

# H<sub>2</sub>O<sub>SS</sub> Selection Matrix Storage Tank Accessory Kit

## Product Description/Equipment Specifications

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

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



Photo is for illustrative purposes only

**Features at a glance:**

- Quick Delivery, Installation and Start-Up
- Flow Rates Ranging from 1 to 100 gpm
- 10 Piping Material Selections
- Customized Kits are Available

**General Description:**

A storage tank accessory kit is designed to mate with a standard purchased storage tank. The storage tank “kits” can be assembled and shipped to the client’s site for tank and kit assembly. Storage Tank Accessory Kits are sized relative to the flow capacity and piping materials of the downstream equipment such as Distribution Skids.

**Design Parameters:**

Configuration	Ship loose kit of parts that must be installed on a field erected storage tank.
Drainage Flow	Floor Drain adequately sized to accommodate drainage of entire tank volume of water during service periods.

**Operating Parameters:**

Feed Pressure	Atmospheric Tank, Not a pressure vessel
Feed Temperature*	34 – 80 °F (.5 – 27 °C)

**General Specifications:**

**Schedule 80 PVC Option (PVC):**

Piping	Schedule 80 PVC Solvent Glue Joints; flanges and threaded connections are acceptable.
Isolation Valves	PVC Diaphragm, GF Type 314, or equal.
Make-up Water Divert Valve	Asahi, Type 23, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Millipore ESP sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Winters, SS, 0-100 PSI, threaded, or equal. (No factory calibration certificates)
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	3 point Pressure, UE switch, threaded.
Back Pressure Valve	Plast-O-Matic, RVDT Series, PVC, threaded, or equal.
Spray ball	Threaded, Teflon.
Resistivity Probe	Thornton, M300 Series threaded probe, with patch cord.

**Schedule 80 CPVC Option (CPV):**

Piping	Schedule 80 CPVC Solvent Glue Joints; flanges and threaded connections are acceptable.
Isolation Valves	CPVC Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Millipore ESP sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Winters, SS, 0-100 PSI, threaded, or equal. (No factory calibration certificates)
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Conservation Vent	Protectoseal 8540 Series, or equal
Level switch	3 point Pressure, UE switch, threaded.
Back Pressure Valve	Plast-O-Matic, RVDT Series, CPVC, threaded, or equal.
Spray ball	Threaded, Teflon.
Resistivity Probe	Thornton, M300 Series threaded probe, with patch cord.

**Beta Polypro Socket Option (BPS):**

Piping	George Fischer (GF) Polypro Socket Fusion Pigmented; flanges and threaded connections are acceptable.
Isolation Valves	Polypro Socket Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with Series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Millipore ESP sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Winters, SS, 0-100 PSI, threaded, or equal. (No factory calibration certificates)
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	3 point Pressure UE switch, threaded.
Back Pressure Valve	Plast-O-Matic, RVDT Series, PVC, threaded, or equal.
Spray ball	Threaded, Teflon.
Resistivity Probe	Thornton, M300 Series threaded probe, with patch cord.

**Beta Polypro Butt Fusion Option (BPB):**

Piping	George Fischer (GF) Polypro Butt Fusion Pigmented; flanges are acceptable (Threaded Connections are NOT acceptable).
Isolation Valves	Polypro Butt Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with Series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Casella sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	(3) Proximity switches.
Back Pressure Valve	Fused or Tri-clamp connection
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**Natural Polypro Socket Option (NPS):**

Piping	George Fischer (GF) Natural Polypro Socket Fusion; flanges and threaded connections are acceptable.
Isolation Valves	Natural Polypro Socket Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with Series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Millipore ESP sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Winters, SS, 0-100 PSI, threaded, or equal. (No factory calibration certificates)
Vent Filter (VF) Filter	Pentek Virgin Polypro Code “O” housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	3 point Pressure UE switch, threaded.
Back Pressure Valve	Plast-O-Matic, RVDI Series, Natural Polypro, threaded, or equal.
Spray ball	Threaded, Teflon.
Resistivity Probe	Thornton, M300 Series threaded probe, with patch cord.

**Natural Polypro Butt Fusion Option (BPB):**

Piping	George Fischer (GF) Natural Polypro Butt Fusion; flanges are acceptable (Threaded Connections are NOT acceptable).
Isolation Valves	Natural Polypro Butt Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with Series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Casella sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code “O” housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	(3) Proximity switches.
Back Pressure Valve	Fused or Tri-clamp connection
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**PVDF Socket Fusion Option (PFS):**

Piping	George Fischer (GF) PVDF Socket Fusion; flanges and threaded connections are acceptable.
Isolation Valves	PVDF Socket Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Millipore ESP sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	(3) Proximity switches.
Back Pressure Valve	Plast-O-Matic, RVDT Series, PVDF, threaded, or equal.
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**PVDF IR Butt Fusion Option (PFB):**

Piping	George Fischer (GF) PVDF IR Butt Fusion; T/C Connections only (no threads or flanges)
Isolation Valves	PVDF IR Butt Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Casella sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	(3) Proximity switches.
Back Pressure Valve	Fused or Tri-clamp connection
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**PVDF Bead and Crevice Free Fusion Option (BCF):**

Piping	George Fischer (GF) PVDF Bead and Crevice Free Fusion; T/C Connections only (no threads or flanges)
Isolation Valves	PVDF Bead and Crevice Free Fusion Diaphragm, GF Type 315, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Casella sanitary sample valve, or equal.
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Dual Check Assembly	PVC Spring Loaded.
Level switch	(3) Proximity switches.
Back Pressure Valve	Fused or Tri-clamp connection
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**Sanitary Stainless Steel Option (SSS):**

Piping	316L 180 Grit ID Non-Electropolished Tube with 180 Grit ID Polish, 316L weld and T/C fitting or equal; T/C Connections only (no threads or flanges).
Isolation Valves	TopFlow sanitary 316SS, 180 grit ID, diaphragm valves, or equal.
Make-up Water Divert Valve	Asahi, Type 23, PVC, 3-port valve, with series 83 actuator.
Sample Valves	Polypro, Delrin, threaded, ball valves, or equal.
	SV-301
	Casella or equal sanitary sample valves
	SV-302
Pressure Gauge	Ashcroft, SS, 0-100 PSI, T/C with sanitary diaphragm, or equal. Factory calibration certificates.
Vent Filter (VF) Filter	Pentek Virgin Polypro Code "O" housing.
VF Filter Cartridge	Validated 0.2 Hydrophobic cartridge, Domnick Hunter Tetpor Series, or equal. (Supplied by FLEXX™ Partner or with RIP <i>option</i> selected, not supplied with equipment)
Conservation Vent	Protectoseal 8540 Series, or equal
Level switch	(3) Proximity switches.
Back Pressure Valve	Fused or Tri-clamp connection
Spray ball	Threaded, Teflon
Resistivity Probe	Thornton, M300 Series sanitary probe, with patch cord.

**Pipe Connection Specifications:**

Tank Kit Model	003	008	016	030	050	075	100
<b>PVC, CPV &amp; BPS, NPS, PFS Piping</b>							
Make-up Water Divert Valve	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC
Tank Outlet Fitting.	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner
Tank Return Conn.	1/2" (20mm) Flange	1" (32mm) Flange	1 1/4" (40mm) Flange	1 1/2" (50mm) Flange	2" (63mm) Flange	2 1/2" (75mm) Flange	3" (90mm) Flange
Spray Ball Conn.	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT
Vent Filter Conn.	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT
Conservation Vent (CPVC Only)	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange
<b>BPB, NPB, PFB, BCF Piping</b>							
Make-up Water Divert Valve	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC
Tank Outlet Fitting.	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner
Tank Return Conn.	1/2" (20mm) T/C	1/2" (20mm) T/C	1 1/2" (50mm) T/C	1 1/2" (50mm) T/C	2" (63mm) T/C	2 1/2" (75mm) T/C	3" (90mm) T/C
Spray Ball Conn.	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT
Vent Filter Conn.	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT
<b>SSS Piping</b>							
Make-up Water Divert Valve	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC	3/4" (25mm) SOC, PVC
Tank Outlet Fitting.	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner	By FLEXX™ Partner
Tank Return Conn.	1/2" (20mm) T/C	1/2" (20mm) T/C	1 1/2" (50mm) T/C	1 1/2" (50mm) T/C	2" (63mm) T/C	2 1/2" (75mm) T/C	3" (90mm) T/C
Spray Ball Conn.	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT	3/4" (25mm) FPT
Vent Filter Conn.	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT	1" (32mm) MPT
Conservation Vent	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange	2" (63mm) Flange

(Note #1: Connections shown are size and type of components that are supplied in "kit", the mating connection will be required on the tank itself).

(Note #2: The Make-up Water Divert Valve is sized on a make-up rate of <= 10 GPM, if higher make-up flows are required valve will be resized).

**Storage Tank Accessory Kit Component Selection Matrix**

Select   Select   Select   Select   Select   Select   Select

Select   Select   Select   Select   Select   Select

**EXAMPLE PART NUMBER**

**PT   SD020   X   X   EXC   X   X**

**EXAMPLE OPTIONS**

**SZD   X   X   X   X   X**

<b>NOTES:</b>	<sup>1</sup> Schedule 80 CPVC and Sanitary Stainless Steel are the only available piping options when selecting hot water sanitizable storage tank accessory kit components.
	<sup>2</sup> A conservation vent must be selected if the hot water sanitizable option was chosen.
	<sup>3</sup> All applicable filter cartridges are provided by Others.

<b>FIELD 1</b>	<b>Storage Tank Kit Component(s)</b>	
	<b>Code</b>	<b>Code Description</b>
	<b>KR</b>	Storage Tank Accessory Kit Component(s) The Storage Tank Accessory Kit includes a storage tank drain diaphragm valve, inlet divert actuated multi-port ball valve, inlet and return sample valves, return block and bleed manual diaphragm valves, back-pressure regulating valve, pressure gauge and quality sensor.
<b>KH</b>	Storage Tank Accessory Kit Component(s) -Hot Water Sanitizable <sup>1</sup> The Storage Tank Accessory Kit-Hot Water Sanitizable includes a storage tank drain diaphragm valve, inlet divert actuated multi-port ball valve, inlet and return sample valves, return block and bleed manual diaphragm valves, back-pressure regulating valve, pressure gauge and quality sensor.	

<b>FIELD 2</b>	<b>Draw from Tank 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>Available Flow Rate at Point of Use GPM (LPM)</b>
	<b>003</b>	4 (15)	3 (11)
	<b>008</b>	12 (45)	8 (30)
	<b>016</b>	24 (91)	16 (61)
	<b>030</b>	45 (170)	30 (114)
	<b>050</b>	70 (265)	50 (189)
	<b>075</b>	110 (416)	75 (284)
<b>100</b>	145 (548)	100 (378)	



<b>FIELD 3</b>	<b>Pipe Material:</b> Enter the code for the desired piping material.	
	<b>Code</b>	<b>Code Description</b>
	PVC	Schedule 80 PVC
	CPV	Schedule 80 CPVC
	BPS	Beta Polypropylene, Socket Fusion
	BPB	Beta Polypropylene, Butt Fusion
	NPS	Natural Polypropylene, Socket Fusion
	NPB	Natural Polypropylene, Butt Fusion
	PFS	PVDF, Socket Fusion
	PFB	PVDF, Butt Fusion
	BCF	PVDF, Bead and Crevice Free
SSS	Sanitary Stainless Steel, 316SS	

<b>FIELD 4</b>	<b>Storage Tank Vent:</b> Enter the code for the appropriate storage tank vent for your system.	
	<b>Code</b>	<b>Code Description</b>
	V	Vet Filter Housing with Dual Check Valve Assembly <sup>3</sup>
	C	Conservation Vent <sup>2</sup>

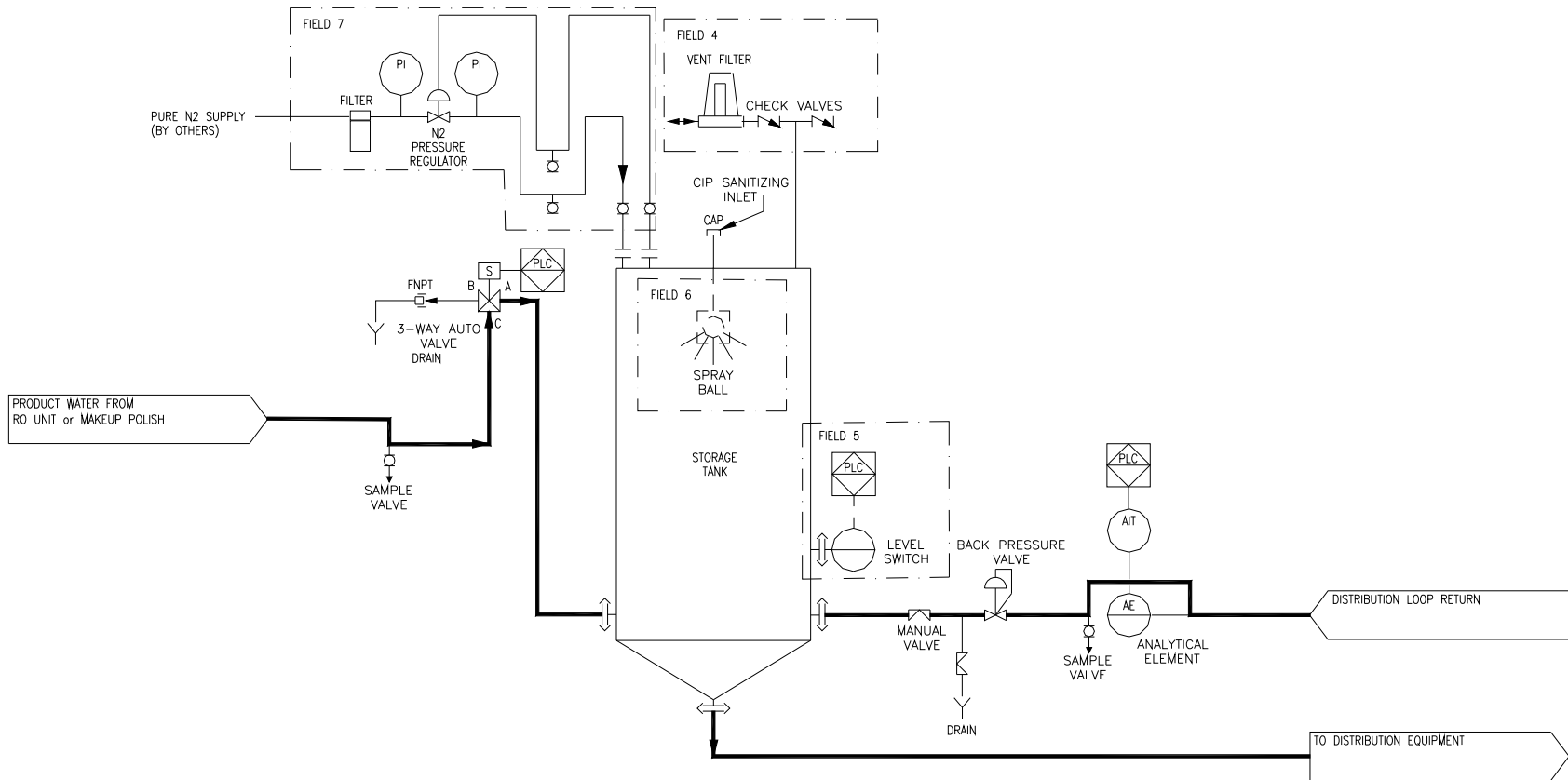
<b>FIELD 5</b>	<b>Storage Tank Level Control:</b> Enter the code for the appropriate level control for your system.	
	<b>Code</b>	<b>Code Description</b>
	3A	3-Point Level Switch, ¼" NPT Connection
	3P	Set of 3 Proximity Switches with Custom Stand
	3S	Level Transmitter, Sanitary T/C Connection
	3T	Level Transmitter, Non-Sanitary Connection

<b>FIELD 6</b>	<b>Storage Tank Spray Ball:</b> Enter the code for the appropriate storage tank spray ball for your system.	
	<b>Code</b>	<b>Code Description</b>
	N	Teflon Spray Ball, NPT Connection
	S	Sanitary Spray Ball, 316SS

<b>FIELD 7</b>	<b>Storage Tank Nitrogen Blanketing System:</b> Enter the appropriate code if a nitrogen blanketing system is required. If a nitrogen blanketing system is not required, place an X in Field 7.	
	<b>Code</b>	<b>Code Description</b>
	B	Nitrogen Blanketing System

<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
	PGC	Pressure Gauge Calibration
	WHD	Welding Documentation
	SZC	Seismic Zone Wet Stamp
	SZD	Seismic Zone Drawings Only (Calculations by Others)
BSI	Boroscope Inspection	

## PROCESS & INSTRUMENTATION DIAGRAM



*NOTE: All components outside field boundaries, with the exception of the storage tank, are included in the selection of Field 1. For storage tank selection see H<sub>2</sub>O SS Storage Tank Selection Matrix.*