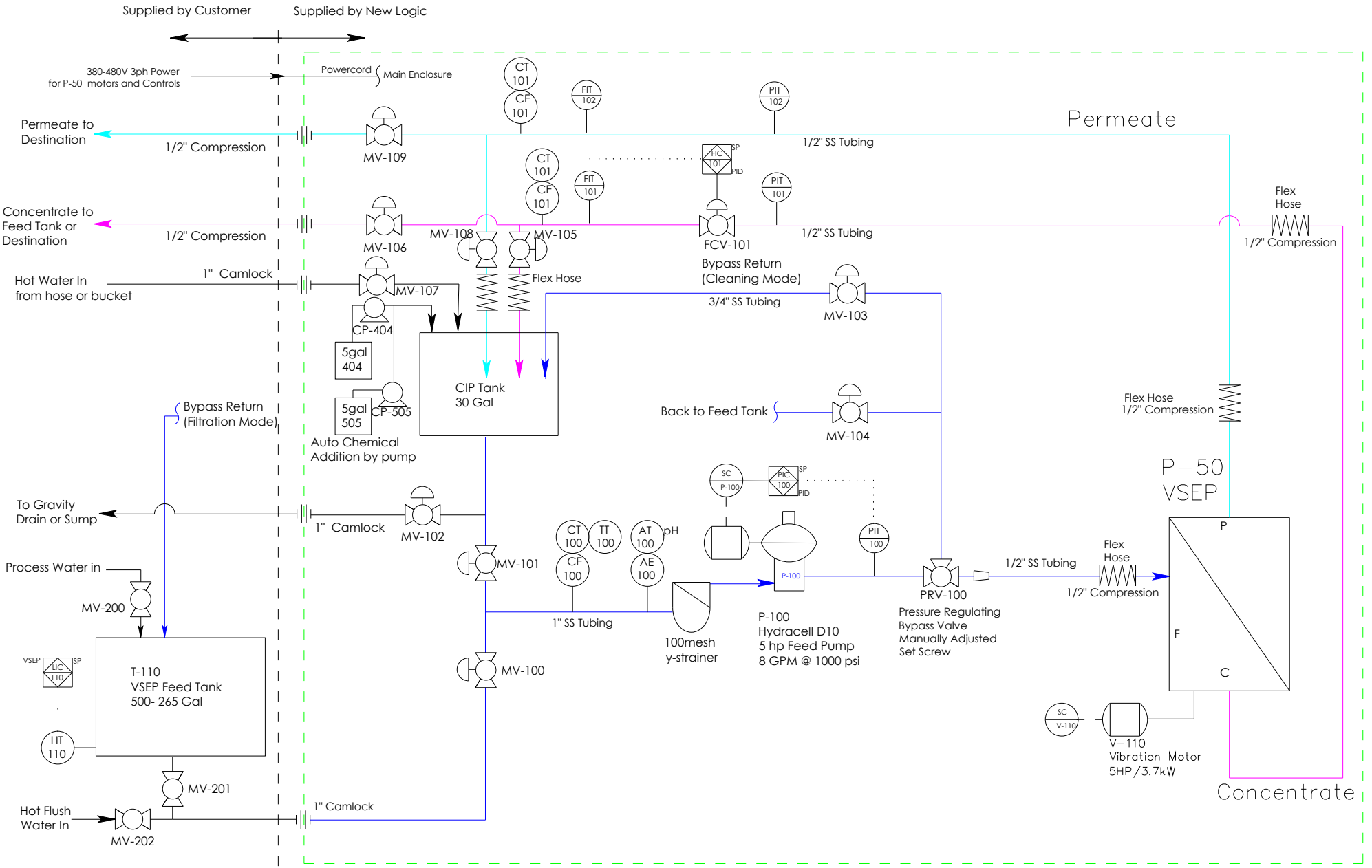
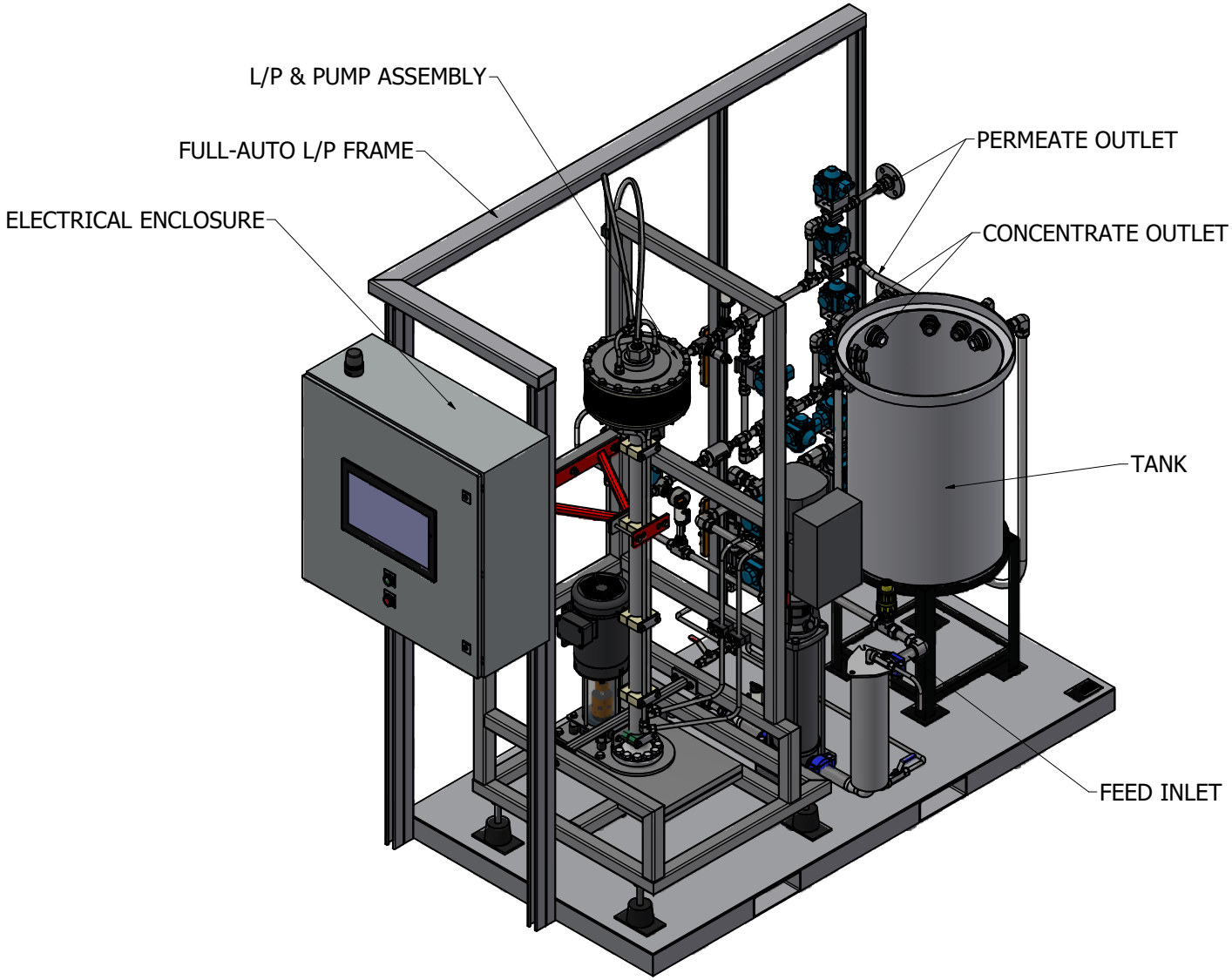
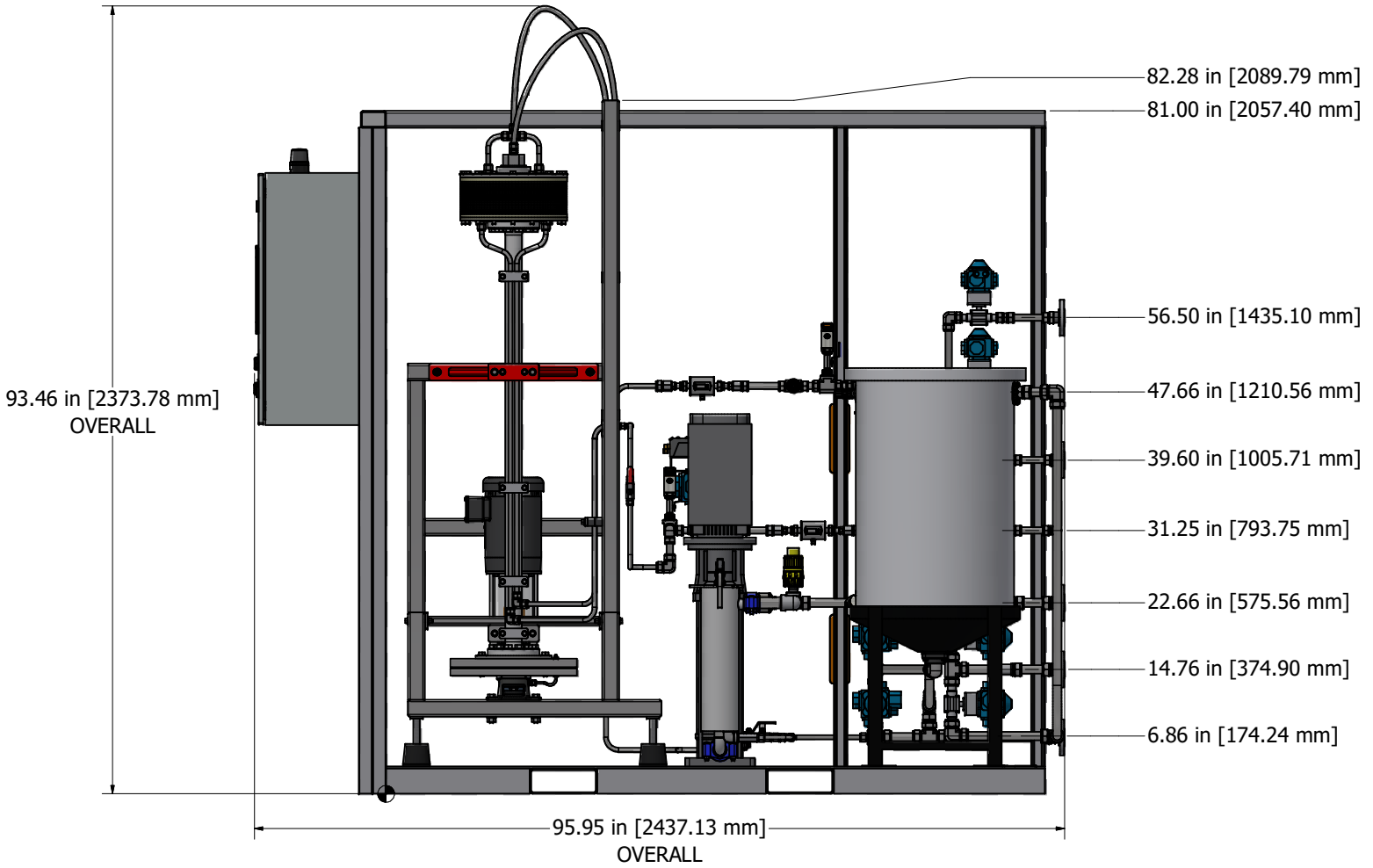

Supplied by Customer
Supplied by New Logic
380-480V 3ph Power for P-50 motors and Controls
Powercord
Main Enclosure
Permeate to Destination
1/2" Compression
MV-109
CT 101
CE 101
FIT 102
PIT 102
Permeate
1/2" SS Tubing
FIC 101
SP
PID
CT 101
CE 101
FIT 101
PIT 101
Concentrate to Feed Tank or Destination
1/2" Compression
MV-106
MV-108
MV-105
FCV-101
1/2" SS Tubing
Flex Hose
1/2" Compression
Hot Water In from hose or bucket
1" Camlock
MV-107
Flex Hose
Bypass Return (Cleaning Mode)
3/4" SS Tubing
MV-103
CP-404
5gal 404
CIP Tank 30 Gal
5gal 505
CP-505
Auto Chemical Addition by pump
Bypass Return (Filtration Mode)
Back to Feed Tank
MV-104
Flex Hose 1/2" Compression
P–50 VSEP
To Gravity Drain or Sump
1" Camlock
MV-102
SC P-100
PIC 100
SP
PID
CT 100
TT 100
AT 100
pH
CE 100
AE 100
PIT 100
MV-101
Process Water in
MV-200
P-100
Hydracell D10
5 hp Feed Pump
8 GPM @ 1000 psi
PRV-100
Pressure Regulating
Bypass Valve
Manually Adjusted
Set Screw
1/2" SS Tubing
Flex Hose
1/2" Compression
P
F
C
1" SS Tubing
100mesh y-strainer
MV-100
VSEP
LIC 110
SP
T-110
VSEP Feed Tank
500- 265 Gal
LIT 110
MV-201
Hot Flush Water In
1" Camlock
MV-202
SC V-110
V–110
Vibration Motor
5HP/3.7kW
Concentrate
Supplied by Customer
Supplied by New Logic
Customer Components Provided:
1] Tanks with associated equipment
2] Levels and other Instruments
3] Transfer Pumps and motor starters
4] Hot Water Tank or In-Line Heaters
5] Sump with associated equipment
6] Valves and Piping
7] Electrical Load Pannel, CBs, and Generator or Transformer
8] Plant Air or Compressor
9] Other equipment as recomended
NLR System Components Provided:
1] LP VSEP Unit with Filter Pack
2] Automatic Skid Assembly
Notes:
NLR Confidential Material
Preliminary - For Reference Only.
Revision
NEW LOGIC
Automatic LP VSEP System
P&ID
A
Sept 2026
M. Ayers

FULL-AUTO SERIES L/P VSEP SYSTEM
ISO VIEW



NOTES:
1. NEW LOGIC RESEARCH CONFIDENTIAL MATERIAL
2. ALL DIMENSIONS ARE SHOWN IN INCHES [MM] AND ARE FOR REFERENCE ONLY
3. SLIGHT DIFFERENCES BETWEEN DRAWINGS AND ACTUAL SYSTEM MIGHT BE ATTRIBUTED TO NEW LOGIC RESEARCH CONTINUOUSLY EVOLVING AND IMPROVING ITS TECHNOLOGY

FULL-AUTO SERIES L/P VSEP SYSTEM
FRONT VIEW



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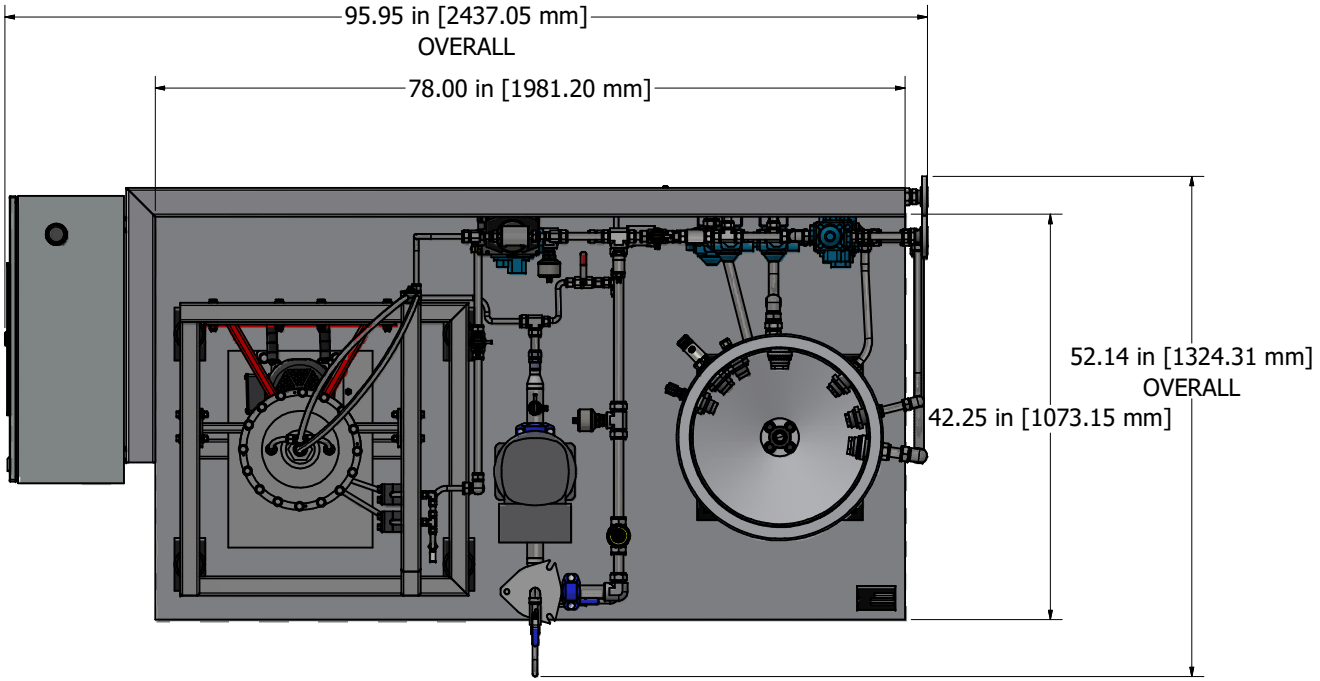
FULL-AUTO SERIES L/P VSEP SYSTEM
TOP VIEW



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Utility Summary									New Logic Research
VSEP System									
AIR COMPRESSOR SIZING INFORMATION									
	# of Valves		In^3 Air/stroke		Strokes/day		CFM		M3/hr
VSEP									
3/4" Pneumatic Valves	4		15		20		0.0005		0.0008
1" Pneumatic Valves	11		20		20		0.0018		0.003
1/2" Flow Control Valves	1		20		20		0.5002		0.8503
System Air Totals					**System Totals**		**0.50**		**0.8541**
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
VSEP									
Cleanings	1		50-60		75		0.05		0.0118
Rinse filter pack at 5gpm for 5mins	1		50-60		15		0.01		0.0024
Intermittent need of additional cleaning or flush of filter pack	0.14		50-60		2.1		0.00		0.0003
System Water Totals					**System Totals**		**0.06**		**0.0145**
Supply chlorine free water at >300 uS/cm									
Supply water at 50-60degC and 3gpm (0.68m3/hr)									
Supply water at 15 psi to 1" Hot Water flange connection on Combo Skid									
ELECTRICAL LOAD PANEL SIZING INFORMATION									
Circuit Breaker Sizing 1.25-2x Nameplate Current									
3-Phase Power Voltage VAC	380-480		50/60 Hz						
1-Phase Power Voltage VAC	230-110		50/60 Hz						
	# Motors		Rated Motor HP		Nameplate Current		Nameplate Current		Recommended CB Sizing
					400V		460V		
VSEP Drive Motor	1		3		4.8		4.0		10
VSEP Feed Pump	1		5		8.1		7.0		15
Totals	**2**								
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		Nameplate		Nameplate		Recommended
					220V		120V		
Main Control Enclosures	1		NA		6.3		12.5		20
Metering Pumps	3		1		4.6		9.2		20
Supply 1-phase power from customer supplied load panel (with circuit breakers, ups, etc.) to New Logic provided circuit breakers inside the Main enclosures (PLC/HMI/24VDC Power Supply, IO Link Masters/Hubs).									
Supply 1-phase power from customer supplied load panel (with circuit breakers) to New Logic provided circuit breakers inside the Main enclosure (for pump motor Contactors). Note only one circuit breaker is required for all three metering pumps as only one will run at a time.									
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.									

V✧SEP SYSTEM COMPONENT SPECIFICATIONS

Semi-Auto LP VSEP System

1] Filter Pack:

Membrane:	MF, UF, NF, RO (depends on application and pilot testing)
Allowable Process Temperature:	5º-60ºC (some membranes have higher limits up to 120ºC)
Max Process Pressure:	550 psi (3,800 kPa)
Allowable Feed Slurry pH Range:	2-12 (some membranes have different limits 1-13)
O-ring and Seal Material:	EPDM (option for Viton)
Filter Pack Housing:	Teflon coated aluminum
Wetted Steel Trays:	316 Stainless Steel
Wetted Plastic End Plates:	316 Stainless Steel

2] Vibration System:

Vibration Drive Motor:	Baldor 460VAC, 3phase, 3HP, 3450 RPM
Motor Speed Controller:	Danfoss FC202 NEMA 1 (or Equal)
Max. Vibration Amplitude:	3/4 inch (peak to peak measured at the Filter Pack)
Frequency Range:	43.0 Hz to 55.0 Hz (Approximate)
Maximum Decibels:	<85
Bearing:	Morse Sealmaster RFB2102

3] Pump Specifications:

Feed Pump Type:	Hydra-Cell D10 10 GPM @ 1725 RPM
Feed Pump Motor:	Baldor 460VAC, 3phase, 5HP, 1700 RPM
Motor Speed Controller:	Danfoss FC202 NEMA 1 (or Equal)
Chemical Metering Pump:	Greenline Diaphragm pump with manual stroke adjust
Metering Pump Motor:	Baldor 1 HP TEFC 120/220V, 1phase, 15A, 60/50Hz
Dosing Solenoid Pump:	Chemtech Series 100

4] Pre-Screen Basket Strainer:

Y-Strainer:	100 Mesh 316 SS
Elastomers (Seals):	EPDM (option for Viton)

5] Operating Site Conditions:

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

V✧SEP SYSTEM COMPONENT SPECIFICATIONS (continued)

6] Piping:

High Pressure Piping:	Schedule 80 316 SS
Low Pressure Piping:	Schedule 40 316 SS
Process Tubing:	Rigid Tube, 0.065” thick 316 SS
Flexible Hoses:	Teflon Lined 316SS Braided hose
Pipe Clamps:	Zero-Flex Victaulic Style 07 EPDM
Tubing Fittings:	DKlok 316 SS
Clean in Place Tank:	30 Gallon Sloped Polypropylene
On/Off Valves:	316 SS 3-piece ball valve
Manual Valves:	316 SS 3-piece ball valve
Flow Control Valves:	316 SS V-port ball valve
Check Valves:	316 SS swing check valve
Pneumatic Actuators:	Compact 4, Spring Return
Positioners:	BLX Linear Quarter Turn I/P
Skid Pipe Terminations:	150 lb 316 SS Raised Face Flange or Camlock

4] Electrical:

Controls Voltage:	120/220VAC, 1phase, 15A, 50/60Hz
Enclosures:	Rittal NEMA 4 Powdercoat Finish 48x36x10
Switches, Relays, & Contactors:	Allen Bradley 120/220 Volt
Remote Access:	Weintek EasyAccess2.0
Programmable Controller:	AB Compact Logix 5069
Operator Display:	Weintek CMT3162X
IO Link Masters and Hubs:	IFM Efector AL1422
Pressure Sensors:	IFM Efector PN-2292
Mag Flow Tube and Transmitter:	IFM Efector SM6601
Conductivity Meters:	IFM Efector LDL-100, LDL-210
pH Meter:	GF Signet 3-2734-00, 3-2751-1
Solenoid Valves:	SMC Manifold Gang Mounted Dual 3/2 24 VDC, IO Link