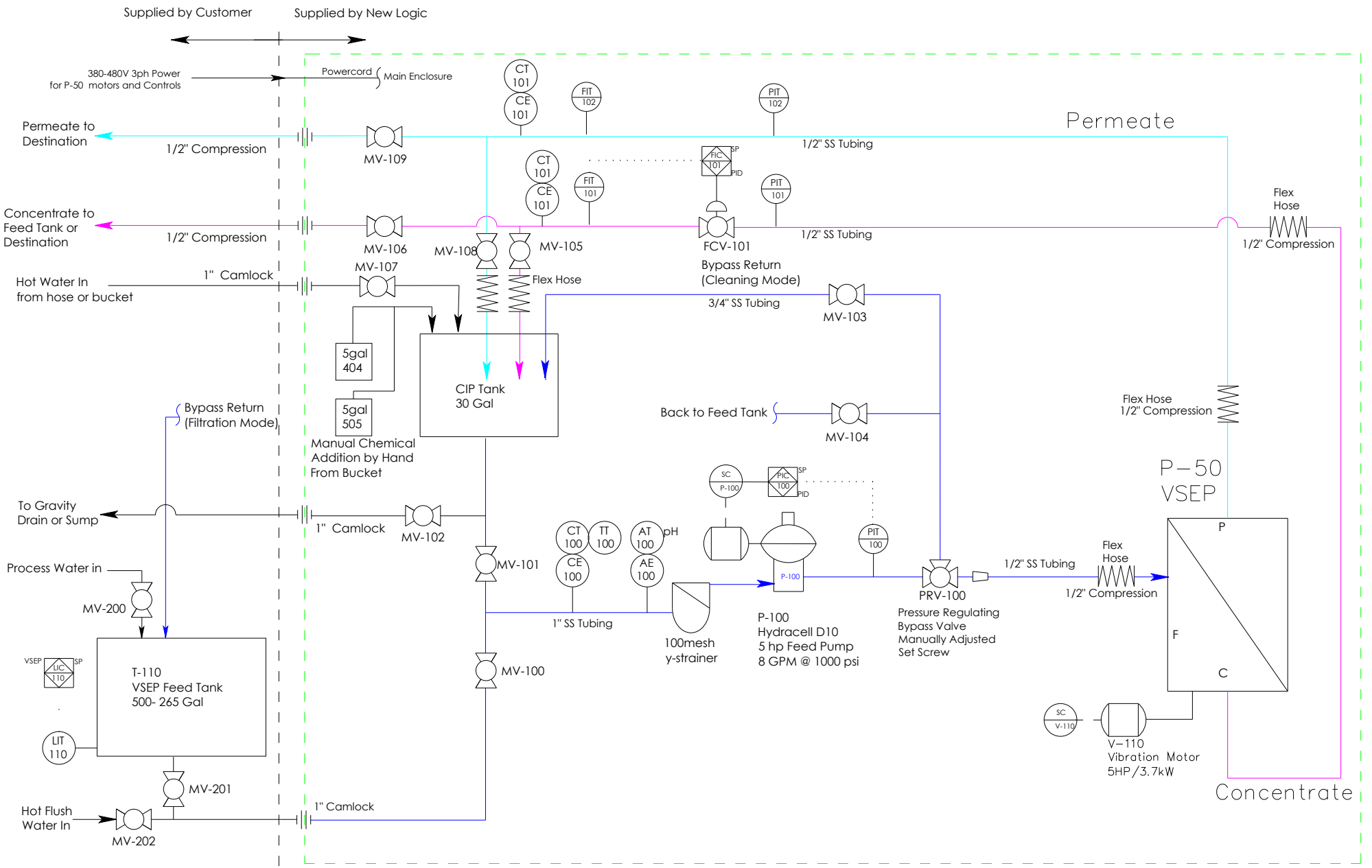
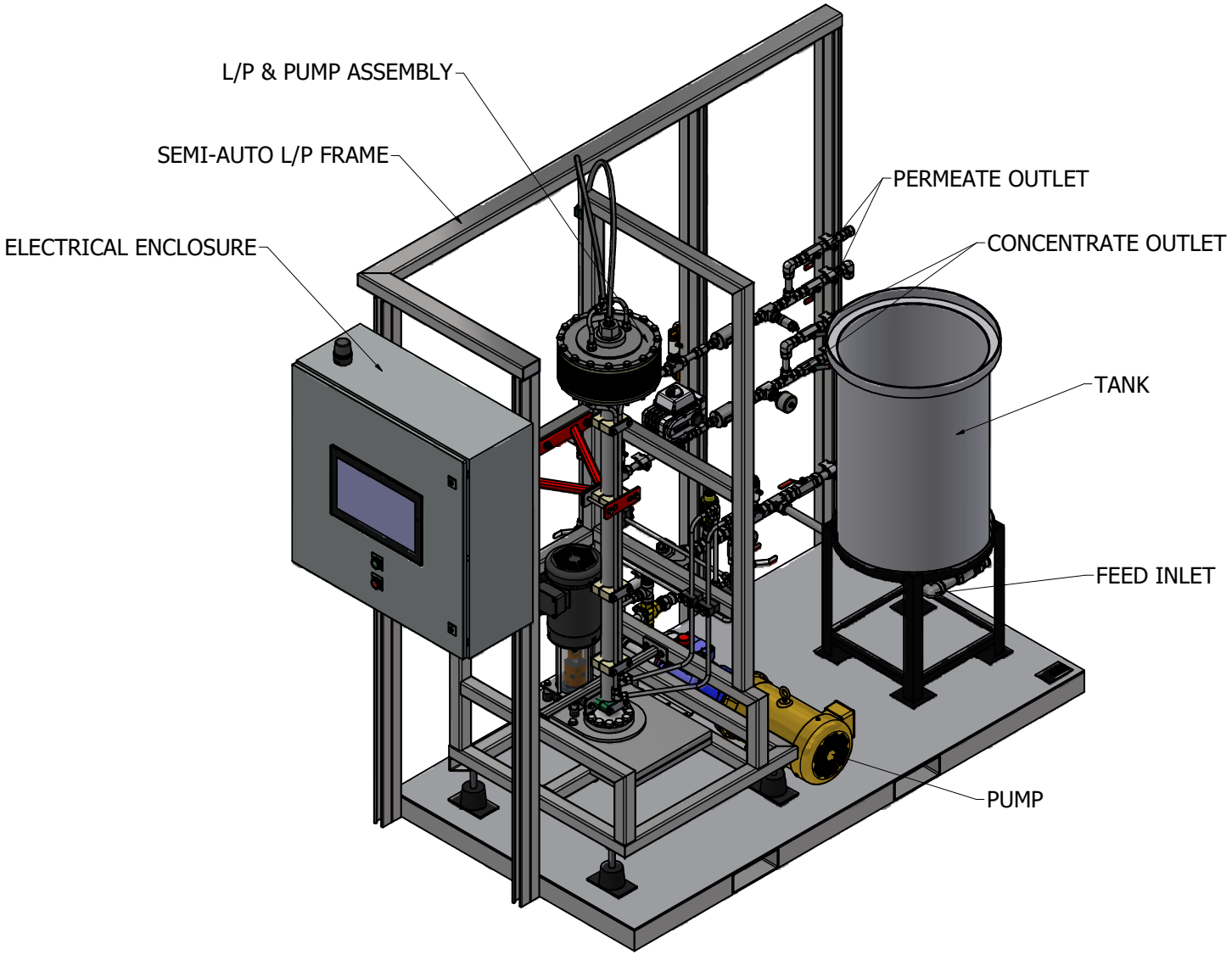
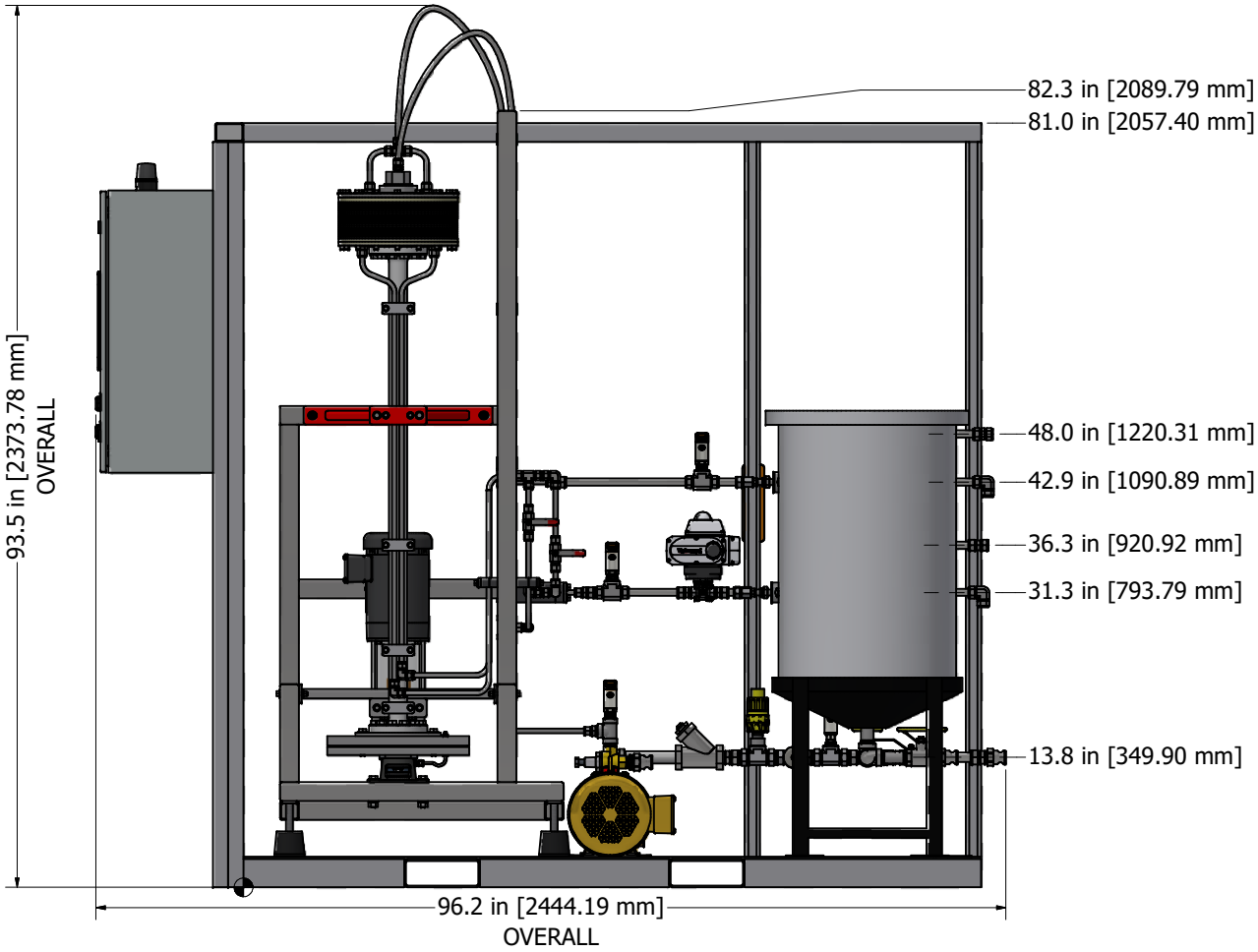

Supplied by Customer
Supplied by New Logic
380-480V 3ph Power for P-50 motors and Controls
Powercord
Main Enclosure
Permeate to Destination
1/2" Compression
MV-109
CT 101
CE 101
FIT 102
PIT 102
Permeate
1/2" SS Tubing
FIC 101
SP
PID
CT 101
CE 101
FIT 101
PIT 101
Concentrate to Feed Tank or Destination
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
5gal 404
5gal 505
CIP Tank 30 Gal
Manual Chemical Addition by Hand From Bucket
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
1" SS Tubing
100mesh y-strainer
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
VSEP
LIC 110
SP
T-110
VSEP Feed Tank
500- 265 Gal
MV-100
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] Semi Auto Skid Assembly
Notes:
NLR Confidential Material
Preliminary - For Reference Only.
Revision
NEW LOGIC
Semi-Auto LP VSEP System
P&ID
A
Sept 2026
M. Ayers

SEMI-AUTO SERIES L/P VSEP SYSTEM
ISO VIEW



NOTES:
1. NEW LOGIC RESEARCH CONFIDENTIAL MATERIAL
2. ALL DIMENSIONS ARE SHOWN IN IN [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

SEMI-AUTO SERIES L/P VSEP SYSTEM
FRONT VIEW



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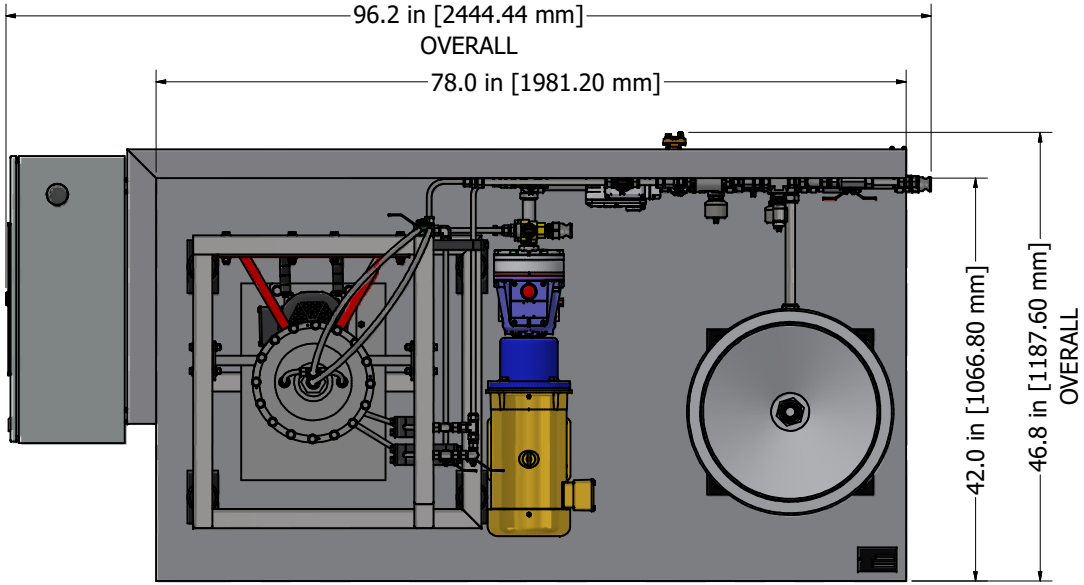
SEMI-AUTO SERIES L/P VSEP SYSTEM
TOP VIEW



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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									
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
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	
Transformer or 24vdc Power Supply with New Logic provided circuit breakers inside the Main enclosures (PLC/HMI/24VDC Power Supply, IO Link Masters/Hubs).									
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)

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
Manual Valves:	316 SS 3-piece ball valve
Check Valves:	316 SS swing check valve
Positioners:	Valworx 24vdc
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