



Laboratory Vacuum Systems

Product Selection Guide



- Vacuum systems customized specifically for Laboratory Applications
- Packages that leverage proven Dry Claw and Oil Sealed Rotary Vane Technologies
- Easy to use product guide with control panel options and product specification charts to help you find just the right product

WHY POWEREX?

SERVICE

Powerex has an extensive network of trained sales and service dealers—over 220 authorized service centers throughout the United States, Canada, the Middle East, Central and South Americas.

In order to maintain a high level of service, we offer our distributors the chance to participate in our in-house training sessions to be up-to-date on our product offerings, installation and start-up procedures and troubleshooting solutions.

ENGINEERING

Due to our vertical integration and full in-house engineering staff, Powerex has the ability to customize both electrical control panels as well as the mechanical portion of the system to meet a wide variety of customer needs.

Thanks to our continuous process improvement policy and how easily our Sales, Customer Service, Engineering and Production teams can communicate with each other and our end customers, we are constantly figuring out ways to improve our current products and add new products to our standard offerings.



INNOVATION

Powerex was the first company to package NFPA 99 compliant scroll systems. Today, we design and manufacture multiple NFPA 99 compliant product lines—Vacuum, Air, and Instrument Air.

We were the first company to utilize composite piston technology, now standard on all Powerex reciprocating compressors. Powerex also introduced the first dry scroll to the US oil-less compressor market in 1989. The scroll pump's completely dry compressor chamber along with the low noise and minimal vibration is perfect for applications or locations not considered with reciprocating compressors.

QUALITY

Powerex is a highly integrated operation where we not only assemble systems, but we also manufacture many of the major components. From compressors, UL control panels, desiccant dryers, monitors to air receivers, we control quality at every stage of design and manufacturing. All of our facilities are ISO 9001 certified.

Unlike our competition, we have used the same compressor brand for decades and also retain the same company ownership since our inception. This allows us to maintain quality and provide consistency in our product offerings year after year.

THE LATEST INNOVATION FROM POWEREX

LABORATORY VACUUM SYSTEMS

- Extremely reliable because of proven claw and oil sealed rotary vane technologies
- Great for applications in the research field—from simpler applications like a high school chemistry lab to more complicated applications in biomedical research and everything in-between
- Multiplex systems have built in redundancy capabilities
- Systems built under same standards as all our medical air and vacuum life support systems
- HMI, PBMI and Basic controls available
- Optional auto purge control feature available with HMI or PBMI controls



Claw Pump

Laboratory Vacuum System Design

Knowing the type of research, application and what process gases are being used are key in determining the best vacuum pump technology—lubricated vane or claw—to use for your laboratory application. Our sales team can help you select one of our standard systems or work with our engineers to design a custom a system to fit your needs.



Oil Sealed Rotary Vane Pump

- Includes:
 - Vacuum pumps
 - ASME receiver
 - Control panel (HMI, PBMI, or Basic)
 - All interconnecting piping and wiring
 - Vibration isolation pads and flex connectors
- Built in redundancy in multiplex systems
- Manufactured in ISO 9001 UL certified facilities
- Optional auto purge feature (air or electric) with HMI or PBMI controls

Control Panel Options: HMI, PBMI Or Basic

Powerex offers three different control panel options for our Laboratory Vacuum Systems — HMI controls as our standard and optional PBMI or Basic controls.

Standard HMI Control Panel:

- PLC controller and 6" color HMI (Human Machine Interface) touch screen displays the operating status of the unit
- UL508 listed and labeled, NEMA 4/12 enclosure
- Visual and audible alarms for:
 - System overload trip
 - High temperature conditions
 - Service intervals
- Panel door includes:
 - Audible and visual alarms with an acknowledge button
 - HOA switch for each pump



Optional PBMI Control Panel:

- All features of the standard HMI control panel
- Building automation gateway with BacNet® protocol
- Email notifications for alarms and service alerts

Powerex Building Management Integrator (PBMI)



Optional Basic Control Panel:

- UL508A listed and labeled, NEMA 12 enclosure
- Power on light
- Timed lead/lag pump alternation
- Reserve pump in use alarm—visual and audible
- Redundant control circuit transformers
- Dry contacts for remote alarm monitoring
- Horn silence and lamp test pushbuttons
- Each pump provided with:
 - Externally operable motor circuit breaker
 - Hand/Off/Auto selector switch
 - Minimum run timer
 - Run hour meter
 - Run light

Oil Sealed Rotary Vane Technology

Features

- 2 to 25HP
- Compact Design
- Capability to isolate each pump safely
- UL508A Listed Controls
- Alarms with dry contacts for remote monitoring
- Inlet Filtration
- Low Maintenance
- Touch Screen digital display (for HMI or PBMI controls)
- High temperature alarm
- Lined tank
- Tank sight gauge

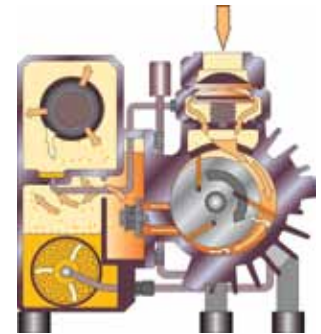


Available Options

- Powerex Building Management Integrator (PBMI) controls
- Air or Electric Auto Purge (with HMI or PBMI controls only)
- Premium Warranty
- Carbon Filters
- 100% Synthetic Oil
- Liquid Separators

How it works:

A rotor is mounted eccentrically in the pump cylinder and contains several sliding vanes. As the rotor turns, centrifugal force causes the vanes to slide outward against the cylinder wall. Oil is injected into the pumping chamber to create a seal between the vanes and the cylinder wall and to lubricate the vanes for reduced wear. As a result of the offset rotor, a succession of variable volumes is formed in the cylinder housing creating the flow of air through the pump. Air is pulled into the pump inlet which is then compressed and discharged into the exhaust box. At this point oil is mixed with the air and is passed through several stages of internal oil and mist eliminators to remove 99.9% of the lubricating oil before the exhaust is released to atmosphere. The separated oil is then returned to the oil reservoir.



Laboratory Oil Sealed Rotary Vane Systems (with HMI, PBMI or Basic controls)

| Model | SCFM @ 19" Hg | HP | Tank |
|---------------------------------------|---------------|---------|-------|
| Duplex tank mounted | | | |
| LVPD1005 | 154 | 10 (2) | 200 V |
| LVPD1505 | 222 | 15 (2) | 200 V |
| LVPD2005 | 274 | 20 (2) | 200 V |
| LVPD2505 | 336 | 25 (2) | 200 V |
| Triplex tank mounted vertical | | | |
| LVPT0505 | 111 | 5 (3) | 200 V |
| LVPT0755 | 156 | 7.5 (3) | 200 V |
| LVPT1005 | 231 | 10 (3) | 200 V |
| LVPT1505 | 333 | 15 (3) | 200 V |
| LVPT2005 | 411 | 20 (3) | 200 V |
| LVPT2505 | 504 | 25 (3) | 200 V |
| Quadplex tank mounted vertical | | | |
| LVPQ0505 | 148 | 5 (4) | 200 V |
| LVPQ0755 | 208 | 7.5 (4) | 200 V |
| LVPQ1005 | 308 | 10 (4) | 200 V |
| LVPQ1505 | 444 | 15 (4) | 200 V |
| LVPQ2005 | 548 | 20 (4) | 200 V |
| LVPQ2505 | 672 | 25 (4) | 200 V |

| Model | SCFM @ 19" Hg | HP | Tank |
|----------------------------|---------------|---------|-------|
| Duplex tank mounted | | | |
| LVPDT0402 | 52 | 5 (2) | 60 H* |
| LVPDT0502 | 74 | 5 (2) | 60 H* |
| LVPDT0752 | 104 | 7.5 (2) | 60 H* |

| Model | SCFM @ 19" Hg | HP | Tank |
|---------------------------------------|---------------|-------|-------|
| Duplex vertical tank mounted | | | |
| LVVD0203 | 22 | 2 (2) | 80 H |
| LVVD0303 | 34 | 3 (2) | 80 H |
| Duplex horizontal tank mounted | | | |
| LVD0203 | 22 | 2 (2) | 80 H |
| LVD0303 | 34 | 3 (2) | 80 H |
| LVD0404 | 52 | 5 (2) | 120 H |
| LVD0504 | 82 | 5 (2) | 120 H |

*Receiver is frame mounted on top of the two pumps.

Dry Claw Pump Technology

Features

- 2 to 15HP
- Compact Design
- Capability to isolate each pump safely
- UL508A Listed Controls
- Alarms with dry contacts for remote monitoring
- Inlet Filtration
- Low Maintenance
- Touch Screen digital display (for HMI or PBMI controls)
- High temperature alarm
- Lined tank



Available Options

- Powerex Building Management Integrator (PBMI) controls
- Air or Electric Auto Purge (with HMI or PBMI controls only)
- Premium Warranty
- Carbon Filters
- Liquid Separators

How it works:

Inside the pump housing, two claw shaped rotors take in air as they rotate in opposite directions. The air is compressed by the rotors, then discharged through a silencer to atmosphere. The pumping chamber is dry. There is no contact between the rotors or the cylinder wall eliminating internal wear and parts to replace. The rotors are synchronized by gears requiring a small amount of oil in the gear housing. Gear oil change requirements are minimal at approximately 20,000 hours.



Laboratory Dry Claw Tank Mount Systems (with HMI, PBMI or Basic controls)

| Model | SCFM @ 19" Hg | Old HP | New HP | Tank |
|---------------------------------------|---------------|---------|---------|-------|
| Duplex tank mounted | | | | |
| LCPD1005 | 174 | 8.7 (2) | 10 (2) | 200 V |
| LCPD1505 | 258 | 15 (2) | 15 (2) | 200 V |
| Triplex tank mounted vertical | | | | |
| LCPT0505 | 87 | 5 (3) | 5 (3) | 200 V |
| LCPT0605 | 114 | 5.4 (3) | 6.4 (3) | 200 V |
| LCPT0705 | 156 | 6.4 (3) | 7.0 (3) | 200 V |
| LCPT0905 | 195 | 7.4 (3) | 9.1 (3) | 200 V |
| LCPT1005 | 261 | 8.7 (3) | 10 (3) | 200 V |
| LCPT1505 | 387 | 15 (3) | 15 (3) | 200 V |
| Quadplex tank mounted vertical | | | | |
| LCPQ0505 | 116 | 5 (4) | 5 (4) | 200 V |
| LCPQ0605 | 152 | 5.4 (4) | 6.4 (4) | 200 V |
| LCPQ0705 | 208 | 6.4 (4) | 7.0 (4) | 200 V |
| LCPQ0905 | 260 | 7.4 (4) | 9.1 (4) | 200 V |
| LCPQ1005 | 348 | 8.7 (4) | 10 (4) | 200 V |
| LCPQ1505 | 516 | 15 (4) | 15 (4) | 200 V |

| Model | SCFM @ 19" Hg | Old HP | New HP | Tank |
|----------------------------|---------------|---------|---------|-------|
| Duplex tank mounted | | | | |
| LCPDT0502 | 58 | 5 (2) | 5 (2) | 60 H* |
| LCPDT0602 | 76 | 5.4 (2) | 6.4 (2) | 60 H* |
| LCPDT0702 | 104 | 6.4 (2) | 7.0 (2) | 60 H* |
| LCPDT0902 | 130 | 7.4 (2) | 9.1 (2) | 60 H* |

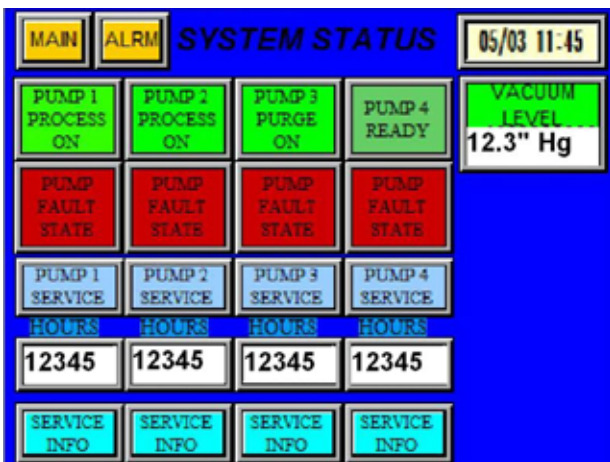
| Model | SCFM @ 19" Hg | Old HP | New HP | Tank |
|--------------------------------------|---------------|---------|---------|------|
| Duplex vertical tank mounted | | | | |
| LCVD0203 | 32 | 2 (2) | 2.3 (2) | 80 V |
| LCVD0303 | 42 | 3 (2) | 3.2 (2) | 80 V |
| Triplex tank mounted vertical | | | | |
| LCD0203 | 32 | 2 (2) | 2.3 (2) | 80 H |
| LCD0303 | 42 | 3 (2) | 3.2 (2) | 80 H |
| LCD0503 | 58 | 5 (2) | 5 (2) | 80 H |
| LCD0503 | 76 | 5.4 (2) | 6.4 (2) | 80 H |

*Receiver is frame mounted on top of the two pumps.

OPTIONAL AUTO PURGE CONTROLS

- Provides extra protection for pumps by performing a fresh air flush before shutting down
- Air or electric auto purge control options available

Auto purge controls are available as an option for those processes requiring a fresh air flush before shutting down the off load pumps. The minimum run and auto purge functions are combined in the control as appropriate. Pumps will run through an automatic purge cycle every 60 minutes (after alternation phase), to purge any gases from the pump to atmosphere. A 3-position switch is provided to select automatic purge, manual purge, or purge off modes. The screen shot to the left simulates a quadplex system, with pumps 1 and 2 making vacuum to meet demand, pump 3 purging and pump 4 in ready mode should demand increase. Auto purge features include:



- 15 min. purge cycle per pump
- Pump will be put away clean (after completed purge cycle) when it is not needed to meet demand
- Low vacuum alarm which indicates high usage or service requirement for other pump(s)

Our standard auto purge option will use a pneumatic actuated valve. The electric auto purge option will use an electric valve.

***Please specify which (air or electric) auto purge option you would like when ordering.**

NOTE: This option is available for systems with Standard HMI controls or Optional PBMI controls. It is not available on systems with Basic controls.

FOR MORE INFORMATION, CONTACT YOUR LOCAL DISTRIBUTOR OR POWEREX SALES REPRESENTATIVE.



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