

## BP Systems

### Product Description/Equipment Specifications

**FLEXIBILITY**  
**LATITUDE**  
**ENGINEERING**  
**EXECUTION**  
**EXCELLENCE**

*Process Water Systems designed with ultimate **FLEXIBILITY** in mind.*



#### 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



Photos are for illustrative purposes only

#### General Description:

Flexx™ BP 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 (BPE), 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 (PVC). Product piping for all Product Families is available as Schedule 80 PVC (PVC), Schedule 80 CPVC (CPV), Beta Polypropylene Socket Fusion (BPS), Beta Polypropylene IR Butt Fusion (BPB), Natural Polypropylene Socket Fusion (NPS), Natural Polypropylene IR Butt Fusion (NPB), PVDF Socket Fusion (PFS), PVDF IR Butt Fusion (PFB), PVDF Bead and Crevice Free (BCF) or 316L Sanitary Steel (SSS). (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 and 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

## Exchange Deionization (BPE) Component Selection Matrix

Select   Select   Select   Select   Select

Select   Select   Select   Select   Select   Select   Select   Select

**EXAMPLE PART NUMBER**

**BPE   006   PVC   BPS   X**

**EXAMPLE OPTIONS**

**SZD   X   X   X   X   X   X   X**

<b>FIELD 1</b>	<b>BP Series Exchange Deionization System</b>	
	<b>Code</b>	<b>Code Description</b>
	<b>BPE</b>	BP Series Exchange Deionization System

<b>FIELD 2</b>	<b>Flow:</b> Enter the code for the desired treated water flow.	
	<b>Code</b>	<b>Code Description</b>
		<b>Loop Supply Flow Rate GPM</b>
	<b>002</b>	4 (10)
	<b>006</b>	6 (22)
	<b>012</b>	12 (45)
	<b>020</b>	20 (75)
	<b>030</b>	30 (113)

<b>FIELD 3</b>	<b>Pretreatment Pipe Material:</b> Enter the code for the desired pretreatment piping material. If another material is required, please contact the Customer Service Department at (813) 888-6300 or email <a href="mailto:inquiries@psconline.net">inquiries@psconline.net</a> .	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC

<b>FIELD 4</b>	<b>Post-Treatment Pipe Material:</b> Enter the code for the desired piping material.	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC
	<b>CPV</b>	Schedule 80 CPVC
	<b>BPS</b>	Beta Polypropylene, Socket Fusion
	<b>BPB</b>	Beta Polypropylene, Butt Fusion
	<b>NPS</b>	Natural Polypropylene, Socket Fusion
	<b>NPB</b>	Natural Polypropylene, Butt Fusion
	<b>PFS</b>	PVDF, Socket Fusion
	<b>PFB</b>	PVDF, Butt Fusion
	<b>BCF</b>	PVDF, Bead and Crevice Free
	<b>SSS</b>	Sanitary Stainless Steel, 316SS

<b>FIELD 5</b>	<b>Options</b> Enter the code for the desired options.	
	<b>Code</b>	<b>Code Description</b>
	CLE	Cooling Exchanger
	TUV	TOC Ultraviolet Unit with Light Traps

<b>FIELD 6</b>	<b>Additional Services:</b> Enter the codes for the desired additional services.	
	<b>Code</b>	<b>Code Description</b>
	FSP	Factory System Passivation
	WHD	Welding Documentation
	SZC	Seismic Zone Wet Stamp
	SZD	Seismic Zone Drawings Only (Calculations by Others)
	BSI	Boroscope Inspection
	FSP	Factory System Passivation
	TOC	Replacement of Standard Thornton M300 Quality Monitor with a Thornton 770MAX having Optional TOC Monitoring Package
	PNV	Replacement of Hard Switches and Lights Mounted on the Main Control Panel Door with a Panel View Device

## Non-Recirculating Make-Up (BPN) Component Selection Matrix

Select   Select   Select   Select   Select   Select   Select   Select

Select   Select   Select   Select   Select   Select   Select   Select

### EXAMPLE PART NUMBER

**BPN   008   PVC   BPS   Tfv1000   POL   BUv   FFF**

### EXAMPLE OPTIONS

**SZD   X   X   X   X   X**

<b>FIELD 1</b>	<b>BP Series Non-Recirculating Make-Up System</b>	
	<b>Code</b>	<b>Code Description</b>
	<b>BPN</b>	BP Series Non-Recirculating Make-Up System

<b>FIELD 2</b>	<b>Flow:</b> Enter the code for the desired treated water flow.	
	<b>Code</b>	<b>Code Description</b>
		<b>Loop Supply Flow Rate GPM(LPM)</b>
	<b>002</b>	4 (10)
	<b>008</b>	8 (30)
	<b>016</b>	16 (60)
	<b>030</b>	30 (113)
	<b>050</b>	50 (189)

<b>FIELD 3</b>	<b>Pretreatment Pipe Material:</b> Enter the code for the desired pretreatment piping material. If another material is required, please contact the Customer Service Department at (813) 888-6300 or email <a href="mailto:inquiries@psconline.net">inquiries@psconline.net</a> .	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC

<b>FIELD 4</b>	<b>Post-Treatment Pipe Material:</b> Enter the code for the desired piping material.	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC
	<b>CPV</b>	Schedule 80 CPVC
	<b>BPS</b>	Beta Polypropylene, Socket Fusion
	<b>BPB</b>	Beta Polypropylene, Butt Fusion
	<b>NPS</b>	Natural Polypropylene, Socket Fusion
	<b>NPB</b>	Natural Polypropylene, Butt Fusion
	<b>PFS</b>	PVDF, Socket Fusion
	<b>PFB</b>	PVDF, Butt Fusion
	<b>BCF</b>	PVDF, Bead and Crevice Free
	<b>SSS</b>	Sanitary Stainless Steel, 316SS

<b>FIELD 5</b>	<b>Storage Tank and Vent:</b> Enter the code for the desired Storage Tank Size and Vent type.	
	<b>Code</b>	<b>Code Description</b>
	<b>TVF0100</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 100 (378), with Standard Vent Filter
	<b>TVF0200</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 200 (757), with Standard Vent Filter
	<b>TVF0350</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 350 (1324), with Standard Vent Filter
	<b>TVF0500</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 500 (1892), with Standard Vent Filter
	<b>TVF0750</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 750 (2839), with Standard Vent Filter
	<b>TVF1000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 1000 (3785), with Standard Vent Filter
	<b>TVF2000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 2000 (7570), with Standard Vent Filter
	<b>TVV0100</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 100 (378), with Optional Conservation Vent
	<b>TVV0200</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 200 (757), with Optional Conservation Vent
	<b>TVV0350</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 350 (1324), with Optional Conservation Vent
	<b>TVV0500</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 500 (1892), with Optional Conservation Vent
	<b>TVV0750</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 750 (2839), with Optional Conservation Vent
	<b>TVV1000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 1000 (3785), with Optional Conservation Vent
<b>TVV2000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 2000 (7570), with Optional Conservation Vent	

<b>FIELD 6</b>	<b>Options</b> Enter the code for the desired options.	
	<b>Code</b>	<b>Code Description</b>
	<b>POL</b>	Polish Deionization
	<b>BUV</b>	Bacteria Destruct Ultraviolet Unit
	<b>FFF</b>	Final Filter

<b>FIELD 7</b>	<b>Additional Services:</b> Enter the codes for the desired additional services.	
	<b>Code</b>	<b>Code Description</b>
	<b>FSP</b>	Factory System Passivation
	<b>WHD</b>	Welding Documentation
	<b>SZC</b>	Seismic Zone Wet Stamp
	<b>SZD</b>	Seismic Zone Drawings Only (Calculations by Others)
	<b>BSI</b>	Boroscope Inspection
	<b>FSP</b>	Factory System Passivation
	<b>TOC</b>	Replacement of Standard Thornton M300 Quality Monitor with a Thornton 770MAX having Optional TOC Monitoring Package
	<b>PNV</b>	Replacement of Hard Switches and Lights Mounted on the Main Control Panel Door with a Panel View Device

## Continuous Recirculating Make-Up (BPR) Component Selection Matrix

Select   Select   Select   Select   Select   Select   Select   Select   Select

Select   Select   Select   Select   Select   Select   Select   Select

### EXAMPLE PART NUMBER

**BPR   008   PVC   BPS   XDI   TFV1000   POL   BUY   FFF**

### EXAMPLE OPTIONS

**SZD   X   X   X   X   X**

<b>FIELD 1</b>	<b>BP Series Continuous Recirculating Make-Up System</b>	
	<b>Code</b>	<b>Code Description</b>
	<b>BPR</b>	BP Series Continuous Recirculating Make-Up System

<b>FIELD 2</b>	<b>Flow:</b> Enter the code for the desired treated water flow.	
	<b>Code</b>	<b>Code Description</b>
		<b>Loop Supply Flow Rate GPM(LPM)</b>
	<b>002</b>	4 (10)
	<b>008</b>	8 (30)
	<b>016</b>	16 (60)
	<b>030</b>	30 (113)
	<b>050</b>	50 (189)

<b>FIELD 3</b>	<b>Pretreatment Pipe Material:</b> Enter the code for the desired pretreatment piping material. If another material is required, please contact the Customer Service Department at (813) 888-6300 or email <a href="mailto:inquiries@psconline.net">inquiries@psconline.net</a> .	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC

<b>FIELD 4</b>	<b>Post-Treatment Pipe Material:</b> Enter the code for the desired piping material.	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC
	<b>CPV</b>	Schedule 80 CPVC
	<b>BPS</b>	Beta Polypropylene, Socket Fusion
	<b>BPB</b>	Beta Polypropylene, Butt Fusion
	<b>NPS</b>	Natural Polypropylene, Socket Fusion
	<b>NPB</b>	Natural Polypropylene, Butt Fusion
	<b>PFS</b>	PVDF, Socket Fusion
	<b>PFB</b>	PVDF, Butt Fusion
	<b>BCF</b>	PVDF, Bead and Crevice Free
	<b>SSS</b>	Sanitary Stainless Steel, 316SS

<b>FIELD 5</b>	<b>Optional Make-Up Polish:</b> Enter the code for the desired Make-Up Polish Components. If Make-Up Polish is not required, place an X in this field.	
	<b>Code</b>	<b>Code Description</b>
	<b>CEDI</b>	Continuous Electro-Deionization
	<b>XDI</b>	Exchange Deionization

<b>FIELD 6</b>	<b>Storage Tank and Vent:</b> Enter the code for the desired Storage Tank Size and Vent type.	
	<b>Code</b>	<b>Code Description</b>
	<b>TVF0100</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 100 (378), with Standard Vent Filter
	<b>TVF0200</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 200 (757), with Standard Vent Filter
	<b>TVF0350</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 350 (1324), with Standard Vent Filter
	<b>TVF0500</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 500 (1892), with Standard Vent Filter
	<b>TVF0750</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 750 (2839), with Standard Vent Filter
	<b>TVF1000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 1000 (3785), with Standard Vent Filter
	<b>TVF2000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 2000 (7570), with Standard Vent Filter
	<b>TVV0100</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 100 (378), with Optional Conservation Vent
	<b>TVV0200</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 200 (757), with Optional Conservation Vent
	<b>TVV0350</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 350 (1324), with Optional Conservation Vent
	<b>TVV0500</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 500 (1892), with Optional Conservation Vent
	<b>TVV0750</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 750 (2839), with Optional Conservation Vent
	<b>TVV1000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 1000 (3785), with Optional Conservation Vent
<b>TVV2000</b>	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 2000 (7570), with Optional Conservation Vent	

<b>FIELD 7</b>	<b>Options</b> Enter the code for the desired options.	
	<b>Code</b>	<b>Code Description</b>
	<b>POL</b>	Polish Deionization
	<b>BUV</b>	Bacteria Destruct Ultraviolet Unit
	<b>FFF</b>	Final Filter



<b>FIELD 8</b>	<b>Additional Services:</b>	
	Enter the codes for the desired additional services.	
	<b>Code</b>	<b>Code Description</b>
	<b>FSP</b>	Factory System Passivation
	<b>WHD</b>	Welding Documentation
	<b>SZC</b>	Seismic Zone Wet Stamp
	<b>SZD</b>	Seismic Zone Drawings Only (Calculations by Others)
	<b>BSI</b>	Boroscope Inspection
	<b>FSP</b>	Factory System Passivation
	<b>TOC</b>	Replacement of Standard Thornton M300 Quality Monitor with a Thornton 770MAX having Optional TOC Monitoring Package
<b>PNV</b>	Replacement of Hard Switches and Lights Mounted on the Main Control Panel Door with a Panel View Device	

## Hot Water Sanitizable (BPH) Component Selection Matrix

Select	Select	Select	Select	Select	Select	Select	Select	Select
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Select	Select	Select	Select	Select	Select	Select	Select
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**EXAMPLE PART NUMBER**

<b>BPH</b>	<b>008</b>	<b>PVC</b>	<b>SSS</b>	<b>TFV1000</b>	<b>POL</b>	<b>BUY</b>	<b>FFF</b>
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**EXAMPLE OPTIONS**

<b>SZD</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>	<b>X</b>
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<b>FIELD 1</b>	<b>BP Series Hot Water Sanitizable System</b>	
	<b>Code</b>	<b>Code Description</b>
	<b>BPH</b>	BP Series Hot Water Sanitizable System

<b>FIELD 2</b>	<b>Flow:</b> Enter the code for the desired treated water flow.	
	<b>Code</b>	<b>Code Description</b>
		<b>Loop Supply Flow Rate GPM(LPM)</b>
	<b>002</b>	4 (10)
	<b>008</b>	8 (30)
	<b>016</b>	16 (60)
	<b>030</b>	30 (113)
	<b>050</b>	50 (189)

<b>FIELD 3</b>	<b>Pretreatment Pipe Material:</b> Enter the code for the desired pretreatment piping material. If another material is required, please contact the Customer Service Department at (813) 888-6300 or email <a href="mailto:inquiries@psconline.net">inquiries@psconline.net</a> .	
	<b>Code</b>	<b>Code Description</b>
	<b>PVC</b>	Schedule 80 PVC

<b>FIELD 4</b>	<b>Post-Treatment Pipe Material:</b> Enter the code for the desired piping material.	
	<b>Code</b>	<b>Code Description</b>
	<b>CPV</b>	Schedule 80 CPVC
	<b>SSS</b>	Sanitary Stainless Steel, 316SS

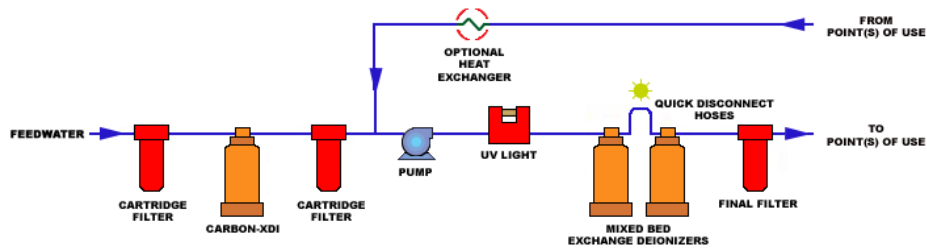
<b>FIELD 5</b>	<b>Optional Make-Up Polish:</b> Enter the code for the desired Make-Up Polish Components. If Make-Up Polish is not required, place an X in this field.	
	<b>Code</b>	<b>Code Description</b>
	<b>CEDI</b>	Continuous Electro-Deionization
	<b>XDI</b>	Exchange Deionization

<b>FIELD 6</b>	<b>Storage Tank and Vent:</b> Enter the code for the desired Storage Tank Size and Vent type.	
	<b>Code</b>	<b>Code Description</b>
	TVV0100	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 100 (378), with Optional Conservation Vent
	TVV0200	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 200 (757), with Optional Conservation Vent
	TVV0350	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 350 (1324), with Optional Conservation Vent
	TVV0500	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 500 (1892), with Optional Conservation Vent
	TVV0750	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 750 (2839), with Optional Conservation Vent
	TVV1000	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 1000 (3785), with Optional Conservation Vent
	TVV2000	Conical-Bottom, Polyethylene Tank with Steel Epoxy Coated Stand, 2000 (7570), with Optional Conservation Vent

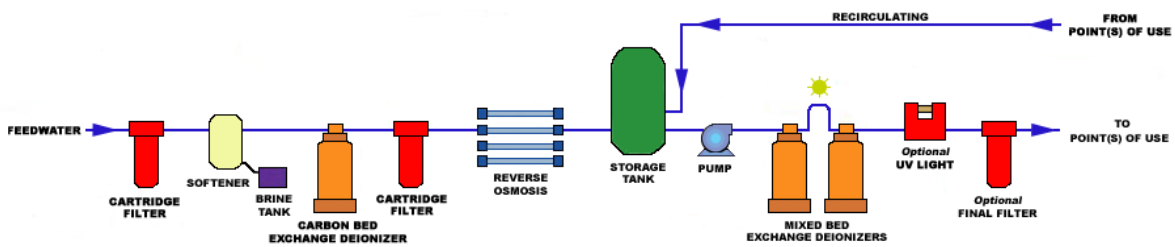
<b>FIELD 7</b>	<b>Options</b> Enter the code for the desired options.	
	<b>Code</b>	<b>Code Description</b>
	POL	Polish Deionization
	BUV	Bacteria Destruct Ultraviolet Unit
	FFF	Final Filter

<b>FIELD 8</b>	<b>Additional Services:</b> Enter the codes for the desired additional services.	
	<b>Code</b>	<b>Code Description</b>
	FSP	Factory System Passivation
	WHD	Welding Documentation
	SZC	Seismic Zone Wet Stamp
	SZD	Seismic Zone Drawings Only (Calculations by Others)
	BSI	Boroscope Inspection
	FSP	Factory System Passivation
	TOC	Replacement of Standard Thornton M300 Quality Monitor with a Thornton 770MAX having Optional TOC Monitoring Package
	PNV	Replacement of Hard Switches and Lights Mounted on the Main Control Panel Door with a Panel View Device

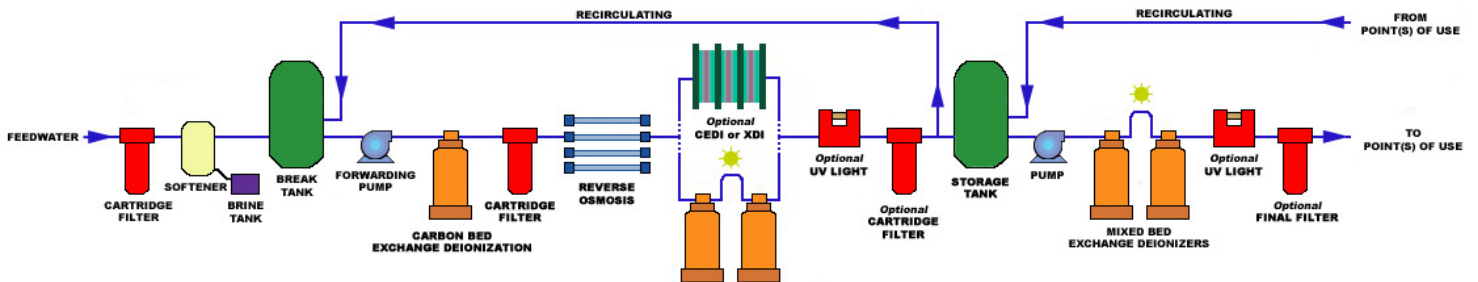
## Exchange Deionization (BPX) Process Flow Diagram



## Non-recirculating Makeup (BPN) Process Flow Diagram



## Continuous Recirculating Makeup (BPR) Process Flow Diagram



## Hot Water Sanitizable (BPH) Process Flow Diagram

