

Purologix Water Services, Inc  
Serving Central and Eastern NC  
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High Purity Systems  
designed with ultimate  
flexibility in mind



## Product Specifications

### PUROFLEX Systems

#### Features at a glance:

- LET (Low Entry Technology)
- TFD (Turbulent Flow Design)
- Quick delivery
- PLC controlled for safe operation
- UL listed
- Seismic Zone 4 compliant (support for exchange tanks/storage tanks not provided)
- Wide range of flow rates available
- Fully validatable systems
- Validation protocols and execution assistance *optionally* available



### GENERAL DESCRIPTION:

PuroFlex refers to a comprehensive product line of high-purity water purification systems, capable of producing water qualities meeting/exceeding USP Purified, CAP I, ASTM I, 18.2 Megohm-cm resistivity, designed specifically for clients requiring validation level documentation of their water treatment system. Included in the product line are four distinct “ Product Families” to accommodate a variety of Client needs: Exchange Deionization (BPH), Non-recirculating Makeup (BPN), Continuous Recirculating Makeup (BPR), and Hot Water Sanitizable (BPH) (see Process Flow Diagrams at end of data sheet). Each Product Family is fully customizable permitting freedom to select pre-treatment piping, product piping, specific system components, flow rates, etc. allowing optimization of the equipment to the individual application.

With the exception of the Exchange Deionization Product Family which ships as a single skid, all systems are fabricated and shipped as a single equipment package consisting of one, or more, individually skidded sub-systems (e.g.: pre-treatment, reverse osmosis, storage, distribution, etc.) permitting greater flexibility of system layout and installation. All system components, process piping, and control components are factory mounted.

### MECHANICAL DESCRIPTION:

Standard structural support for all Product Family skids is constructed of powder-coated, carbon steel; stainless steel skids are *optionally* offered. Skids are configured to provide maximum support for skid mounted components while allowing ample access for servicing, maintenance, and operation.

Pre-treatment piping for all Product Families is offered as Schedule 80 PVC. Product piping for all Product Families is available as Schedule 80 PVC (S80 PVC), Pigmented Polypropylene Socket Fusion (PPSF), Pigmented Polypropylene IR Butt Fusion (PPBF), PVDF IR Butt Fusion (PVBF), or 316L Sanitary Steel (SS). (NOTE: Hot Water Sanitizable system piping is as follows: Pre-treatment to Break Tank—S80 PVC, Break Tank to RO—S80 CPVC, RO through Distribution—Sanitary Stainless Steel.)

### ELECTRICAL & OPERATIONAL DESCRIPTION:

The Main Control Panel for all systems includes an integrated Programmable Logic Controller (PLC) to provide for safe operation of the equipment; a water quality readout monitor is also provided. In addition to the PLC, electrical aspects of the systems include motor starter, control transformer, power disconnect, assorted switches, indicators, and fuses. The enclosure is mounted to the skid framework and is NEMA 4 steel construction.

Interconnecting wiring on the Exchange Deionization Product Family is complete from the PLC to all peripheral components. Interconnecting wiring on the Non-recirculating Makeup, Continuous Recirculating Makeup, and Hot Water Sanitizable Product Families is complete on the Distribution sub-system and requires simple control interconnect to be field installed from the Main Control Panel to the remainder of the sub-systems.

Electrical requirements for all systems is a source of 3-phase power, Client provided, connected to the Main Control Panel. Power for instrumentation, PLC, UV lights, and convenience outlets is provided by an on-board control transformer. The control system is a UL listed device, pre-wired, and functionally tested prior to shipment. (NOTE: BP systems do not store data in any electronic fashion; therefore, there are no concerns with equipment being CFR Part 11 compliant. Any data transmitted to a Client’s building management software from a BP system must be provided for as an aspect of the Client’s security program.)

### EQUIPMENT PACKAGES:

Descriptions of a complete equipment package for each Product Family is provided below.

Exchange Deionization	Single skid containing Pre-treatment and Distribution
Non-recirculating Makeup	Multiple skids including: Pre-treatment, Reverse Osmosis, Storage Tank, Storage Tank Accessory Kit, and Distribution
Continuous Recirculating Makeup	Multiple skids including: Pre-treatment, Reverse Osmosis, <i>Optional</i> XDI/CEDI Makeup, Storage Tank, Storage Tank Accessory Kit, and Distribution
Hot Water Sanitizable	Multiple skids including: Pre-treatment, Reverse Osmosis, <i>Optional</i> XDI/CEDI Makeup, Storage Tank, Storage Tank Accessory Kit, Distribution, and Pre-treatment/Distribution Heat Exchangers



### EQUIPMENT ORDERING CONSIDERATIONS:

The tables below provide a list of items, by Product Family, that need to be considered when selecting a BP equipment package. [Note: Flow Rates provided are flow rates available at Point(s) of Use.]

Exchange Deionization (BPX) Product Family					
Flow Rate (gallons per minute)	2.7 <input type="checkbox"/>	6 <input type="checkbox"/>	12 <input type="checkbox"/>	20 <input type="checkbox"/>	30 <input type="checkbox"/>
Pretreatment Piping	S80 PVC <input type="checkbox"/>		Other (Please Specify) <input type="text"/>		
Post-treatment Piping	S80 PVC <input type="checkbox"/>	PPSF <input type="checkbox"/>	PPBF <input type="checkbox"/>	PVBF <input type="checkbox"/>	SS <input type="checkbox"/>
Optional Cooling Exchanger	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>		
Optional TOC UV Light	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>		

Non-recirculating Makeup (BPN) Product Family							
Flow Rate (gallons per minute)	2.7 <input type="checkbox"/>	8 <input type="checkbox"/>	16 <input type="checkbox"/>	30 <input type="checkbox"/>	50 <input type="checkbox"/>		
Pretreatment Piping	S80 PVC <input type="checkbox"/>		Other (Please Specify) <input type="text"/>				
Post-treatment Piping	S80 PVC <input type="checkbox"/>	PPSF <input type="checkbox"/>	PPBF <input type="checkbox"/>	PVBF <input type="checkbox"/>	SS <input type="checkbox"/>		
Storage Tank (type)	Conical Bottom/Gasket Lid/Epoxy Steel Stand <input type="checkbox"/>		Other (Please Specify) <input type="text"/>				
Storage Tank (capacity-gallons)	100 <input type="checkbox"/>	200 <input type="checkbox"/>	350 <input type="checkbox"/>	500 <input type="checkbox"/>	750 <input type="checkbox"/>	1000 <input type="checkbox"/>	Other (Please Specify) <input type="text"/>
Storage Tank Vent Filter	Standard Vent Filter <input type="checkbox"/>		Optional Conservation Vent <input type="checkbox"/>				
Optional Polish Deionization	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				
Optional UV Light	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				
Optional Final Filter	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				

Continuous Recirculating Makeup (BPR) Product Family							
Flow Rate (gallons per minute)	2.7 <input type="checkbox"/>	8 <input type="checkbox"/>	16 <input type="checkbox"/>	30 <input type="checkbox"/>	50 <input type="checkbox"/>		
Pretreatment Piping	S80 PVC <input type="checkbox"/>		Other (Please Specify) <input type="text"/>				
Post-treatment Piping	S80 PVC <input type="checkbox"/>	PPSF <input type="checkbox"/>	PPBF <input type="checkbox"/>	PVBF <input type="checkbox"/>	SS <input type="checkbox"/>		
Optional Makeup Polish	XDI <input type="checkbox"/>	CEDI <input type="checkbox"/>		Not Required <input type="checkbox"/>			
Storage Tank-LDPE (type)	Conical Bottom/Gasket Lid/Epoxy Steel Stand <input type="checkbox"/>		Other (Please Specify) <input type="text"/>				
Storage Tank (capacity-gallons)	100 <input type="checkbox"/>	200 <input type="checkbox"/>	350 <input type="checkbox"/>	500 <input type="checkbox"/>	750 <input type="checkbox"/>	1000 <input type="checkbox"/>	Other (Please Specify) <input type="text"/>
Storage Tank Vent Filter	Standard Vent Filter <input type="checkbox"/>		Optional Conservation Vent <input type="checkbox"/>				
Optional Polish Deionization	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				
Optional UV Light	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				
Optional Final Filter	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>				

Hot Water Sanitizable (BPH) Product Family						
Flow Rate (gallons per minute)	2.7 <input type="checkbox"/>	8 <input type="checkbox"/>	16 <input type="checkbox"/>	30 <input type="checkbox"/>	50 <input type="checkbox"/>	
Storage Tank (Dish Top/Bottom)	316L Stainless Steel <input type="checkbox"/>		Other (Please Specify) <input type="text"/>			
Storage Tank (capacity-gallons)	100 <input type="checkbox"/>	250 <input type="checkbox"/>	500 <input type="checkbox"/>	750 <input type="checkbox"/>	1000 <input type="checkbox"/>	Other (Please Specify) <input type="text"/>
Optional Makeup Polish	XDI <input type="checkbox"/>	CEDI <input type="checkbox"/>		Not Required <input type="checkbox"/>		
Optional Polish Deionization	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>			
Optional UV Light	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>			
Optional Final Filter	Included <input type="checkbox"/>		Not Included <input type="checkbox"/>			



### ADDITIONAL EQUIPMENT OPTIONS:

Frequently requested Equipment Package options are listed below.

Option	Description	Include
Factory System Passivation	Includes factory passivation of stainless steel piping.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Boroscope Inspection	Includes factory Boroscope inspection of stainless steel welds.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Seismic Zone Wet Stamp	Includes all skids provided for a single equipment package.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Thornton 770 Max with TOC	Includes replacement of Thornton M300 Quality monitor with 770 Max having optional TOC monitoring package.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Panel View	Includes replacement of hard switches and lights mounted on control panel door with a panel view device.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Pressure Gauge Calibration	Includes calibration certificates for selected gauges (Note: Sanitary Gauges provided with OEM calibration certificates).	Yes <input type="checkbox"/> No <input type="checkbox"/>
Weld Documentation	Includes joint documentation for thermoplastic piping systems (Note: this is standard on Stainless Steel piping systems) .	Yes <input type="checkbox"/> No <input type="checkbox"/>
Remote Installation Package	Includes all equipment package interconnecting piping (Note: a well defined, dimensioned, plot plan must be available).	Yes <input type="checkbox"/> No <input type="checkbox"/>

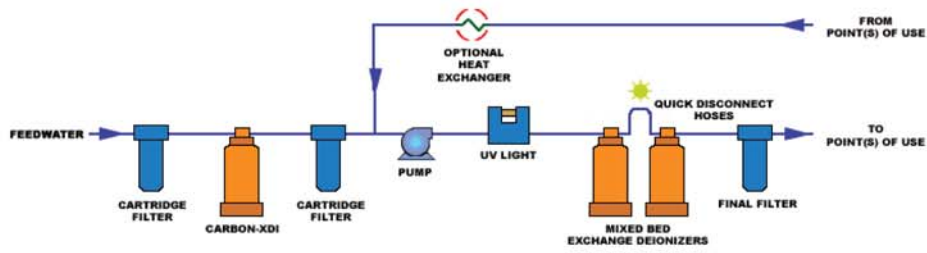
### ADDITIONAL DOCUMENTATION/VALIDATION ASSISTANCE

Listed below are optional documentation and validation services available for the BP Product Line. (Note: please request [Validation Support and Services](#) document for a more detailed explanation of the items presented below.)

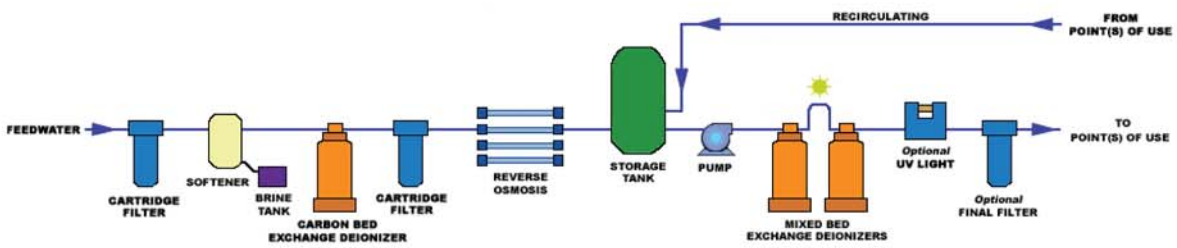
Option	Description	Include
Dry FAT (Factory Acceptance Test)	Fully functional FAT without running water through system.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Wet FAT (Factory Acceptance Test)	Fully functional FAT while running water through system.	Yes <input type="checkbox"/> No <input type="checkbox"/>
SAT (Site Acceptance Test) Protocol	Written protocol permitting Client to perform a Site Acceptance Test following equipment package installation. Testing to be completed is analogous to Wet FAT.	Yes <input type="checkbox"/> No <input type="checkbox"/>
SAT Execution	Factory representative travels to Client's site to execute the SAT Protocol.	Yes <input type="checkbox"/> No <input type="checkbox"/>
Installation/Operational Qualification (IOQ) Protocol	Written protocol permitting Client to perform an Installation and Operational Qualification on the equipment package. Protocol is executed by Client.	Yes <input type="checkbox"/> No <input type="checkbox"/>
IOQ Execution	Factory representative travels to Client's site to execute the IOQ Protocol	Yes <input type="checkbox"/> No <input type="checkbox"/>
Process Qualification (PQ) Protocol	Written protocol permitting Client to perform on-going Process Qualification of the equipment package. Protocol is executed by Client.	Yes <input type="checkbox"/> No <input type="checkbox"/>
PQ Execution	Factory representative travels to Client's site to execute first week of PQ Protocol and train Client to perform on-going PQ activities.	Yes <input type="checkbox"/> No <input type="checkbox"/>

# PROCESS FLOW DIAGRAMS

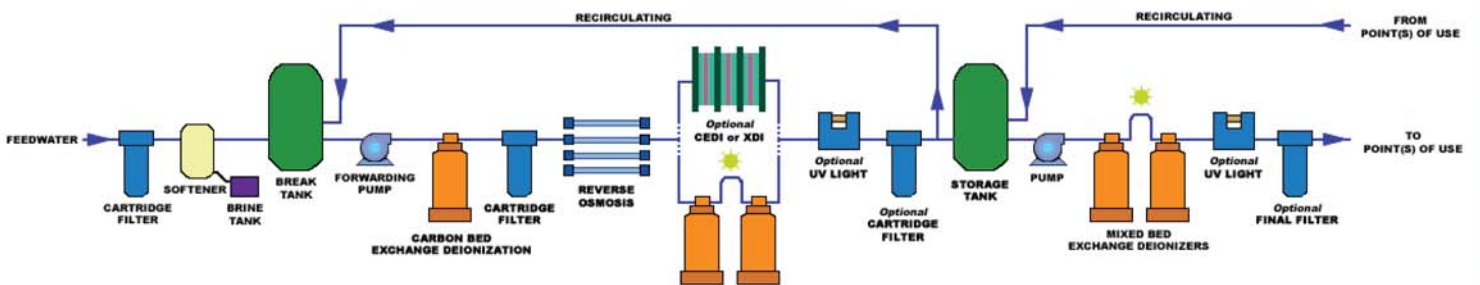
Exchange Deionization (BPX) Process Flow Diagram



Non-recirculating Makeup (BPN) Process Flow Diagram



Continuous Recirculating Makeup (BPR) Process Flow Diagram



Hot Water Sanitizable (BPH) Process Flow Diagram

