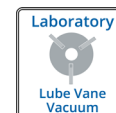




**VerusLab Lubricated Rotary Vane Laboratory Vacuum  
Duplex Horizontal Tank Mount  
Basic (PLC) Control System  
3 - 5 HP**



**SPECIFICATION**

**Vacuum System**

The Lubricated Rotary Vane vacuum package 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 system is capable for transport 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
- Horizontal air receiver 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 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
- Each pump is mounted on vibration isolators

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
- 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 and Lag Alarm**

Motors are continuous duty, NEMA rated, C-face, foot-mounted, TEFC, 1800 RPM, available in 60 hertz (208V, 230V, or 460V) and 50 hertz (380V), 3-phase electrical service. The lead vacuum pump is factory set to alternate every 10 hours but it is field adjustable between 4 to 24 hours.

This vacuum pump system comes standard with a lag alarm that can be enabled or disabled in the field.

**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.

**Automatic Purge System**

The vacuum pump is equipped with an automatic purge system to flush any gases from the pump to prevent condensation as the pump cools. The purge system incorporates a 24V electric controlled automatic isolation valve, and controls to operate an adjustable 1 to 15-minute shutdown purge with factory setting at 7 minutes. This vacuum pump system requires no air supply.

**Intake Piping**

Each vacuum pump has a factory piped intake with integral flex connector, isolation valve with 24V electric actuator, and check valve. Interconnecting piping consists of powder-coated steel tubing and flanges.

**Basic Control System**

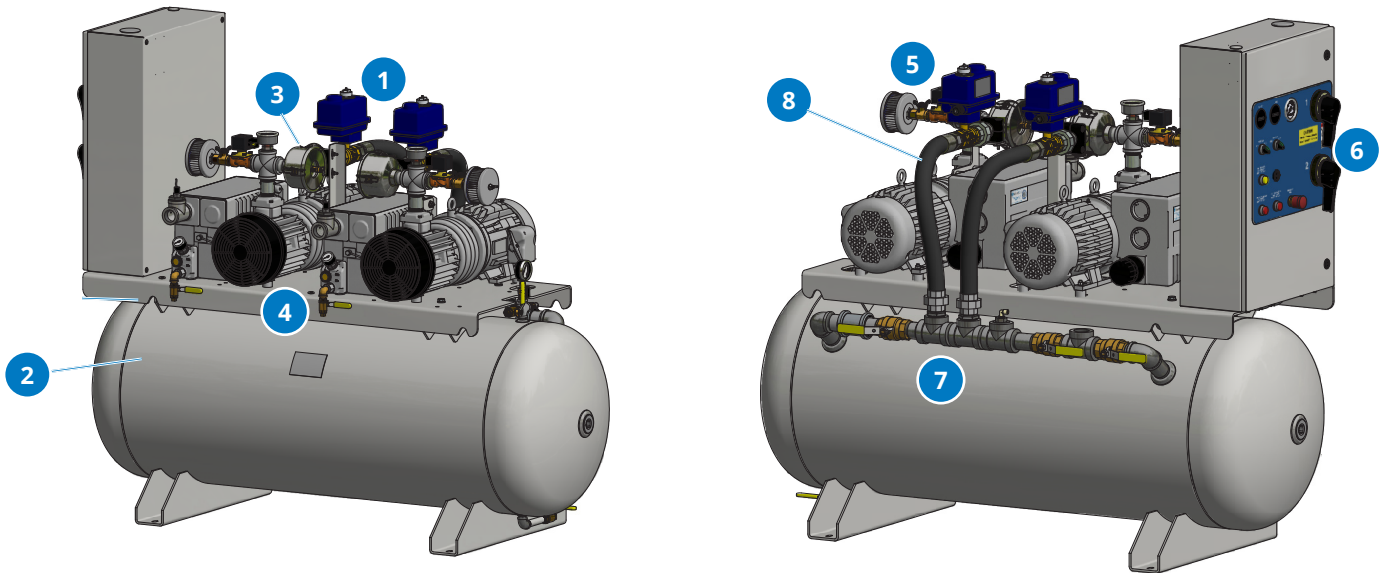
The basic control system is U.L. labeled. The control system provides automatic sequence of pumps activating an optional lag alarm. A programmable logic controller (PLC) controls the automatic but adjustable run timer alternation of vacuum pumps based on first-on/first-off principle with provision for simultaneous operation if required. Automatic activation of reserve unit, if required, will activate an audible alarm as well as a visual alarm on the control panel if the lag alarm option is enabled.

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
- Visual/audible reserve unit alarm with isolated contacts for remote alarm, visual alarms for high discharge temperature shutdown with isolated contacts for remote alarm.
- Hand-Off-Auto lighted selected switches
- Runtime hourmeters
- Vacuum gauge

### Standard Configuration

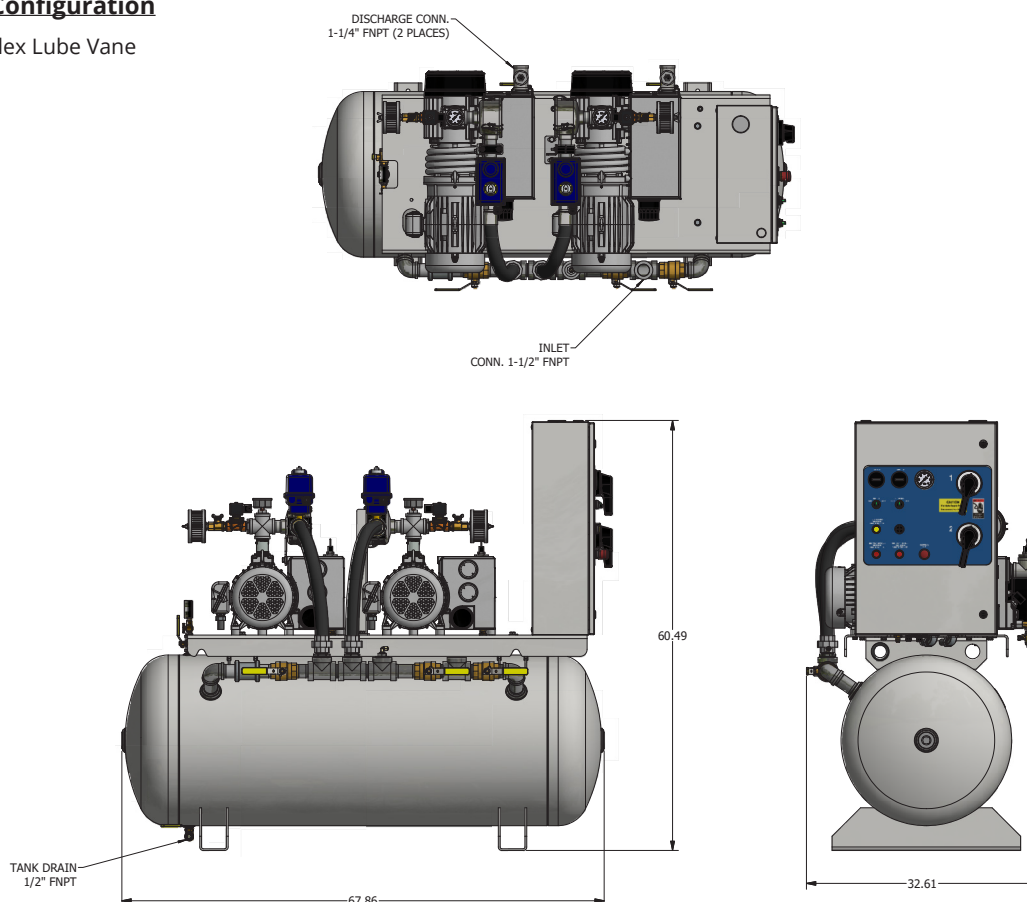
3 - 5 HP Duplex Lube Vane



- 1 Isolation valve with 24 V electric actuator.
- 2 120-gallon horizontal receiver.
- 3 Individual 5 micron air inlet filter per vacuum pump to protect pump from incoming particulates.
- 4 Oil sight glass and filler plug with ease of access for annual oil changes.
- 5 Automatic Purge System.
- 6 Through the door disconnects for pumps for safety during service.
- 7 Full-size 3-valve receiver bypass.
- 8 Flex connectors on vacuum inlet to isolate pump vibration from facility pipeline.

## Standard Configuration

3 - 5 HP Duplex Lube Vane



- Notes:**
- Discharge muffler ships loose
  - 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](http://www.beaconmedaes.com).

**Vacuum System Specifications<sup>1</sup> @ Sea Level**

System Model No.	Hz	HP	Nominal Pumping Speed (acfm/pump)	Capacity <sup>2</sup> @ 19" HgV (scfm/system)	Capacity <sup>2</sup> @ 25" HgV (scfm/system)	End Pressure inch of HgV (Torr)	System BTU/Hr	db(A) per Pump	System Weight (lb)	System FLA			
										208V	230V	380V	460V
LVL03D-120H-BD	50	3	38	28	10	29.3 (15)	12,216	70	926	N/A	N/A	10.2	N/A
LVL03D-120H-BD	60	3	45	34	12	29.3 (15)	12,216	70	926	19	17.8	N/A	8.4
LVL05D-120H-BD	50	5	59	44	22	29.3 (15)	20,360	71	978	N/A	N/A	15.2	N/A
LVL05D-120H-BD	60	5	71	52	26	29.3 (15)	20,360	71	978	29.8	27.8	N/A	13.4

- Notes:**
1. Normal operating conditions at a maximum ambient of (41°C) 105° F. Consult factory for higher ambient conditions.
  2. Capacity measured at reference conditions of absolute inlet pressure 1 bar (14.5 psi), intake air temperature 20°C (68° F). System capacities include two pumps running.