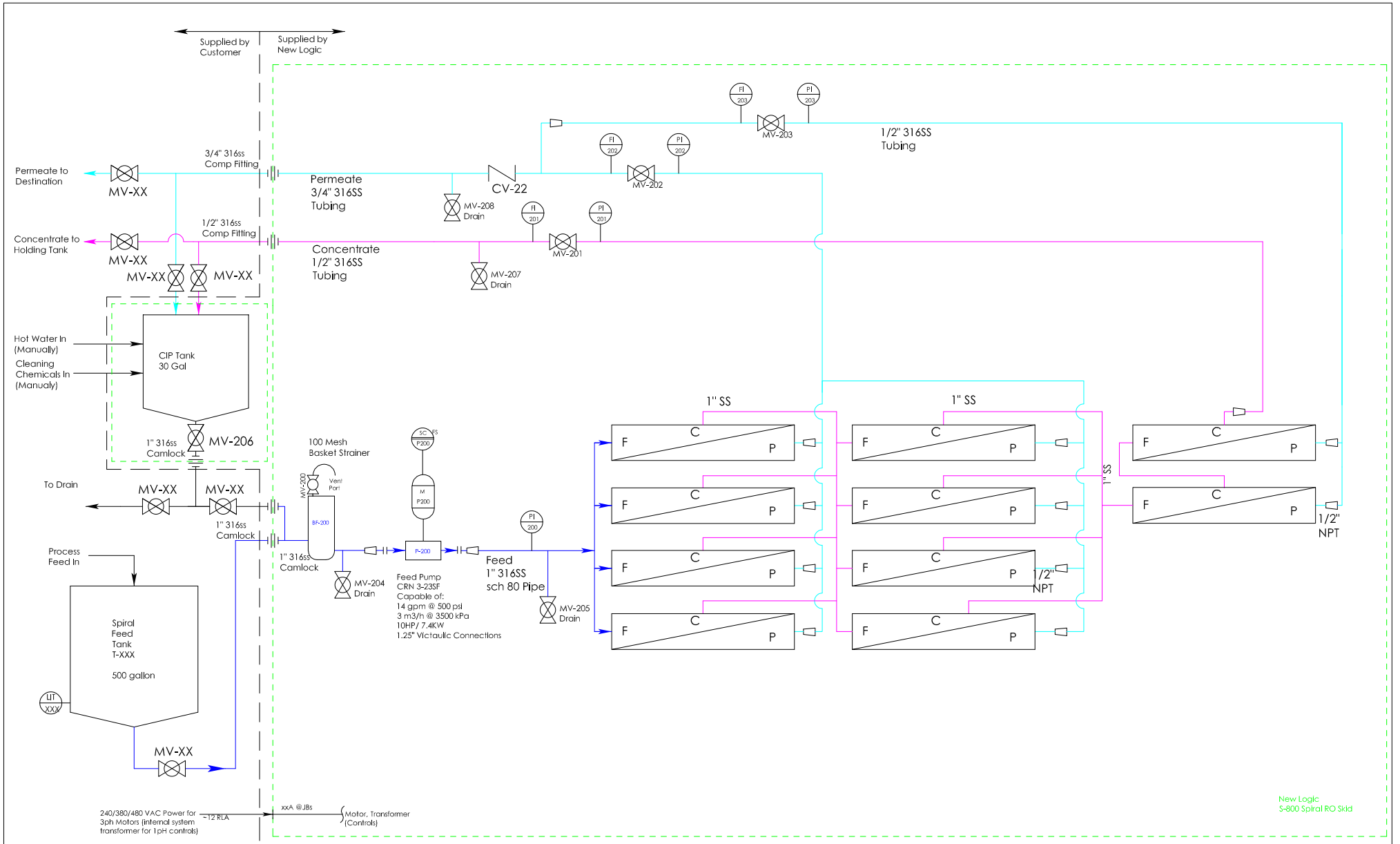
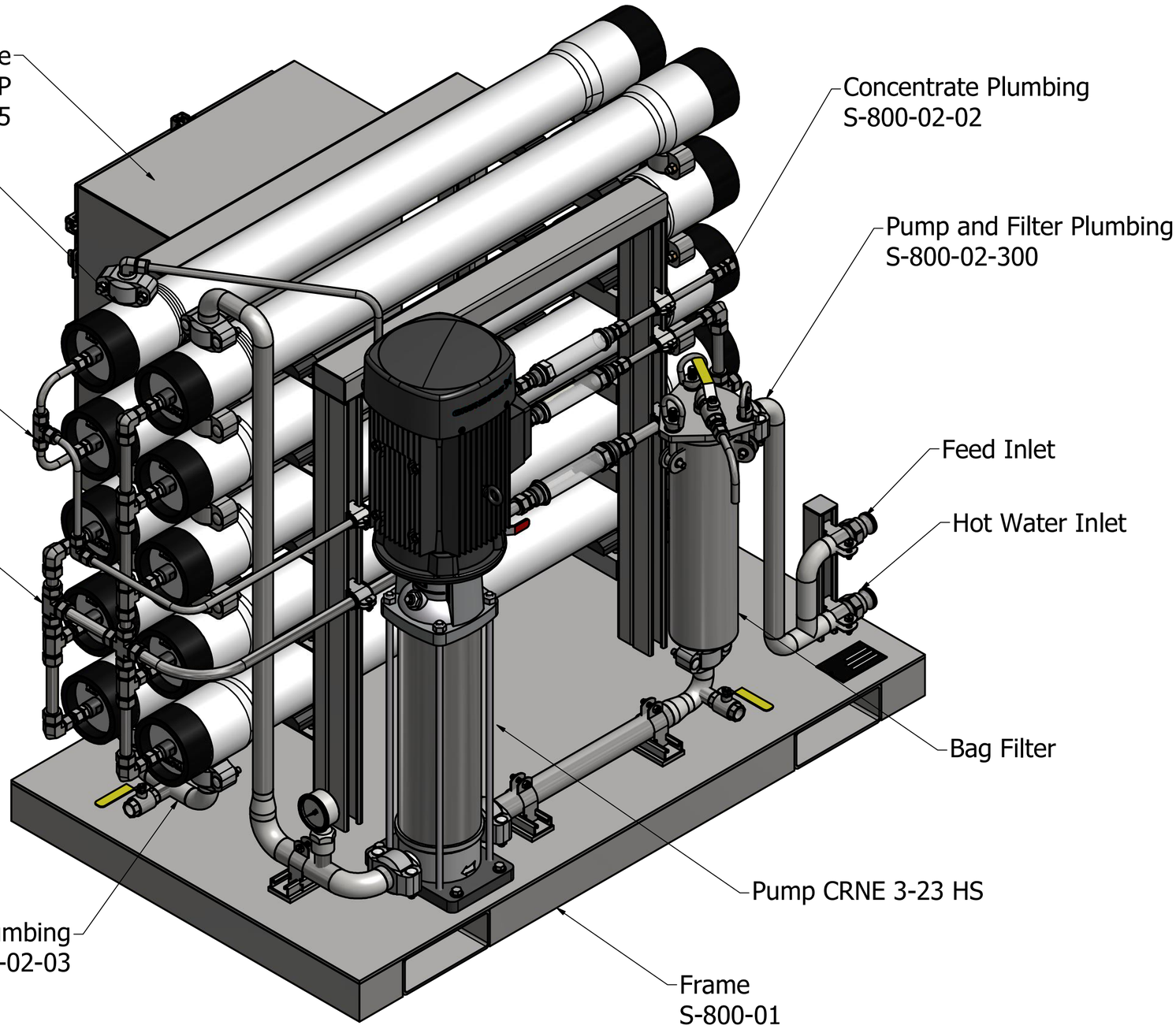


Confidential Material
Preliminary Only

Revision	NEW LOGIC RESEARCH
	S-800 Spiral System
	P&ID
August 2020	M. Ayers

ISO VIEW

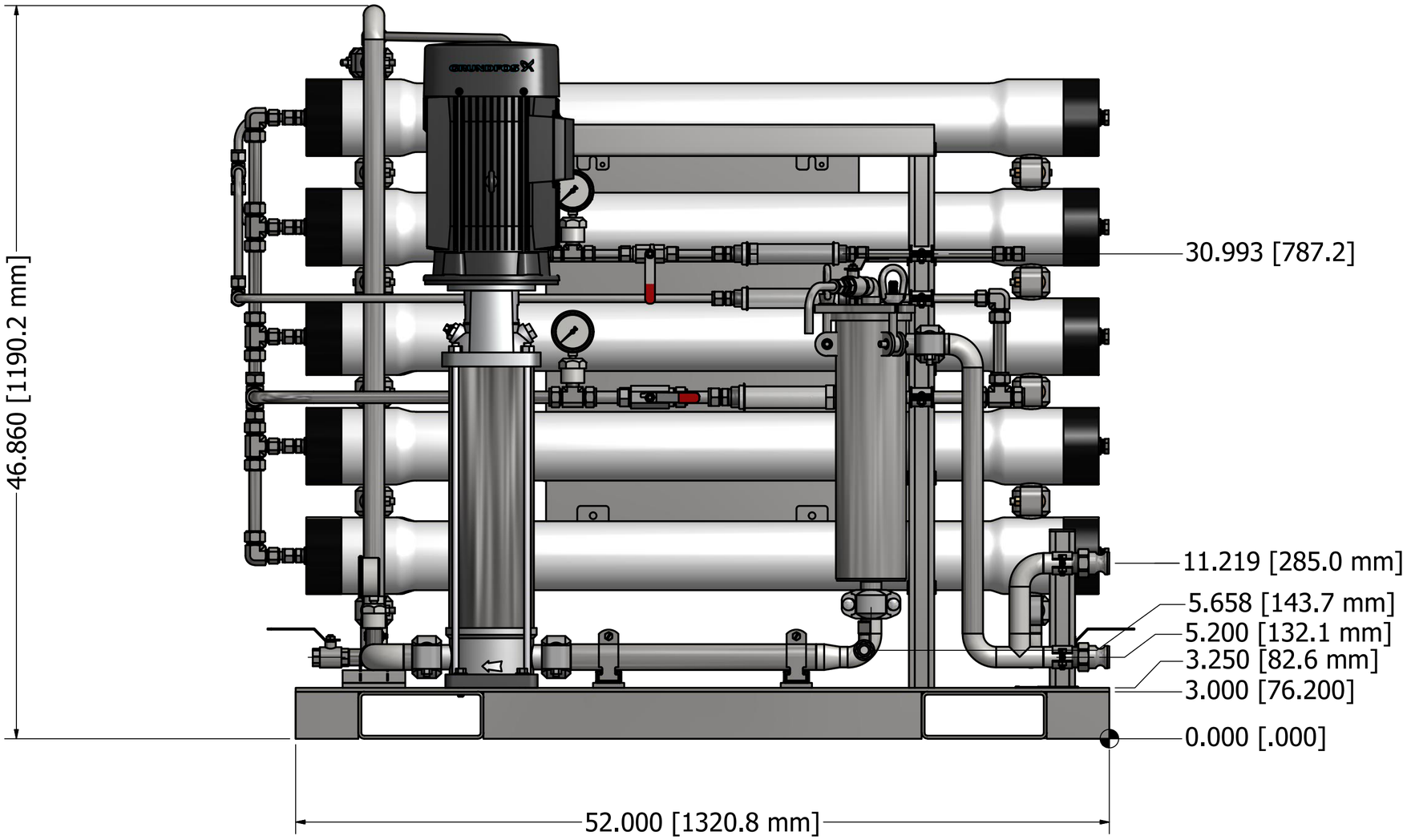


S-800 Spiral System

NOTES:

1. New Logic Research confidential material.
2. Slight differences between drawings and actual system may be attributed to New Logic Research Continuously evolving and improving its technology.
3. All dimensions are shown in inches [mm] and for reference only.

FRONT VIEW



S-800 Spiral System

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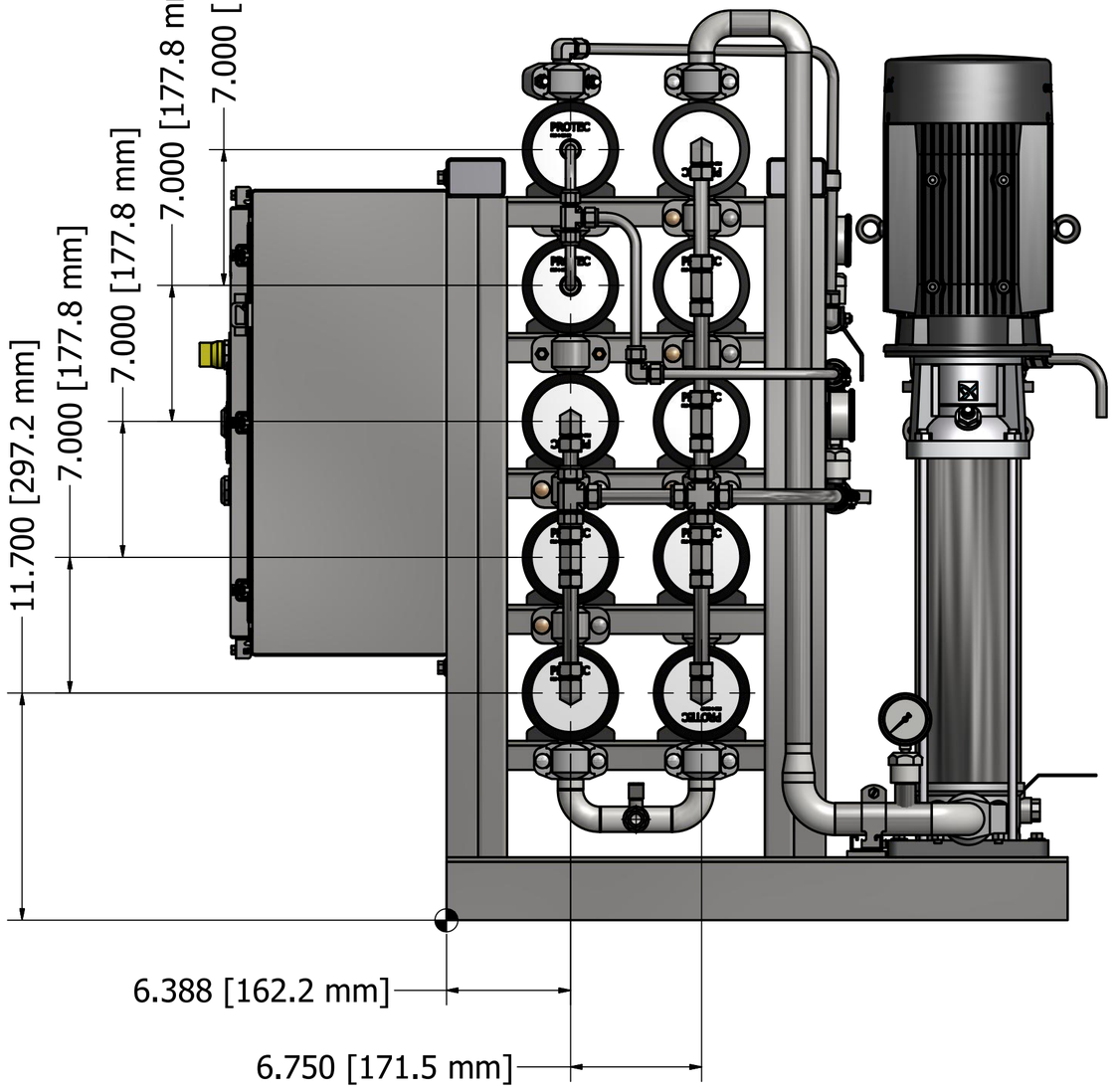
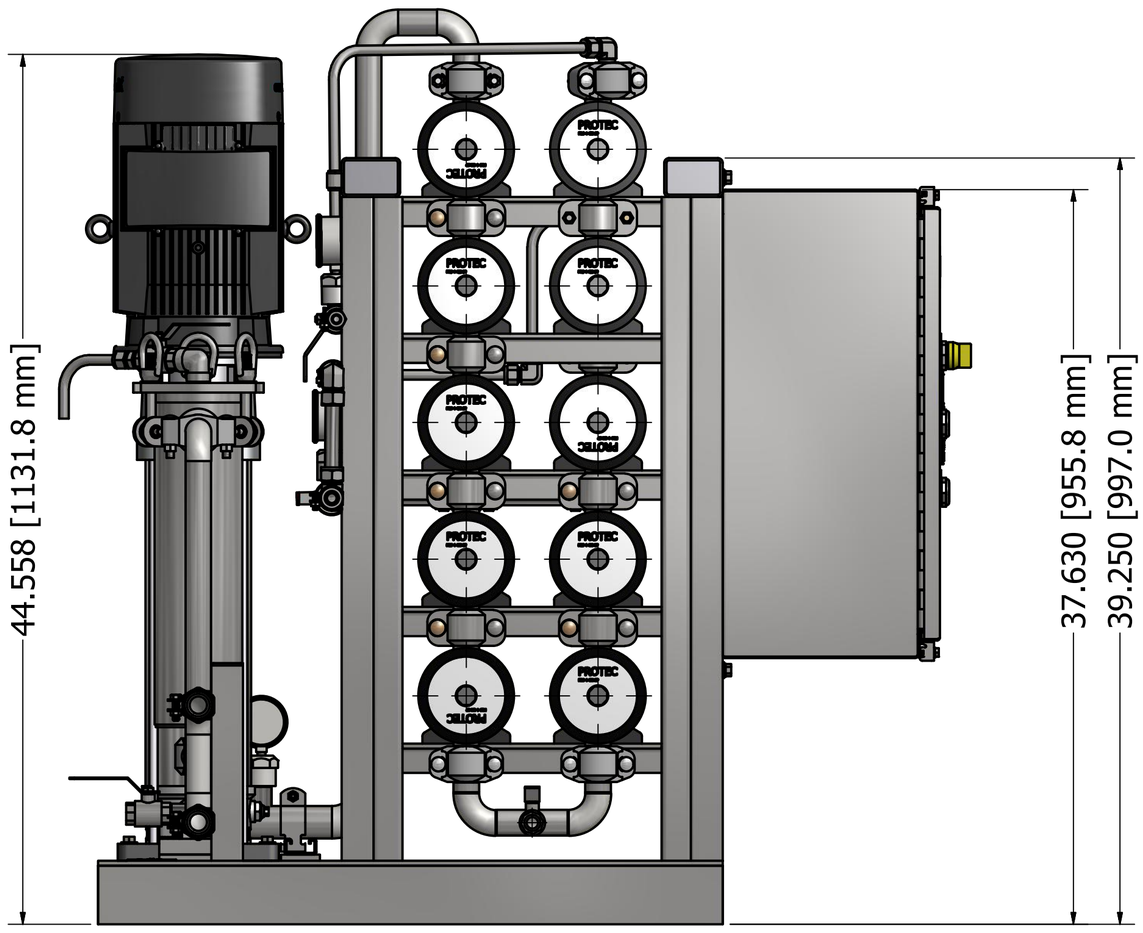
SIDE VIEWS

LEFT



RIGHT



S-800 Spiral System

NOTES:

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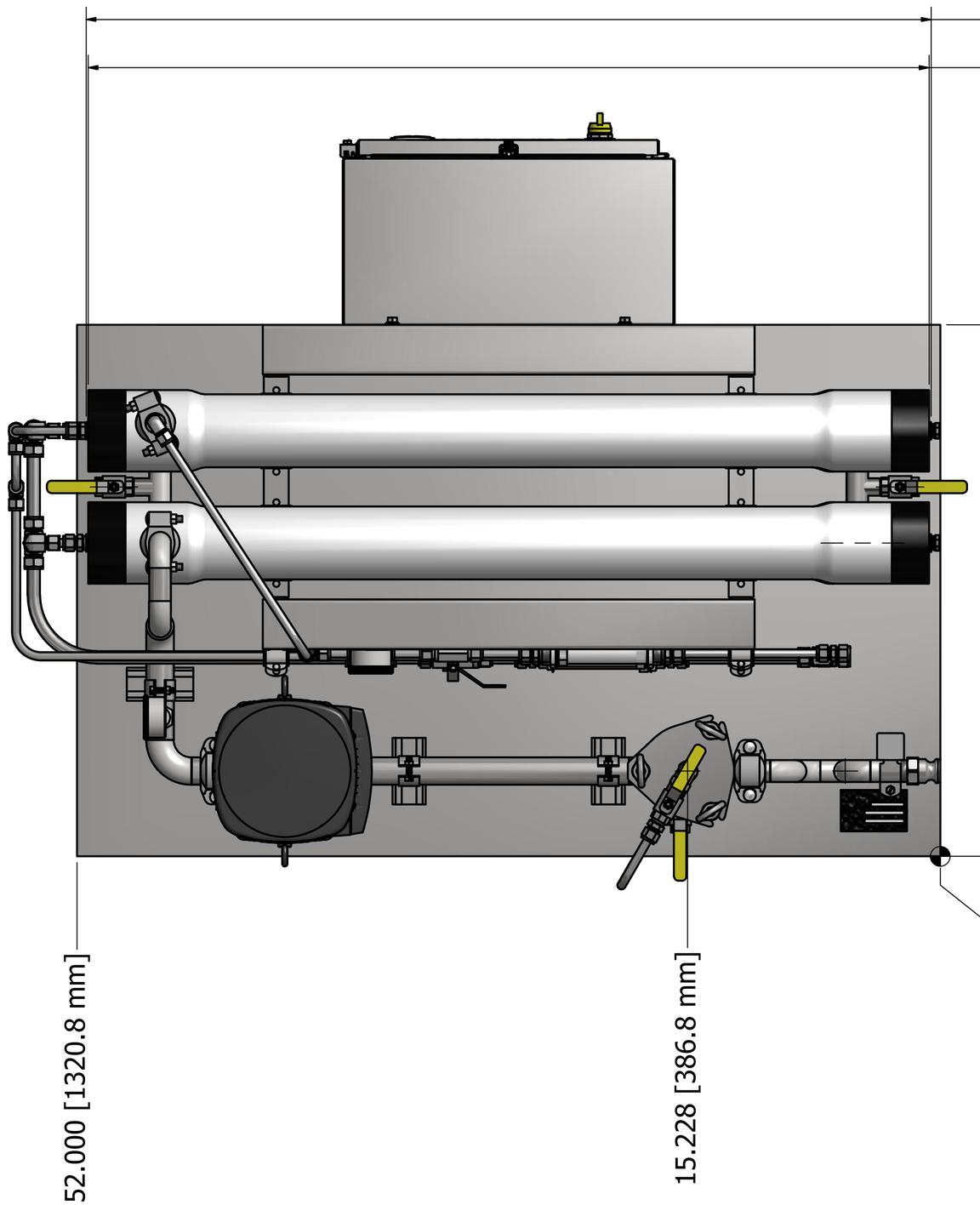
3. All dimensions are shown in inches [mm] and for reference only.

TOP VIEW



S-800 Spiral System

NOTES:
1. New Logic Research confidential material.
2. Slight differences between drawings and actual system may be attributed to New Logic Research Continuously evolving and improving its technology.
3. Preliminary, for references only.
3. All dimensions are shown in inches [mm] and for reference only.

NOTES:
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2. All dimensions are shown in inches and millimeters.
3. Preliminary, for references only.

SPIRAL SYSTEM COMPONENT SPECIFICATIONS
S-800 Spiral System

1] Filter Pack

Membrane:	MF, UF, NF, RO (depends on application and pilot testing)
Membrane Surface Area:	800sf (74.3 m2) (10ea 4"Dia x 40"L)
Estimated Production:	2.7-5.5 gpm (at 5-10GFD)
Maximum Operating Temperature:	120 ^{O}F (49ºC) (Options for up to 80ºC)
Allowable Feed Slurry pH Range:	2-11 (Options for 1-14)
O-ring Material:	Ethylene Propylene
Filter Pack Housing:	Polyurethane Coated, Filament Wound, Epoxy FRP
Wetted Ports:	316L Stainless Steel
Wetted Plastic End Plates:	PVC Thermoplastic

2] Piping

Maximum Pressure:	550 psi (Options for up to 1200 psi)
Pressure Piping:	316L Stainless Steel Tubing
Atmospheric Piping:	CPVC Schedule 80
Pipe Clamps:	None
On/Off Valves:	CPVC 3-piece ball valve
Flow Control Valves:	316 SS Globe
Check Valves:	CPVC ball check valve
Pneumatic Actuators:	None
Positioners:	None
Skid Pipe Terminations:	150 lb 316 SS Raised Face Flange
Flange Gaskets:	150 lb Garlock Blue Guard
Clean in Place Tank:	15 gallon PolyPro 15" Dia x 19" Height

3] Pump Specifications:

Feed Pump Type:	Grundfos 316SS Vertical Multi-stage Centrifugal
Feed Pump Motor:	Grundfos ML 3500 rpm TEFC 460VAC, 3phase
Motor Speed Controller:	Danfoss 380-480VAC, NEMA 4 (or Equal)

4] Pre-Screen Basket Strainer:

Filter Housing Type:	NLR Custom Made 316 SS
Basket Strainer:	100 Mesh 316 SS (Optional Felt Bag Filters)
Capacity:	30 GPM, 1 sqft
Elastomers (Seals):	EPDM (option for Viton)

5] Operating Site Conditions:

Equipment Rating:	NEMA 4, Indoor/Outdoor protect from sunlight & rain.
Ambient Temperature:	5 - 37°C
Storage Temperature:	2 - 70°C (Protect Filter Pack from Freezing)
Max Relative Humidity:	<95%, non-condensing
Elevation:	3300 ft maximum without derating

SPIRAL SYSTEM COMPONENT SPECIFICATIONS (continued)

6] Electrical Specifications:

Controls Voltage:	None
Programmable Controller Type:	None
Touch Screen Display Type:	None
Enclosures:	*Hoffman* NEMA 4 Powdercoat Finish 10x12x6
Switches, Relays, & Contactors:	Allen Bradley 120/220 Volt
Pressure Sensors:	Wika Gauges
Mag Flow Tube and Transmitter:	IFM Efector SM6000
Bag Filter DP Sensors:	None
Temperature Sensor:	Wika Gauges
Conductivity Meter:	None
pH Meter:	None
Level Sensors:	None
Solenoid Valves	None
VFD Communication:	None

Utility Summary									New Logic Research
VSEP System									
AIR COMPRESSOR SIZING INFORMATION									
	# of Valves		In^3 Air/stroke		Strokes/day		CFM		M3/hr
Spiral RO									
No Pneumatic Actuators									
System Air Totals					**System Totals**		**0.00**		**0**
Supply instument grade dry air at 80-90 psi (560-630kPa)									
Supply air to enclosure mounted regulator/filter 3/8" NPT connection									
Totals do not include air for tools or other sources.									
HOT WATER SIZING INFORMATION									
	# /Day		Temp degC		Gallons/Day		GPM		M3/hr
Spiral RO									
Cleanings	0.14		45-50		52.5		0.04		0.00828
Rinse filter pack at 15gpm for 5mins	0.14		45-50		10.5		0.01		0.00166
Intermittent need of additional cleaning or flush of filter pack	0.033		45-50		2.475		0.00		0.00039
System Water Totals					**System Totals**		**0.05**		**0.01032**
Supply chlorine free water at >300 uS/cm									
Supply water at 45degC and 20gpm (4.5m3/hr)									
Supply water at 20 psi to 1" Hot Water flange connection on Spiral Skid									
ELECTRICAL LOAD PANEL SIZING INFORMATION									
Circuit Breaker Sizing 1.25-2x Nameplate Current									
3-Phase Power Voltage VAC	400-460	50/60 Hz							
1-Phase Power Voltage VAC	220-120	50/60 Hz							
	# Motors	Rated Motor HP		Nameplate Current		Nameplate Current		Recommended CB Sizing	
				400V		460V			
Spiral RO Feed Pump	1	10		14.6		12.0		20	
Totals	**1**								
Supply 3-Phase power from customer supplied load panel (with circuit breakers, disconnects, line filters, etc.) to the inlet of each VFD provided by New Logic.									
	# Connections	Rated Motor HP		Nameplate Current		Nameplate Current		Recommended CB Sizing	
				220V		120V			
Main Control Enclosures	1	NA		10		8.0		20	
New Logic provided transformer inside the control enclosure will provide 1 phase power for switches from 3 phase cord.									
Note: These are estimates only based on very preliminary data. These calculations are subject to change and do not include equipment offskid of VSEP system (ie: Transfer Pumps, Generators, Heaters, Lighting, Cranes, etc). For power consumption estimates refer to the operating cost spreadsheet.									