



Medical Vacuum Systems Product Selection Guide



Dry Claw...

Dry Rotary Vane...

Oil Sealed Rotary Vane...

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.

Tank Over Skid Mount Configuration



Medical Vacuum System Design

Powerex has multiple system configuration options to meet your specification.

Four configuration types:

- Tank-over skid mount
- Modular skid mount
- Vertical tank mount
- Horizontal tank mount

Vertical Tank Mount Configuration



Modular Skid Mount Configuration



- Fully compliant with the latest edition of NFPA99
- Includes:
 - Multiple vacuum pumps
 - ASME receiver
 - Control panel (HMI, PBMI, or Basic)
 - All interconnecting piping and wiring
 - Vibration isolation pads and flex connectors
- Manufactured in ISO 9001 UL certified facilities

Horizontal Tank Mount Configuration



Control Panel Options: HMI, PBMI or Basic

Powerex offers three different control panel options for our Medical 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
- 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

Dry Claw Pump Technology

Benefits:

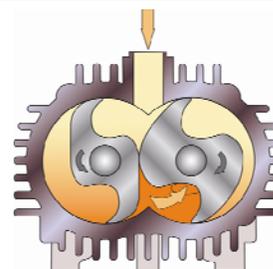
- **Most efficient technology**
- **Totally dry compression**
- **Extremely low maintenance**
- **No water and sewage costs**
- **Suitable for dedicated waste anesthesia (WAGD) systems**
- **Air cooled**



CVPDT System with HMI controls

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.



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

Model	SCFM @ 19" Hg	HP Each	Tank
Duplex tank mounted horizontal			
CVTD0203	16	2.3	80
CVTD0303	21	3.2	80
CVTD0504A	29	5	120
CVTD0504B	38	6.4	120
Duplex tank mounted vertical			
CVTD0203V	16	2.3	80
CVTD0303V	21	3.2	80
CVTD0504AV	29	5	120
CVTD0504BV	38	6.4	120
Duplex modular skid mount			
CVPD0504A	29	5	120
CVPD0504B	38	6.4	120
CVPD0754A	52	7.0	120
CVPD0754B	65	9.1	120
CVPD1005	84	10	200
CVPD1505	129	15	200
Duplex tank over systems			
CVPDT0502A	29	5	60
CVPDT0502B	38	6.4	60
CVPDT0752A	52	7.0	60
CVPDT0752B	65	9.1	60

Available Options and Accessories:

- PBMI controls
- Premium warranty
- Expandable configurations for skid mounted systems up to quadplex
- Variable Frequency Drive (VFD) controls
- Oxygen prepared pumps (WAGD systems)
- High temperature alarm
- Internal tank lining
- Basic controls

Model	SCFM @ 19" Hg	HP Each	Tank
Triplex modular skid mount			
CVPT0504A	58	5	120
CVPT0504B	76	6.4	120
CVPT0755A	104	7.0	200
CVPT0755B	130	9.1	200
CVPT1005	168	10	200
CVPT1505	258	15	200
Quadplex modular skid mount			
CVPQ0505A	87	5	200
CVPQ0505B	114	6.4	200
CVPQ0755A	156	7.0	200
CVPQ0755B	195	9.1	200
CVPQ1005	252	10	200
CVPQ1505	387	15	200
Pentaplex modular skid mount			
CVPP1505	516	15	200



CVPD System

Oil Sealed Rotary Vane Technology

Benefits:

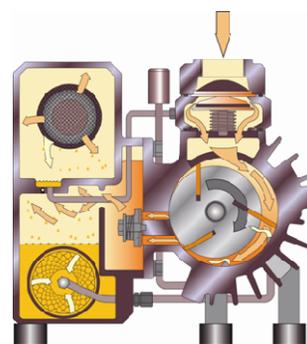
- **Air cooled design**
- **29.3" HgG end vacuum**
- **Oil flooded for lubrication and heat dissipation**
- **Lowest initial cost**
- **Highest ultimate vacuum levels**
- **Long vane life**
- **No water and sewage costs**
- **Most suitable to high ambient temperatures**



VPT System with HMI controls

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.



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

Model	SCFM @ 19" Hg	HP Each	Tank
Duplex tank mounted horizontal			
VTD0153	7	1.5	80
VTD0203	11	2	80
VTD0303	17	3	80
VTD0404	26	5	120
VTD0504	41	5	120
VTD0755	52	7.5	200
VTD1006	77	10	240
Duplex tank mounted vertical			
VVTD0153	7	1.5	80
VVTD0203	11	2	80
VVTD0303	17	3	80
VVTD0403	26	5	80
VVTD0503	41	5	80
Duplex tank over systems			
VPDT0402	26	5	60
VPDT0502	37	5	60
VPDT0752	52	7.5	60

Available Options and Accessories:

- PBMI controls
- Premium warranty
- Expandable configurations for skid mounted systems up to quadplex
- High temperature alarm
- Oil temperature gauges
- Synthetic oil
- Internal tank lining
- Basic controls

Model	SCFM @ 19" Hg	HP Each	Tank
Duplex modular skid mount			
VPD0754	52	7.5	120
VPD1004	77	10	120
VPD1505	111	15	200
VPD2005	137	20	200
VPD2505	168	25	200
Triplex modular skid mount			
VPT0504	74	5	120
VPT0754	104	7.5	120
VPT1004	154	10	120
VPT1505	222	15	200
VPT2005	274	20	200
VPT2505	336	25	200
Quadplex modular skid mount			
VPQ0505	111	5	200
VPQ0755	156	7.5	200
VPQ1005	231	10	200
VPQ1505	333	15	200
VPQ2005	411	20	200
VPQ2505	504	25	200

Dry Rotary Vane Technology

Benefits:

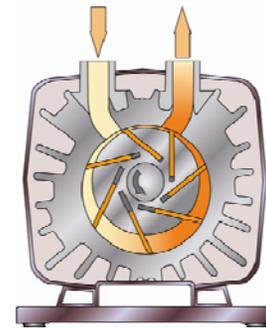
- **No oil anywhere**
- **Long vane life**
- **Low vibration**
- **Suitable for dedicated waste anesthesia (WAGD) systems**
- **No water and sewage costs**
- **Less routine maintenance (no oil changes)**
- **Lower initial cost compared to other dry pump designs**



VOPD System

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 creating a seal against the cylinder wall. The vanes are constructed of a self-lubricating graphite composite material which allows them to operate against the cylinder wall without the need for any other sealing or lubricating fluid. As a result of the offset rotor, a succession of variable volumes are formed in the cylinder housing creating the flow of vapor through the pump. Vapor is pulled into the pump inlet which is then compressed and discharged through the exhaust to atmosphere.



Dry Rotary Vane Systems (with HMI, PBMI or Basic controls)

Model	SCFM @ 19" Hg	HP Each	Tank
Duplex tank mounted horizontal			
VOTD0755	30.4	7.5	200
VOTD1006	55	10	240
Duplex tank mounted vertical			
VVOTD0153	5.3	1.5	80
VVOTD0203	8.2	2	80
VVOTD0303	12.5	3	80
VVOTD0404	15.4	5	120
VVOTD0504	22.1	5	120

Available Accessories and Options:

- PBMI controls
- Premium warranty
- Expandable configurations for skid mounted systems up to quadplex
- High temperature alarm
- Internal tank lining
- Tank sight gauge
- Basic controls

Model	SCFM @ 19" Hg	HP Each	Tank
Duplex modular skid mount			
VOPD0403	15.4	5	80
VOPD0503	22.1	5	80
VOPD0754	30.4	7.5	120
VOPD1004	55	10	120
Triplex modular skid mount			
VOPT0503	44.2	5	80
VOPT0754	60.8	7.5	120
VOPT1004	110	10	120
Quadplex modular skid mount			
VOPQ0505	66.3	5	200
VOPQ0755	91.2	7.5	200
VOPQ1005	165	10	200

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



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