists of a fiberglass composite pressure vessel containing Filter Ag® filter media. Filter Ag® is a low den-



sity media with irregular shape that requires lower backwash volumes and allows deeper sediment penetration into the filter thus providing higher sediment capacity before backwashing.

Secondary Filter — The secondary filter consists of a fiberglass composite pressure vessel containing Turbidex™ high performance filter media. Turbidex™ granules consist of a high surface area aluminosilicate mineral that provides exceptional suspended solids filtration. The macro porous nature of Turbidex™ allows for filtration at levels approaching five microns in particle size.

Hypochlorite Injection — This component of the system includes a chemical injection pump and day tank for the injection of sodium hypochlorite (bleach). This final treatment step insures that the treated water remains safe from bacterial contamination. The injection pump is controlled by an electronic flow sensor.

The RODI Systems PureBox™ FX water treatment systems incorporate a number of specifications which make them a high quality choice for your water treatment application.

Container — The system is totally self-contained inside a modified ISO dry cargo shipping container. Only new or “One Trip” containers are used for our systems. This means the container has only been exposed to one ocean voyage before being modified for use in housing the treatment system.

Construction — All of the PureBox™ systems are constructed of new, industrial quality materials. Piping, vessels, and other system components are supported inside the container with fiberglass structural members.

Piping — All piping is Schedule 80 PVC or other non-metallic materials. In cases where wetted metallic materials are necessary, only stainless steel is utilized. Socket weld joints are used wherever possible and threaded joints are avoided to prevent leaks. All valves and fittings are of industrial quality.

Filter Vessels — The vessels used for the media

filter and carbon filter are 100% fiberglass composite construction in which glass fibers are wound around an internal polyethylene inner shell and sealed with an epoxy resin. This results in a corrosion-proof tank that will last for years with little or no maintenance.

Filter Control Valves — The smaller systems are equipped with commercial quality control valves mounted on top of the filter vessel. These valves are equipped with their own electronic controller to monitor the filter and provide necessary backwash functions. Larger systems are equipped with a nest of non-metallic valves controlled by a dedicated stager controller or PLC-based control system.

Electrical — The container is equipped with lights and auxiliary power outlets. All electrical construction is done to NEC requirements. Rigid or flexible PVC conduit and PVC junction boxes are used to prevent corrosion. Only NEMA 4X non-metallic enclosures are used on systems that require

large control or electrical enclosures. All electrical systems are thoroughly tested before the treatment system is shipped.



PureBox™ FX General Specifications		
Capacity (Gal/Day)	Container Dimensions ⁽¹⁾ (L x W x H) (ft)	Power Requirement (kW) ⁽²⁾
15,000	8 x 5 x 7	2.5
25,000	20 x 8 x 8.5	3.5
50,000	20 x 8 x 8.5	6.0
100,000	40 x 8 x 8.5	10.0
200,000	40 x 8 x 9.5	17.0
300,000	40 x 8 x 9.5	25.0

(1) Dimensions or number of containers may change with additional options or design changes.
 (2) Requirement may vary with feed water quality.

PureBox™ FX Operating Specifications	
Parameter	FX Outlet
Minimum Inlet Feed Pressure	2 psig
Maximum Feed Temperature	120 Deg F
Maximum Feed Turbidity	100 NTU instantaneous; 20 NTU constant
Primary Filter Loading Rate	5.0 GPM/Ft ²
Secondary Filter Loading Rate	7.0 GPM/Ft ²
Filtrate Turbidity	<1.0 NTU ⁽¹⁾
Electrical Requirement	240, 380, or 460 VAC, 3 Phase, 50 or 60 Hz

(1) Maximum turbidity reduction will require the use of a chemical filter aid.

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

Raised Floor — The system can be equipped with a raised floor consisting of fiberglass grating supported six inches above the container floor. This option protects the floor of the container and provides a neat and safe environment inside the container since the piping runs beneath the raised floor.



Filter Aid Injection — A chemical injection system can be provided to inject a filter aid into the inlet of the media filter. This chemical filter aid helps coagulate small suspended particles thus increasing the efficiency of the filter.

Climate Control — The container housing the system is equipped with approximately 3 inches of solid foam insulation covered with rigid waterproof plastic. Depending upon the climate of the destination, the container is equipped with an air conditioner or electric heater.



Booster Pump or Well Pump — The basic PureBox™ FX system requires a positive inlet pressure of 50 psi minimum. For those applications not meeting this requirement, a booster pump or well pump can be provided. This option includes all of the necessary motor controls and circuit protection.

Solids Separator — For high solids applications, a centrifugal solids separator or self-cleaning screen may be added to the inlet of the system to reduce the load of solids on the media filter. Centrifugal separators are most effective on high density solids such as sand or grit. Self-cleaning screens are more effective at removing “softer” less dense solids such as plant matter or other organic debris.



Instrumentation

— A number of analyzers can be provided to assist the client in monitoring the quality of both inlet and outlet of the system. Available instrumentation includes pH, ORP, chlorine, turbidity, and silt density index.



Ultrafiltration — An ultrafiltration (UF) system can be added to the standard filtration steps to provide the ultimate in particle removal efficiency. UF membrane technology removes particles down to 0.02 microns in size thus protecting against protozoa, bacteria, and viruses.

Duplex Filter Vessels — The basic PureBox™ Filter system includes single filter vessels for both primary and secondary filters. This means that during backwash, treated water flow is interrupted. The system may be provided with duplex vessels which allows continuous treated water flow during backwash of either the media or carbon filter.

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



Controls Upgrade — Upgraded control system including a color touch screen operator interface with data logging. This option also includes a complete set of electronic sensors for

conductivity, flow, temperature, and pressure.



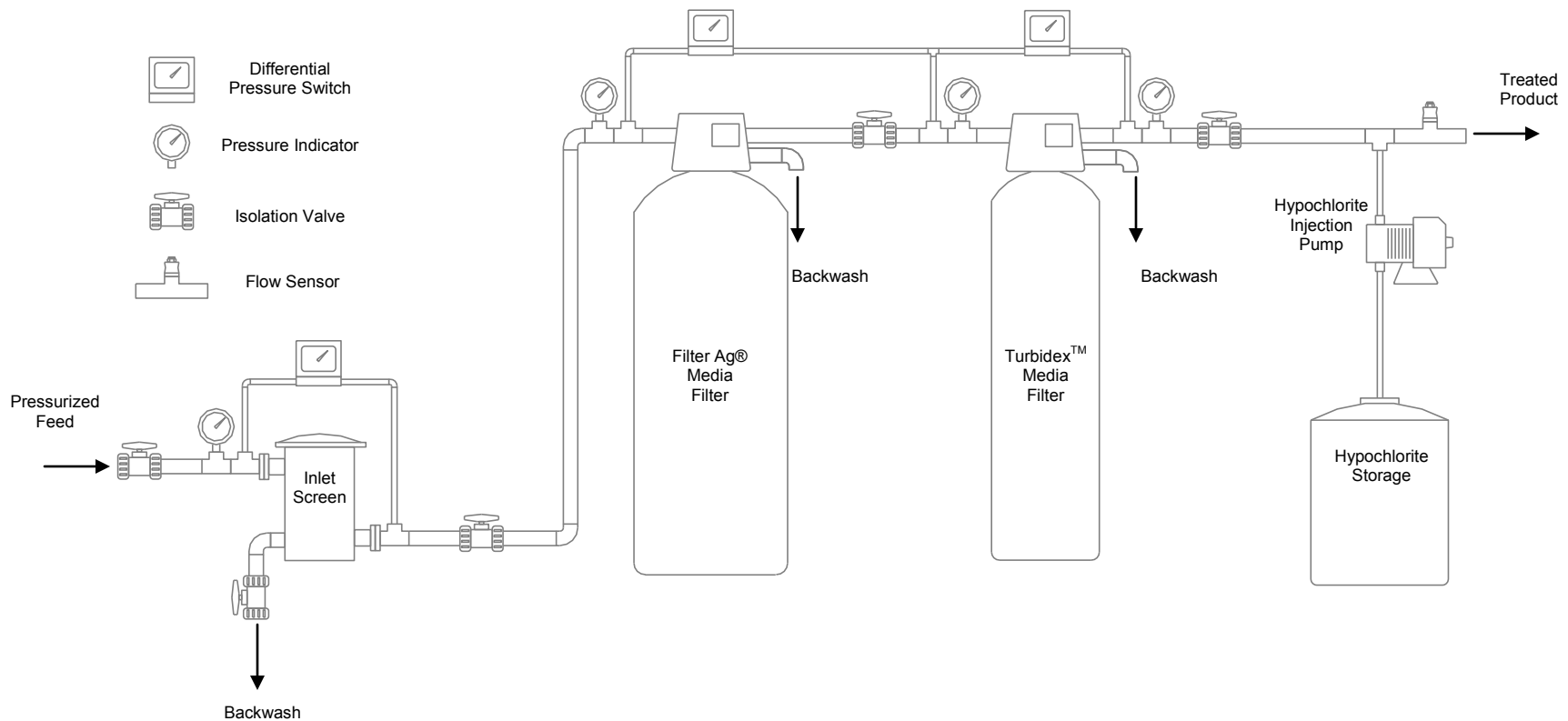
Remote Monitoring — This option allows the system to be monitored remotely via the cellular phone network or satellite. A controls upgrade or instrumentation package is also required with this option.

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.

PureBox™ Filter

Basic System Diagram

The basic version of the RODI Systems PureBox™ Filter water treatment system 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 size and selected options. Refer to the system proposal or quotation for specific information on a given system configuration.

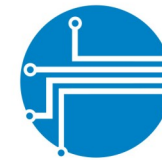


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NOTE: All specifications are subject to change without notice.

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