

Specification

General

The Powerex enclosed laboratory vacuum system is designed to create a suction to remove unwanted fluids or gases from laboratory working areas. The laboratory vacuum system package is compliant with the NFPA 99 requirements for Risk Category 3 laboratory systems. Each system is completely tested before shipment and includes:

- Multiple vacuum pumps and associated equipment.
- Sound reducing enclosure.
- AMSE air receiver.
- NEMA 12 multiplex control panel.

Each pump is factory piped to a common intake manifold and exhaust manifold. Intake isolation valves are included. Each pump-motor assembly is isolation-mounted to the internal frame structure.

Claw Vacuum Pump

Each pump shall be a rotary claw type vacuum pump, and shall be direct-driven through a shaft coupling by a C-face, TEFC electric motor.

- Each vacuum pump shall be dry-running, featuring two claw-type, non-contacting rotors and shall not require any sealing fluid in the pumping chamber, assuring virtually maintenance-free operation.
- Each vacuum pump assembly shall include an integral relief valve.
- Each pump within the system shall include a check valve, inlet and discharge flex connectors, a 5 micron inlet filter and a pump isolation valve on the intake connection.

Motor

The motor is continuous duty, C-face, TEFC, suitable for 208-230, or 460V, 3 phase, 60 hertz electrical operation.

Sound Reducing Enclosure

The system is constructed with an internal frame and steel base system with an individual vibration isolation mounted vacuum pump-motor module. The electrical controls are located in a NEMA 4/12 cabinet at the front of the unit and are accessed separately from the rest of the enclosure. Enclosure side and back panels are easily removed to perform routine maintenance and inspection. Internal cooling fans are guarded to minimize risk of injury during routine maintenance and inspection.

Heat Management

The pumps shall be arranged in a vertical stack configuration so that each pump has its own individual bay that's isolated with sheet metal dividers. Heated air from the pump and motor will exhaust into the pump bay. Cooling air will enter each pump bay from the front/bottom of the system. An electric cooling fan shall be placed in each pump bay near the pump motor in an orientation that is perpendicular to the pump motor. Heated air will be forced out of each pump bay by the electric cooling fan through an integral duct that connects each pump bay. The integral duct shall include baffling to further reduce the amount of noise that can escape. The heated

air leaves the system through the top. The cooling system shall be properly sized and placed so that the vacuum pump motor is kept sufficiently cool under all expected operating conditions.

Vacuum Receiver

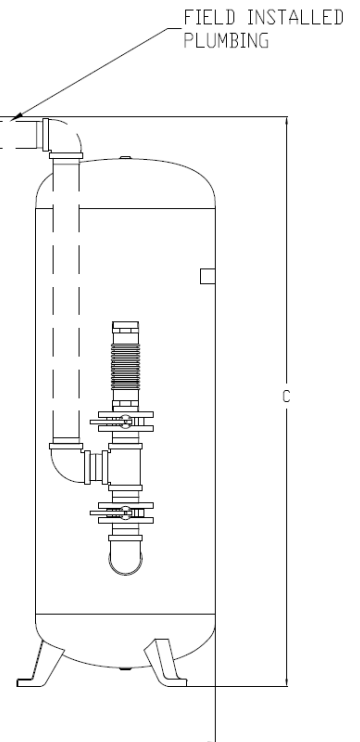
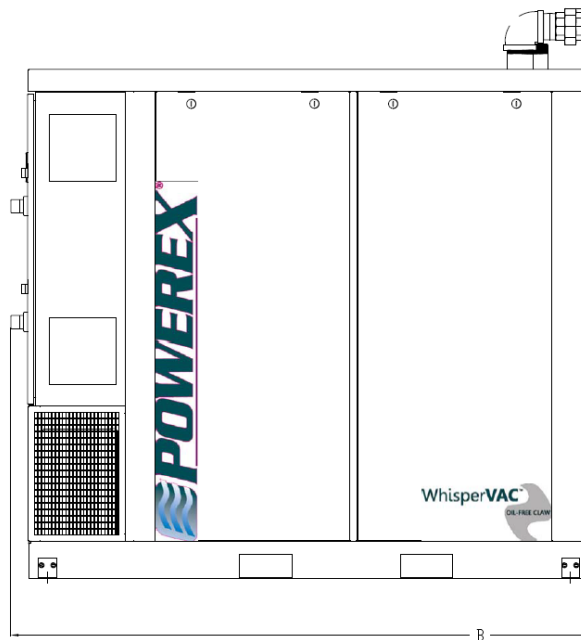
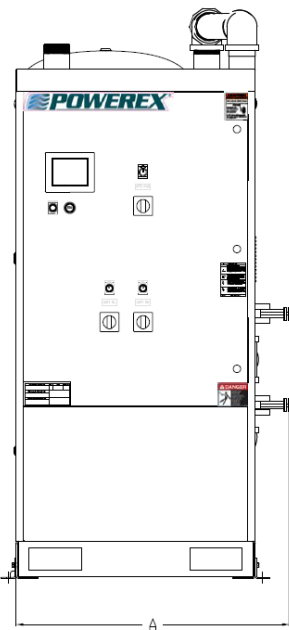
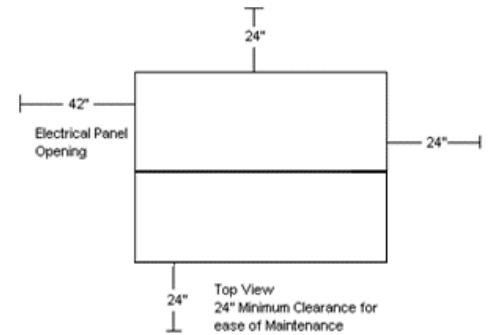
The system shall include an ASME rated vacuum receiver. The tank shall be equipped with a vacuum gauge, a sight gauge, isolation valves, a manual drain, and internal lining for corrosion resistance.

Premium NFPA Control Panel

The control system provides automatic lead/lag sequencing and automatic alternation of all pumps in order to equalize the amount of usage among the available vacuum pumps. The Premium Control panel shall include a gateway server card and all features listed below:

- PLC controller and a color touch screen panel which displays the operating status of the unit.
- Building automation communication gateway with BacNet® protocol and Web server features. Web server features include email notifications in case the system is in alarm or has achieved one its maintenance intervals and requires service.
- Ethernet port for connection to BacNet® server or direct connection to facility Ethernet for viewing of system operations and status via device IP-address.
- UL508A listed control panel in a NEMA 12 enclosure. The panel door will include: the HMI touch screen, an audible and visual alarms with an acknowledge button, and an HOA switch for each pump.
- Magnetic contactors with Motor protector circuit breaks featuring through-the-door operators with lockable control knobs. Motor protector circuit breakers feature high inrush capability.
- Vacuum transducer for process control.
- Single point power connection.
- Redundant 120Vac control transformers with fused primary and secondary protection.
- System overload trip, high temperature conditions or maintenance intervals for the pump will result in visual and audible alarms.

Dimensions					
Model	Dim. A	Dim. B	Dim. C	Inlet	Outlet
LCED0504	34"	126"	75"	2"	2"
LCED0704	37"	126"	77"	3"	3"
LCED0754	37"	126"	77"	3"	3"

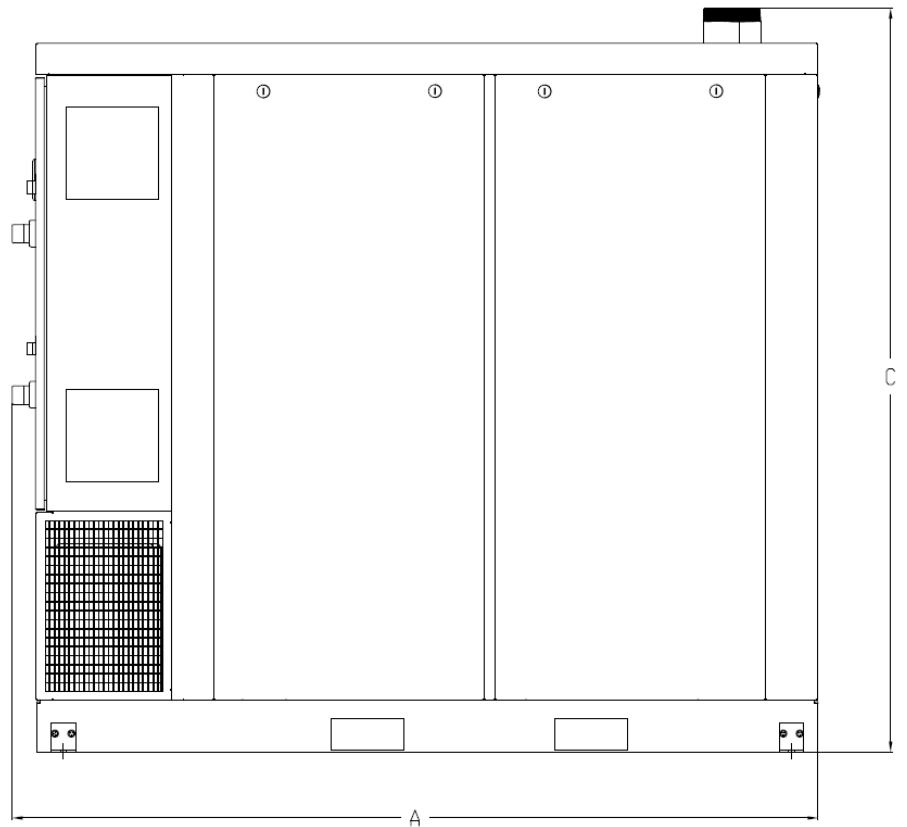
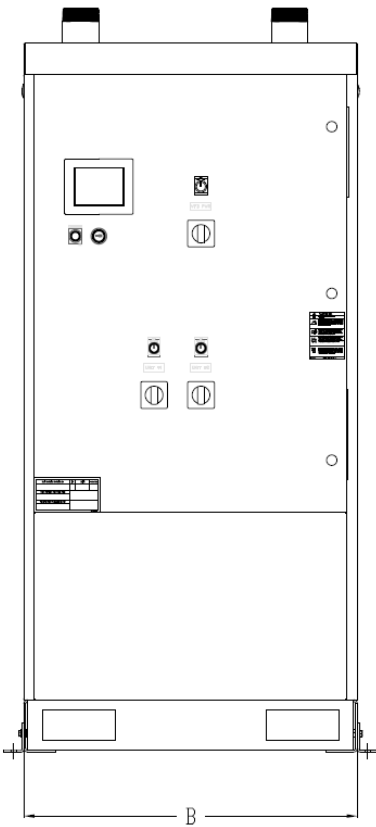
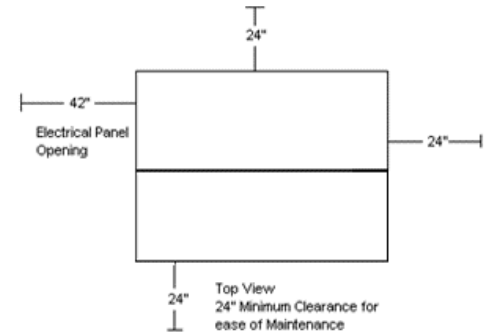


Laboratory Claw Enclosed Vacuum Systems										
Model ²	Total System HP	Pump HP	SCFM @ 19" Hg ¹	Tank Size (gal)	BTU/Hr ¹	dB(A) Level ¹	System F.L.A. ¹			System Weight (lbs)
							208V	230V	460V	
LCED0504	10	5 (2)	66	120	17,340	64	30.4	28.8	15.4	1,717
LCED0704	15	7.5 (2)	106	120	24,276	64	42.4	40.8	21.4	1,914
LCED0754	15	7.5 (2)	136	120	26,010	64	42.4	40.8	21.4	2,444

Notes:

- 1 – SCFM, BTU, dB(A), and FLA values listed are with all pumps running.
- 2 – 3 Year Limited Warranty.

Dimensions					
Model	Dim. A	Dim. B	Dim. C	Inlet	Outlet
LCED0507	34"	78"	72"	2"	2"
LCED0707	34"	78"	72"	3"	3"
LCED0757	34"	78"	72"	3"	3"



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						208V	230V	460V	
LCED0507	10	5 (2)	66	17,340	64	30.4	28.8	15.4	1,717
LCED0707	15	7.5 (2)	106	24,276	64	42.4	40.8	21.4	1,914
LCED0757	15	7.5 (2)	136	26,010	64	42.4	40.8	21.4	2,444

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