



726 Beacon St, Loves Park, IL 61111 | 815-636-8833 | 800-919-0888 | 815-636-8844 fx | www.watersurplus.com

EQUIPMENT DATA SHEET RO

Description	High TDS RO Container
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Owner		Mfg. Yr.
Watersurplus		2015

NORMAL OPERATING PARAMETERS			
Operating Water Temperature	77	°F	
Min. Inlet Water Pressure	10	PSI	
Maximum SDI	≤ 3		
Maximum Turbidity	≤ 1	NTU	
Max. Free Chlorine/chloramines	< 0.02	PPM	
Nominal Operating Pressure	650-750	PSI	
Maximum Recovery	50	%	
Maximum Recommended TDS	20000	ppm	

POWER REQUIREMENTS						
GENERAL POWER	VAC	PH	HZ	Amps	Src	
High Voltage	480	3	60	400	Ext	
Control Voltage	120	1	60		Int	
PUMPS & MOTORS						
	VAC	PH	HZ	HP	Amps	
Primary/First Pass	460	3	60	250	282	
Redund/Second Pass	n/a					
CIP	460	3	60	2	3	
Chemical Feed	115	1	60	45w		

CONTROLS	
Main Controller	Siemens 6ES72141BD210YB0 PLC
HMI	Siemens Simatic HMI
I/O Type	Siemens 6ES72310HC200XAC
Motor Starter	Danfoss Aqua Drive FC202 VFD
Chem Pumps Qty.	(2) StarSystem Model T151 Diaph
Chm Pmp Ctrl Method	Discrete Output (on/off)

AVAILABLE DOCUMENTATION			
Description	AVAIL	Description	AVAIL
Process & Instrumentation Diagram - P&ID	Y	Electrical Schematics	Y
Piping layout/General Arrangement	N	Program Logic	Y
Major Component List - MC List	Y	Operations/Maintenance Manuals	Y

Asset #:	ROE3120037R
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EQUIPMENT TYPE	OEM
Container	LifeStream

UNIT CONFIGURATION			
# Passes	1		
# Stages	1		
Array	12		
Hsg Size, Mat'l, psi, Mfr	8" FRP, 1000, Knappe		
Total # membranes	72		
Pre-Filter Crtg. Skid	(44) 5 Micron, 2"x40"DOE PPL		

FLOW SPECIFICATIONS			
Feed	320	gpm	
Product	160	gpm	
Reject	160	gpm	
Recycle	n/a	gpm	
Flush	320	gpm	
Drain	320	gpm	
Instrument Air	n/a	psi	
	n/a	SCFM	

PHYSICAL SPECIFICATIONS		
Length	480	inches
Width	96	inches
Height	114	inches
Weight (shipping)	30000	lbs.
PV Housing Size	8 x 252	dia. x length (in.)
Inlet Piping Material	Sch 80 PVC	
Outlet Piping Material	Sch 80 PVC	

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PROCESS CONNECTIONS (SIZES & LOCATION SYMBOLS)			
	Size & Type	Location Symbol	
Feed Inlet	6" ANSI 150 Flanged PVC	Lower Side Container	
Permeate outlet	4" ANSI 150 Flanged PVC	Lower Side Container	
Concentrate to drain	6" ANSI 150 Flanged PVC	Lower Side Container	
CIP Inlet	1.5" Female Camlock	Side Wall Inside Cont	
CIP Outlet	1.5" Female Camlock	Side Wall Inside Cont	
Instrument Air			



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MISCELLANEOUS INFORMATION

This RO System is designed for high TDS brackish waters. Piping material is 316 SST and PVC. Maximum recmd' TDS is 20,000ppm at 50% recovery. Higher TDS levels may be treated but recovery and pressures will change.
The RO features a five piston positive displacement pump with pulsation dampener. The array is a one stage, twelve housing design. Controls are Siemens both in the PLC and the HMI. Easy to use control features make this unit easy to operate. A VFD is provided for the high pressure pump operation and control. Three chemical feed pumps are provided to supply antiscalant, sodium bisulfite and caustic for permeate pH adjustment. Currently there isn't an ORP or pH meter included with the system so SBS and Caustic would need to be manual checked by the operators.
This system is not recommended for TDS levels greater than 20,000 ppm.
Pre-filters are mounted on a separate remote skid to be located outside of the container itself. Dimesions of the skid are 65" L x 60" Wx 83" H.

INSTRUMENTATION

Pressure	Ind.	Sw.	Xmtr	Manufacturer	Part Number
Feed Inlet			X	Ashcroft	Range,10-30 VDC\ Input, 4-20ma Output, 0.5% Accuracy
Feed Inlet	X			Ashcroft	2.5" SST Dial, 0-100 psig Scale, 316 SST 0.25" NPT Center Bck Connection



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Watersurplus				2015	Container	LifeStream
Pre-filter Inlet	X			PIC	2.5" SST Dial, 0-100 psig Scale, 316 SST 0.25" NPT Lower Connection With PVC Diaphragm Seal, Glycerin Fill	
Pre-Filter Outlet	X			PIC	2.5" SST Dial, 0-100 psig Scale, 316 SST 0.25" NPT Lower Connection With PVC Diaphragm Seal, Glycerin Fill	
High Pump Discharge			X	Ashcroft	psig Range, 10-30 VDC\ Input, 4-20ma Output, 0.5% Accuracy	
High Pump Discharge	X			Ashcroft	2.5" SST Dial, 0-1500 psig Dual Scale, 316 SST 0.25" NPT Center Bck Connection	
Primary Concentrate	X			Ashcroft	2.5" SST Dial, 0-1500 psig Dual Scale, 316 SST 0.25" NPT Center Bck Connection	
Final Concentrate	X			Ashcroft	2.5" SST Dial, 0-100 psig Dual Scale, 316 SST 0.25" NPT Center Bck Connection	
Final Permeate	X			Ashcroft	2.5" SST Dial, 0-100 psig Dual Scale, 316 SST 0.25" NPT Center Bck Connection	
Final Permeate		X		Pro Sense	Model MPS25-1C-D100D, 10-100 psi range, 316 SST Wetted Parts, 0.25" MNPT Connection, SPDT Switch	
CIP Inlet & Outlet	X			Pic	2.5" SST Dial, 0-100 psig Scale, 316 SST 0.25" NPT Lower Connection	
Conductivity						
Inlet						
Permeate	X		X	Signet	Conductivity Cell, Pipe Mounted, Cell Constant 0.1 Sensor, 8900 Analyzer	
Concentrate						
Recycle						
Flow						
Inlet	X		X	Signet	515 Paddle Wheel Sensor, 8900 Analyzer	
Permeate	X		X	Signet	515 Paddle Wheel Sensor, 8900 Analyzer	
Concentrate	X		X	Signet	515 Paddle Wheel Sensor, 8900 Analyzer	
Recycle						
Other						



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pH					
ORP					

MAJOR COMPONENTS

Pumps	Manufacturer	Model	Desc
Feed	Aplex	RO-358L Quintuplex	553 gpm @ 724 psi Positive Displacement Piston Pump, 4.125" Plungers, 316 SST & CI Materials, 460VAC, 60 Hz, 3 pH, 260 Hp, 450 RPM Motor
CIP	Marathon	P106 - SVA56T34F5325E	XX gpm @ XXX psi, Horizontal Centrifugal Pump, 1.5" NPT Process Connections, SST Casing & Impellor, 460VAC, 60Hz, 3pH, 2 Hp, 3450 RPM Motor
Cartridge Filter	Manufacturer	Model	Desc
Housing Skid	Eden	Excel-88EFCTY-4C150	12" Dia. x 50" Long FRP Housings, 150 psi Rated, (22) Round Cartridge Filter with
Elements	American Melt or GE	BE5S9S1 or GX05-40	2" x 40" PP Melt Blown, 5 Micron, DOE Asst # FIL2170147N or FIL210066N
Isolation Valves	Bray	Style 31	6" CI Lugged Body, 150 psi Rating, 316 SST Disc and Stem, EPDM Seat, Manual Lever Handle