LifeLine® Lubricated Rotary Vane Medical Vacuum Single Point Connection (SPC) Quadruplex System (07/10Q)

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, intake and discharge. Each pump and the receiver are connected to a common intake manifold. Each pump is connected to a common discharge manifold. The common base is separable for transport through standard doorway. Designed and manufactured with ISO 13485 processes, each system is completely tested before shipment and includes:

- Four oil-sealed rotary vane vacuum pumps with four motors
- Integral pre-wired control panel
- Vertical air receiver (200G) with full-size three-valve bypass system sized for appropriate demand

Vacuum Pump

Each pump is a direct driven, oil-sealed rotary vane vacuum pump, with an end (ultimate) vacuum of 0.10 mBar. 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

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
- 5 micron inlet filter for removal of particulates
- 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, High efficiency, IP 55, Class F, TEFC foot-mounted, Voltage fluctuations:±10%, suitable for continuous operation S1.

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 200 Gallon ML certified, 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.

Elektronikon Mk5 Control System

The Elektronikon Mk5 mounted and wired central 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 visual alarm on the display screen.

Additional components include:

- Circuit breaker disconnects for each motor with external operators
- Full voltage motor starters with overload protection
- 24V control circuit

The touch screen controls feature one 4.3” master screen. Screen displays and functions include:

- Service alerts, runtime hour meters for each pump, system status, system vacuum level
- Visual alarm indications with isolated contacts for all standard remote alarms
- Event log recording alarms and system activity
- Event log recording service warnings and service history
- Smart link as standard integral part of the offer
- Ethernet connectivity and embedded web page for remote monitoring

Standard Configuration

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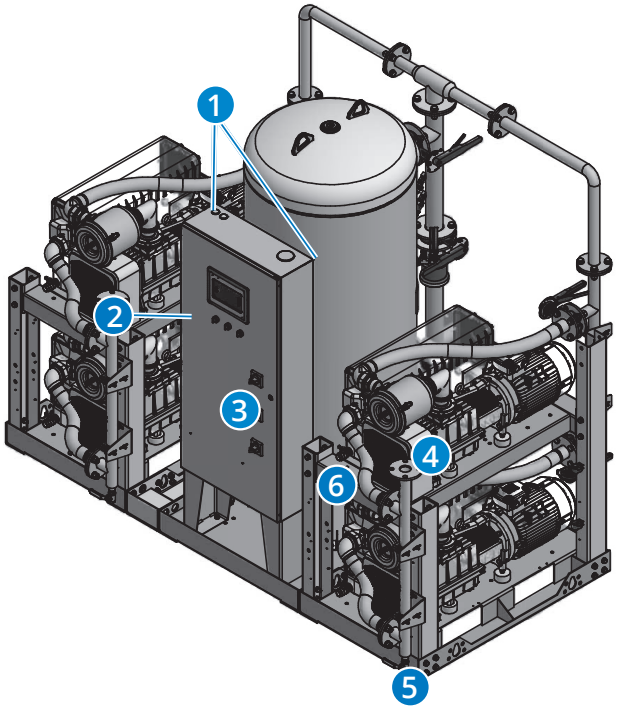
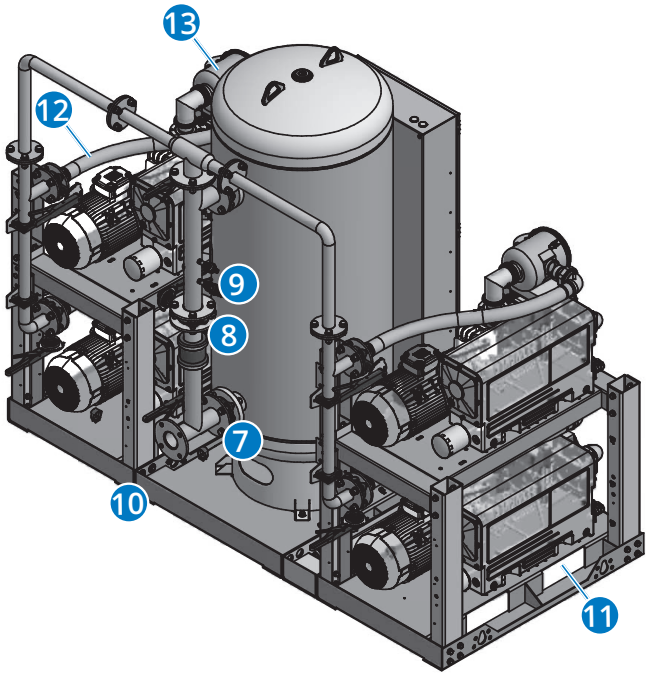


1. Control panel pre-drilled for power, alarms, and Ethernet connections for easy electrical installation
2. Elektronikon Mk5 touch screen controls featuring 4.3" master operating screen with exceptional clarity and visibility.
3. Through the door disconnects for pumps add to safety during service.
4. Discharge manifold with a single point connection to the exhaust piping, with flex hoses factory installed.
5. Factory installed exhaust drip leg with ball valve and condensate drain.
6. Oil sight glass and filler plug with ease of access for oil changes.



7. Hospital connection and receiver inlet positioned below receiver exit and piping to the pumps - extra protection against liquids/debris entering pumps.
8. Full-size 3-valve receiver bypass with flanged valves reduce potential leak points over NPT fittings.
9. Vacuum Switch as backup to Vacuum transducer and / or central controller has a failure.
10. Easy to disassemble for transport through doorways and reassemble as Single Point Connection for installation.
11. Openings in base frame to allow access underneath pumps for pump maintenance.
12. Flex connectors on vacuum inlet and discharge to isolate pump vibration from facility pipeline.
13. Individual 5 micron air inlet filter per vacuum pump to protect pump from incoming particulates.

Elektronikon Mk5 Touch Control System

Touch Screen Control

- Master screen is 4.3” high resolution LCD with 480x272 pixel display for exceptional clarity and visibility
- Easy access navigation icons that enable full access with minimal touches

Ethernet Connectivity with Embedded Web Page

- Built-in web server allows remote operator to view system controls and display information

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
- Backup vacuum switch
- In case of power failure at source, all remote alarm contacts open in alarm condition

Redundancy

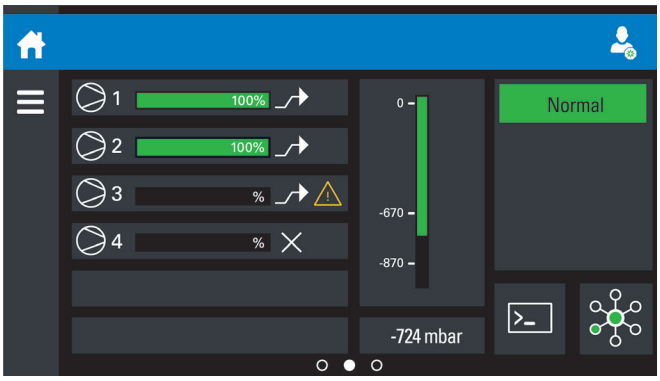
- In unlikely event of Electronikon becoming disabled, unit will function normally and activate alarm and system goes to failsafe operation with backup pressure switch

Master Display Screen (4.3”)

- Main Screen
  - » Displays the system operating conditions, including Vacuum level
  - » Displays the vacuum pump sequence, including status of all pumps (running, available, off) and next to start
- Service
  - » Maintenance screen shows suggested and required maintenance items with resettable timers
  - » Historical event log records all service activities
- Alarms and Shutdowns
  - » All System Alarms and Shutdowns displayed with visual indication
  - » Testing mode enables operator to test all alarm events (password protected)
  - » Event History Log records all system event history excluding service/maintenance history
- System Settings
  - » Allows the adjustment of system vacuum operating range (password protected)
  - » Displays pertinent system model information

Smartlink

- Smartlink comes with our new Elektronikon Mk5 as standard and provides a simple but effective way to increase reliability, decrease downtime and identify potential risks. Users will have possibility to remotely observe status of the machine, been notified of coming services, receive immediate notification in case of required attention (including mails and SMS). System functionally also supports immediate notification of a Service departments in case of equipment failure to guaranty fasters responds time.



Standard Configuration

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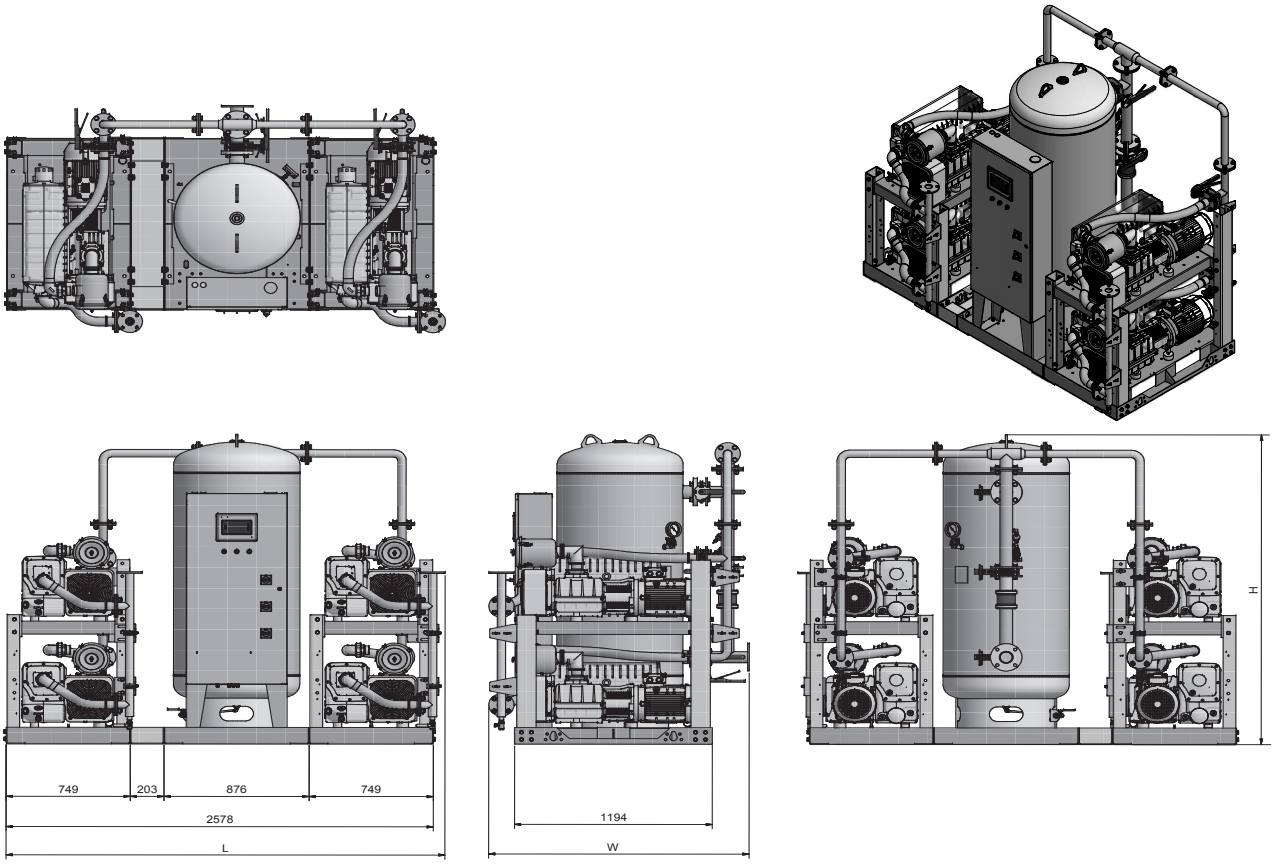

Notes:

- Allow 900mm in front of control panel for maintenance and ventilation, all other sides require 600mm of clearance.
- Additional drawings/diagrams available for download at www.beaconmedaes.com.

Vacuum System Specifications[1]

System Model No.	HP	Flow @ 480 mmHG (L/Min)		Receiver (gallons)	Noise Level	System FLA 380/3/50	System Weight (KG)	Dimensions L x W x H (mm)
		Pump	System					
WVLS07Q	7	1461	4383	200	76	51.3	2810	2700 x 1700 x 2142
WVLS10Q	8	1729	5187	200	76	64.1	2850	2700 x 1700 x 2142

Notes:

1. Normal operating conditions at a maximum ambient of 40˚C Consult factory for higher ambient conditions.
2. All capacities are shown as NFPA system capacities (reserve vacuum pump on standby).
3. All noise levels are shown in dB(A) and reflect one vacuum pump in operation.
4. Medical Vacuum System is not to be used in non-medical laboratory applications.

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