SSB-426-04
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16 October 2023

DPX-EXP-TPX 5 - 25
SPC BASE MOUNT

Lifeline® Lubricated Rotary Vane Medical Vacuum
Single Point Connection (SPC) Duplex Expandable Triplex System (5 - 25 HP)

SPECIFICATION

Single Point Connection (SPC) System Design

The LifeLine® Lubricated Rotary Vane Medical vacuum package is fully compliant with NFPA 99 and features a common base with single point connections for the electrical panel and intake. Each pump and the receiver are connected to a common intake manifold. The system is capable of access through a standard 34.5" doorway. Designed and manufactured with ISO 13485 processes, each system is completely tested before shipment and includes:

- Two oil-sealed rotary vane vacuum pumps with two motors
- Integral pre-wired control panel
- Vertical air receiver with full-size three-valve bypass system sized for appropriate demand
- OSP-322-10 seismic pre-certification rating of 2.50 S_{DS} for VLS05D-xxxxT to VLS10D-xxx-T, and rating of 1.60 S_{DS} for VLS15D-xxxx-T to VLS25D-xxxx-T.

Vacuum Pump

Each pump is a direct driven, oil-sealed rotary vane vacuum pump, with an end (ultimate) vacuum of 29.3" Hg. Each pump is completely air-cooled with no water requirements. Each pump contains:

- Integral, fully recirculating oil supply to provide lubrication
- An automotive-type, spin-on oil filter for oil filtration
- High-discharge temperature switch
- Oil drain valve assembly with temperature gauge

The oil separation system is integral and consists of the following:'

- No less than three stages of internally installed oil and smoke eliminators through which the exhaust gas stream must pass
- Bulk separation, oil mist elimination, and smoke elimination
- Capability to remove 99.9+ percent of all oil and smoke particles from the exhaust gas stream

Each vacuum pump includes the following:

- Built-in, anti-suck-back valve mounted at the pump inlet
- Three non-metallic, non-asbestos vanes, each having a minimum life of 30,000 hours
- Mounting on vibration isolators
- Flexible connector and isolation valve

Vacuum Pump Drive

The pump shall be direct driven. Torque is transmitted from the motor to the pump through a shaft coupling.

Vacuum Pump Motor

Motors are continuous duty, NEMA rated, C-face, foot-mounted, TEFC, suitable for 230/460 or 208V, 60 hertz, 3-phase electrical service and 380V, 50 hertz, 3-phase electrical service.

Vacuum Filtration per NFPA 99

A HEPA inlet air filter, 0.3 micron, 99.97% efficiency, is mounted before each vacuum pump. A clear, glass collection canister is mounted below each HEPA filter, with quarter turn valve to isolate canister from filter during service. The inlet filter canister contains a bleed valve to relieve vacuum before servicing.

Intake Piping

Each vacuum pump has a factory piped intake with integral flex connector, isolation valve, and check valve. Interconnecting piping consists of powder-coated steel tubing and flanges.

Vacuum Receiver

The vacuum receiver is ASME Code stamped, and rated for a minimum 150 PSIG design pressure. The receiver has a full-size three-valve bypass system to allow for draining of the receiver without interrupting the vacuum service. A manual drain is provided on the receiver.

Exhaust Piping

Each vacuum pump is factory piped with an integral flex connector to an exhaust manifold with a drip leg and ball valve for condensate drain. Interconnecting piping consists of powder-coated steel tubing and flanges.

TotalAlert 360 Control System

The triplex mounted and wired TotalAlert 360 control system is U.L. labeled. The control system provides automatic lead/lag sequencing and automatic alternation of vacuum pumps based on first-on/first-off principle with provision for simultaneous operation if required. Automatic activation of reserve unit, if required, will activate an audible alarm as well as a visual alarm on the display screen.

Additional components include:

- NEMA 12 control panel enclosure
- Circuit breaker disconnects for each motor with external operators
- Full voltage motor starters with overload protection
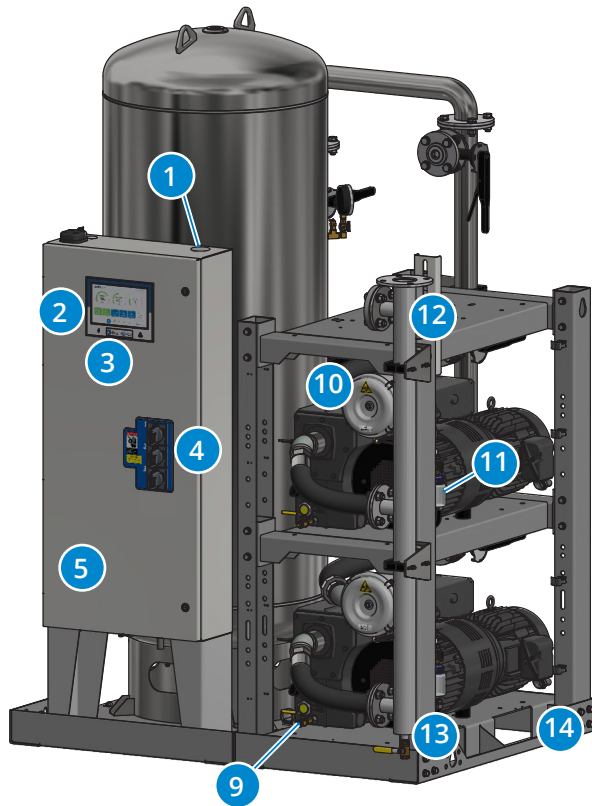- 24V control circuit
- 65kAIC SCCR rating for control cabinet

The touch screen controls feature a 10" color, high resolution screen. Screen displays and functions include:

- Easy to read system vacuum level
- Status of all units (Running, Available, Off, next to Run)
- Trend graphs for vacuum level and units running
- Run time hour meters for each unit
- Visual/audible alarm indications with isolated contacts for all standard remote alarms
- Event log recording alarms and system activity
- Service alerts
- Event log recording service warnings and service history
- Integral cellular connectivity to MyMedGas, allowing electronic notifications of alarms and warnings
- Daily rounds uploadable to MyMedGas
- BTL listed, BACnet/IP communication

Standard Configuration

Model Shown: 7.5 Hp Duplex Expandable Triplex

1 Control panel pre-drilled for power and alarms for easy electrical installations. Ethernet connection on panel top for easy installation of BACnet connectivity, with additional connection on the side panel for software updates.

2 TotalAlert 360 controls featuring 10" color screen with high resolution 1280 x 800 Capacitive Touch Display for exceptional clariy, visibility, and useability.

3 LED indication of Reserve in Use condition as backup annunciation to display failure and LED indication of power to the control panel.

4 Through the door disconnects for pumps add to safety during service.

5 Control cabinet components achieve rating of 65kAIC SCCR.

6 Flex connectors on vacuum inlet and discharge to isolate pump vibration from facility pipeline.

7 Vacuum switch as backup to vacuum transducer. In case of transducer failure, system operates effectively.

8 Full-size 3-valve receiver bypass with flanged valves reduce potential leak points over NPT fittings.

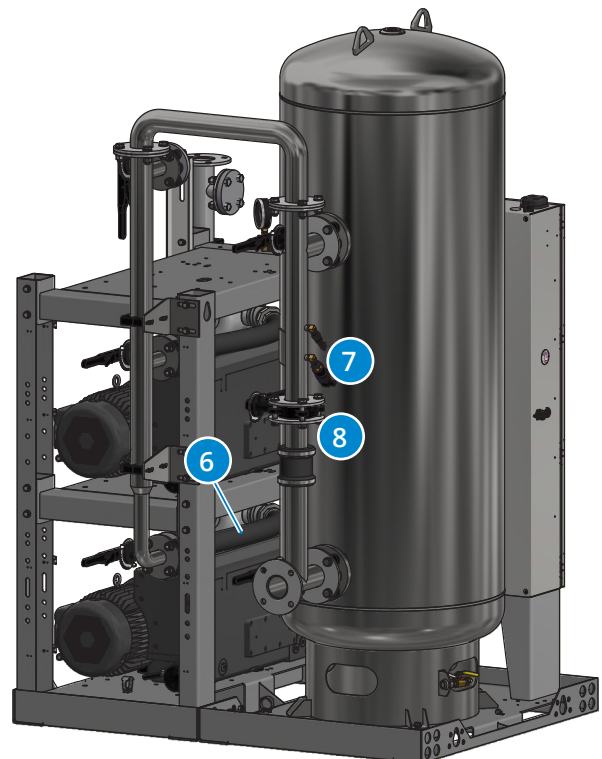**9** Oil sight glass and filler plug with ease of access for oil changes.

10 Individual HEPA air inlet filter per vacuum pump to prevent contaminants from entering vacuum pump, ensuring safety during servicing. Housing bleed valve to remove vacuum for filter replacement.

11 Glass collection canister mounted below HEPA filter, with isolation valve to allow for easy changeout.
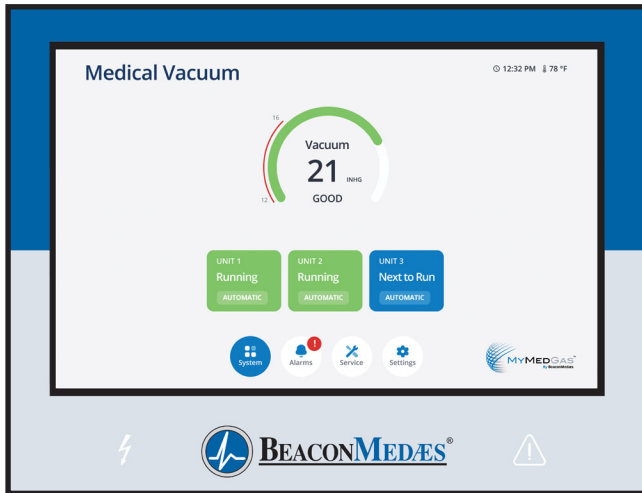
12 Discharge manifold with a single point connection to the exhaust piping, with flex hoses factory installed.

13 Factory installed exhaust drip leg with ball valve and condensate drain.

14 Openings in base frame to allow access underneath pumps for pump maintenance.

TotalAlert 360 Control System

TotalAlert 360 Touch Screen

- 10" LCD 1280 x 800 Capacitive Touch Display for exceptional clarity and visibility, with enhanced user experience
- LCD is IPS-TFT for enhanced color and contrast, featuring 85% viewing angle in all directions
- Toolbars on all screens with easy access navigation icons that enable full access with minimal touches

MyMedGas Connectivity

- Cellular connectivity to cloud-based MyMedGas web page for remote operator to view system controls and display information
  - » View remotely system operation details, alarms and event history
  - » View remotely maintenance timers, service history logs
  - » Easily download system trends, event logs and reports for system management and record keeping
- Electronic notification
  - » Allows for remote alerts of alarm and warning conditions
  - » Allows for remote alerts of routine maintenance
- Logging rounds to MyMedGas
  - » Main screen touchpoint for MyMedGas with time stamp to log operating conditions, system parameters during daily rounds
  - » Automated report generated to MyMedGas

Ethernet Connectivity

- Control panel contains Ethernet port on top of cabinet for easy installation of BACnet
- TCP/IP protocol for BACnet activation
- Ethernet port on side of control cabinet that allows reprogramming with a standard computer for software updates

Control Cabinet Safety

- Volt free relay contacts for all standard alarms
- Low voltage (24V) control circuit
- Full voltage motor starters with overload protection
- Circuit breaker disconnects for each vacuum pump
- 65kAIC SCCR rating

Redundancy

- Each vacuum pump has an individual board for control allowing units to function independently
- In unlikely malfunction of display board or display screen, system will function normally and activate alarm
- If master board malfunctions, system goes to failsafe operation with backup vacuum switch
- Independent LED indicators on control screen for Reserve in Use and power to the control panel as backup annunciation to display failure

Master Display Screen

- Main Screen
  - » Displays the system operating conditions, including system vacuum level
  - » Displays the pump unit sequence, including status of pumps (running, available, off) and next to start
- Trends & Graphs
  - » Shows measured values of the system operating conditions over a period of time (operating vacuum, ambient temperature)
  - » Shows unit usage and operation, clearly identifying each unit and its running status
  - » Selectable time periods consist of 60 minutes, 4 hours, 24 hours, and 6 days
  - » Visually precise with green and red shading for normal and non-normal areas
- Service
  - » Displays ambient temperature in the room
  - » Maintenance screen shows suggested and required maintenance items with resettable timers
  - » Historical event log records all service activities
  - » Link to operations manuals associated with system
- Alarms and Shutdowns
  - » All system/unit Alarms and Shutdowns displayed with visual indication (Green or Red) and unit operation status, allowing for quick identification and evaluation of system operation
  - » Custom messaging for each alarm and shutdown
  - » Testing mode enables operator to test all alarm/shutdown events (password protected), with all test events recorded in the event log
  - » Event History Log records all system event history
- Unit Operation
  - » Screens shows the operation mode of the unit along with automatic or manual mode setting
  - » Unit status screen displays the running hour meter values, including average daily run time and average starts/hour
  - » Pump rotation allows the unit to run for a short period to check pump rotation
- System Settings
  - » Allows the adjustment of system pressure operating range
  - » Displays pertinent system model information
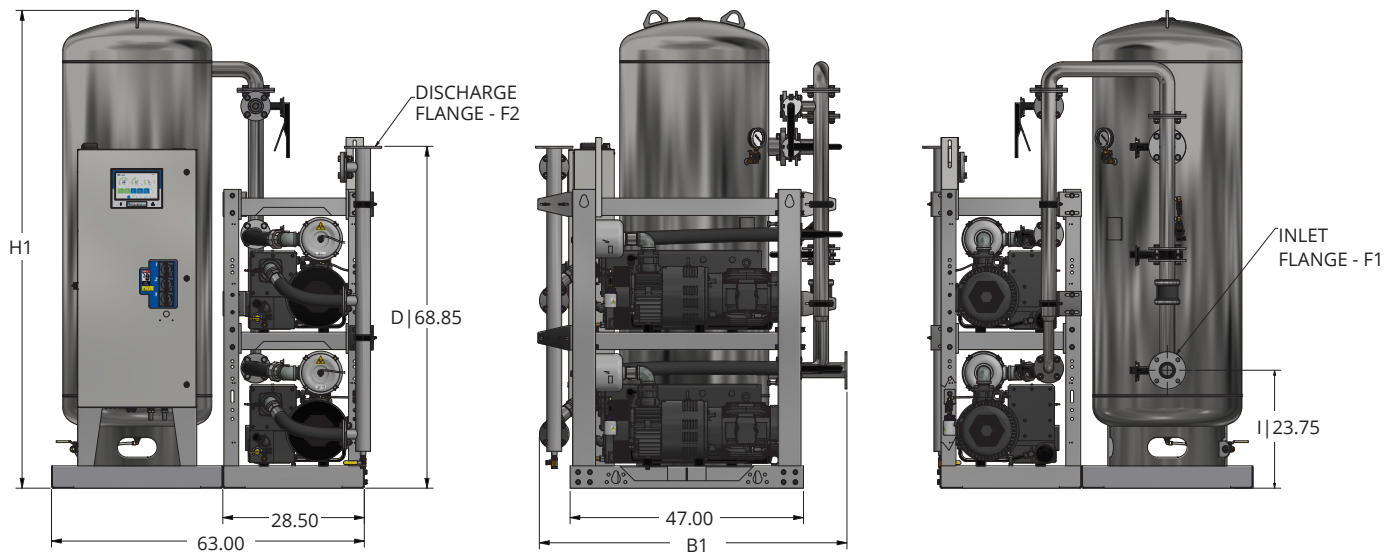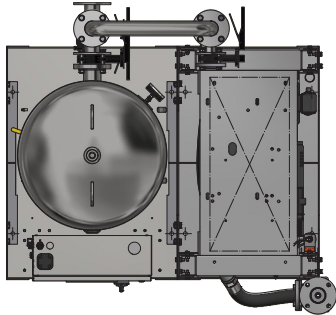
SPECFICATION TABLE

System Model No.	HP	Capacity[2] @19" Hg (scfm)		System[3] BTU/Hr	Receiver (gallons)	Noise[4] Level	System FLA			System Weight[5] (lbs)
		Pump	System				208V	230V	460V	
SPC Duplex Expandable Triplex - 60 Hz										
VLS05D-120V-T	5	37	37 (74)	20,360	120	74	46.5	40.6	20.6	2,132
VLS05D-200V-T	5	37	37 (74)	20,360	200	74	46.5	40.6	20.6	2,372
VLS05D-240V-T	5	37	37 (74)	20,360	240	74	46.5	40.6	20.6	2,422
VLS07D-200V-T	7.5	52	52 (104)	30,540	200	82	72.3	67.3	33.9	2,887
VLS07D-240V-T	7.5	52	52 (104)	30,540	240	82	72.3	67.3	33.9	2,962
VLS10D-200V-T	10	77	77 (154)	40,720	200	84	102.3	80.5	40.5	3,606
VLS10D-240V-T	10	77	77 (154)	40,720	240	84	102.3	80.5	40.5	3,681
VLS15D-200V-T	15	111	111 (222)	61,080	200	86	152.1	114.1	57.3	6,855
VLS15D-240V-T	15	111	111 (222)	61,080	240	86	152.1	114.1	57.3	6,930
VLS20D-200V-T	20	137	137 (274)	81,440	200	87	188.1	157.9	79.2	7,365
VLS20D-240V-T	20	137	137 (274)	81,440	240	87	188.1	157.9	79.2	7,440
VLS25D-200V-T	25	168	168 (336)	101,800	200	88	218.1	187.9	94.2	7,992
VLS25D-240V-T	25	168	168 (336)	101,800	240	88	218.1	187.9	94.2	8,067
SPC Duplex Expandable Triplex - 50 Hz							**380V**			
VLS05D-120V-TE	5	31	31 (62)	20,360	120	74	24.7			2,132
VLS05D-200V-TE	5	31	31 (62)	20,360	200	74	24.7			2,372
VLS05D-240V-TE	5	31	31 (62)	20,360	240	74	24.7			2,422
VLS07D-200V-TE	7.5	43	43 (86)	30,540	200	82	35.7			2,887
VLS07D-240V-TE	7.5	43	43 (86)	30,540	240	82	35.7			2,962
VLS10D-200V-TE	10	64	64 (128)	40,720	200	84	41.4			3,606
VLS10D-240V-TE	10	64	64 (128)	40,720	240	84	41.4			3,681
VLS15D-200V-TE	15	93	93 (186)	61,080	200	86	68.4			6,855
VLS15D-240V-TE	15	93	93 (186)	61,080	240	86	68.4			6,930
VLS20D-200V-TE	20	114	114 (228)	81,440	200	87	85.5			7,365
VLS20D-240V-TE	20	114	114 (228)	81,440	240	87	85.5			7,440
VLS25D-200V-TE	25	140	140 (280)	101,800	200	88	112.5			7,992
VLS25D-240V-TE	25	140	140 (280)	101,800	240	88	112.5			8,067

Specification Table Notes:

1. Normal operating conditions at a maximum ambient of 105° F. Consult factory for higher ambient conditions.
2. All capacities are shown as NFPA 99 system capacities (reserve vacuum pump on standby).
3. All system BTU/HR are shown with reserve vacuum pump on standby.
4. All noise levels are shown in dB(A) and reflect reserve pump on standby.
5. System weight includes future expansion module.

Standard Configuration
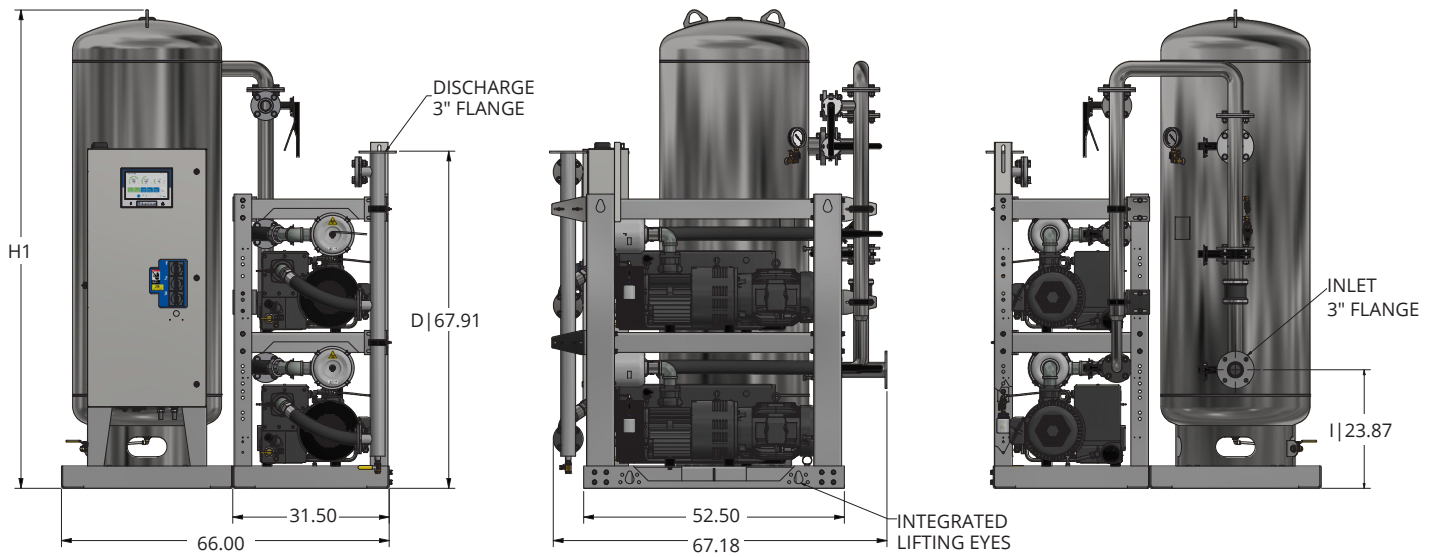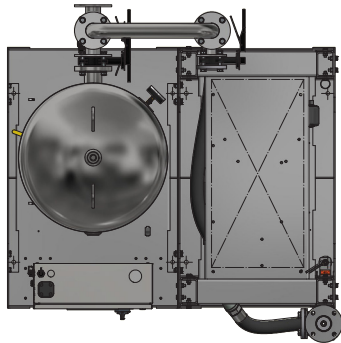
Model Shown: 7.5 Hp Duplex Expandable Triplex

DISCHARGE
FLANGE - F2

H1

D|68.85

28.50

63.00

47.00

B1

INLET
FLANGE - F1

I|23.75

System Model No.	HP	Dimensions			
		B1	H1	F1	F2
VLS05D-120V-T	5	61.64	85.62	2	2
VLS05D-200V-T	5	61.64	85.63	2	2
VLS05D-240V-T	5	61.64	96.21	2	2
VLS07D-200V-T	7.5	61.93	85.87	3	3
VLS07D-240V-T	7.5	61.93	96.22	3	3

Notes:

• Allow 36 inches in front of control panel for maintenance and ventilation, all other sides require 24 inches of clearance
• Additional drawings/diagrams available for download at www.beaconmedaes.com.

Standard Configuration

Model Shown: 10 Hp Duplex Expandable Triplex

DISCHARGE
3" FLANGE

H1

D|67.91

INLET
3" FLANGE

I|23.87

31.50

66.00

52.50

67.18

INTEGRATED
LIFTING EYES

System Model No.	HP	Dimensions
		H1
VLS10D-200V-T	10	86.00
VLS10D-240V-T	10	96.34

Notes:

• Allow 36 inches in front of control panel for maintenance and ventilation, all other sides require 24 inches of clearance
• Additional drawings/diagrams available for download at www.beaconmedaes.com.

Standard Configuration

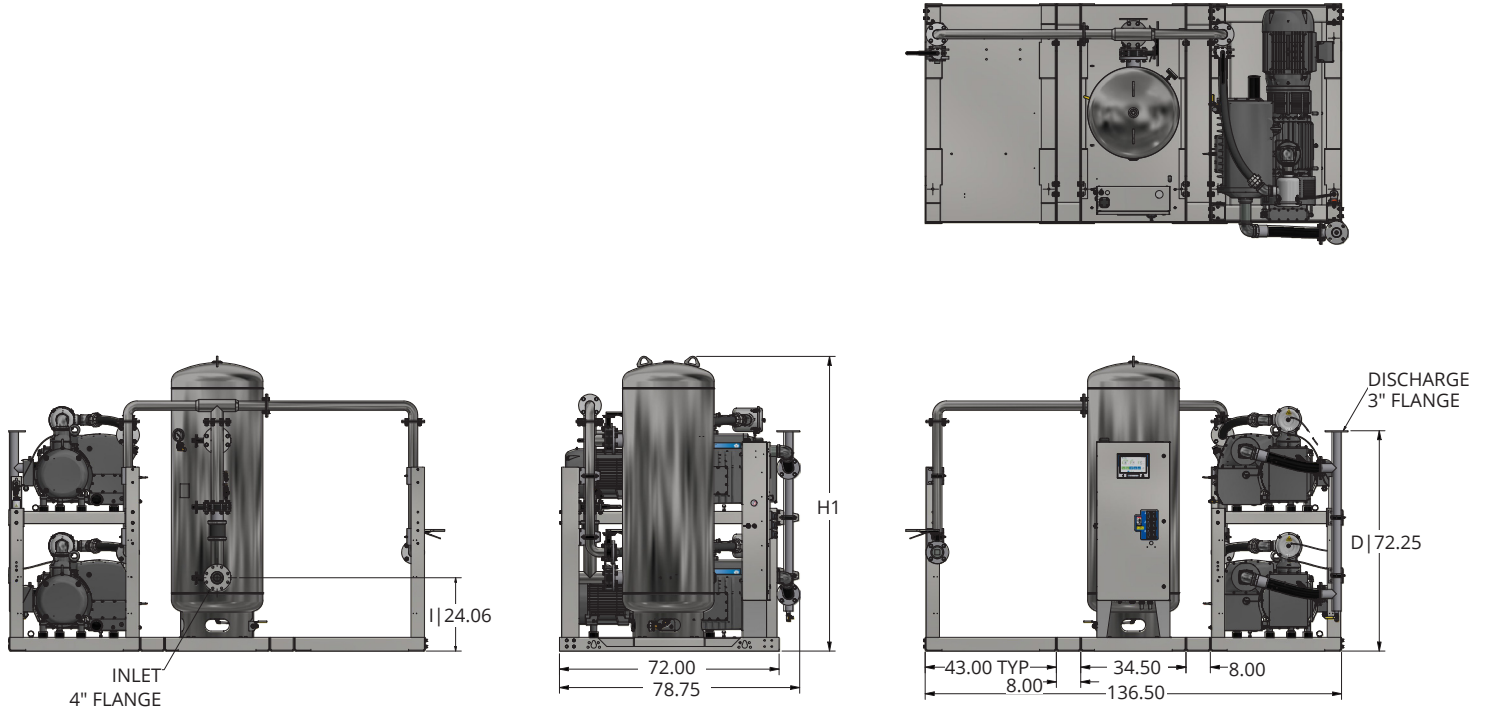Model Shown: 25 Hp Duplex Expandable Triplex

INLET
4" FLANGE

I|24.06

72.00
78.75

H1

DISCHARGE
3" FLANGE

D|72.25

43.00 TYP
8.00
34.50
8.00
136.50

System Model No.	HP	Dimensions
		H1
VLS15D-200V-T	15	84.62
VLS15D-240V-T	15	96.62
VLS20D-200V-T	20	84.62
VLS20D-240V-T	20	96.66
VLS25D-200V-T	25	84.62
VLS25D-240V-T	25	96.66

Notes:

• Allow 36 inches in front of control panel for maintenance and ventilation, all other sides require 24 inches of clearance
• Additional drawings/diagrams available for download at www.beaconmedaes.com.

Life is in the details.®

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