

## Medical Vacuum HEPA Filter Assembly

*Please read and save these instructions. Read carefully before attempting to assemble, install, operate or maintain the product described. Protect yourself and others by observing all safety information. Failure to comply with instructions could result in personal injury and/or property damage! Retain instructions for future reference.*

### Description

Powerex Medical Vacuum Filter Assemblies are designed for use in medical vacuum applications. Their purpose is to prevent contamination to the vacuum pump, which will in turn protect the men and women who will be performing maintenance on the vacuum units. This is done by filtering solid, liquid, and bacterial contamination as small as 0.3 micron out with 99.995% efficiency. These units are accessories to medical vacuum systems and must be used in conjunction with a medical vacuum system. The units are designed and constructed using HEPA-grade filters to comply with the 2018 revision of NFPA 99.

### Safety Guidelines

**A SEPARATE SAFETY BOOKLET IS PROVIDED ALONG WITH THIS MANUAL. READ AND UNDERSTAND THE SAFETY BOOKLET.** This manual contains information that is very important to know and understand. This information is provided for SAFETY and to PREVENT EQUIPMENT PROBLEMS. To help recognize this information, observe the following symbols. MAKE SURE EVERYONE OPERATING OR SERVICING THE COMPRESSOR READS AND UNDERSTANDS ALL THE INFORMATION PROVIDED.

**⚠ DANGER** *Danger indicates an imminently hazardous situation which, if not avoided, WILL result in death or serious injury.*

**⚠ WARNING** *Warning indicates a potentially hazardous situation which, if not avoided, COULD result in death or serious injury.*

**⚠ CAUTION** *Caution indicates a potentially hazardous situation which, if not avoided, MAY result in minor or moderate injury.*

**NOTICE** *Notice indicates important information, that if not followed, may cause damage to equipment.*

**NOTE:** Note indicates information that requires special attention.

### Unpacking

After unpacking the unit, inspect carefully for any damage that may have occurred during transit. Make sure to tighten fittings, bolts, etc., before putting unit into service.

**⚠ WARNING** *Do not operate unit if damaged during shipping, handling or use. Damage could result in bursting and cause injury or property damage.*



### Specifications

Model	CFM @ 19in Hg	CFM @ 15in Hg	Pipe Size (in)	Number of Filters per Assembly
MVF15D	21	28	1.5"	2
MVF20D	90	120	2"	2
MVF30D	173	230	3"	2
MVF40T	346	460	4"	3
MVF40Q	519	690	4"	4

### Installation

**⚠ WARNING** *Disconnect, tag and lock out power source then release all pressure from the system before attempting to install, service, relocate or perform any maintenance.*

**⚠ CAUTION** *Do not lift or move unit without appropriately rated equipment. Be sure the unit is securely attached to lifting device used. Do not lift unit by holding on to tubes.*

**⚠ WARNING** *Installation of inlet / outlet air plumbing from the compressor flange and electrical connection must be in accordance with National Fire Protection Association (NFPA99) Code Compliance for Medical Gas Breathing Air (Level 1).*

1. The vacuum filter assemblies are accessories to vacuum units; they are not operational as stand-alone assemblies.
2. The vacuum filters must be installed between the air intake valve and the medical vacuum unit tank. The provided flexible connectors may be used to facilitate the installation of the filter assembly in the desired location.

- Clearance must allow for safe, effective inspection and maintenance.

MINIMUM CLEARANCES	
Above	24 inches
Other sides	24 inches

- The frame is drilled to allow bolting to the floor. Secure it as necessary.

## Operation

### Before Start Up

- Make sure all safety warnings, labels, and instructions have been read and understood before continuing.
- Remove any shipping materials, brackets, etc.
- Ensure all piping is connected.
- Open the isolation valves on either side of the filters being used. **To remain in compliance with NFPA 99, one filter must remain in reserve at all times. Both of the valves located on either side of the reserve filter must be in the closed position at all times.**
- Open the valve(s) to the drain flask(s) of the filters.

## Maintenance

Personal Protective Equipment (PPE) suitable for handling biohazardous materials must be worn when servicing this equipment.

Powerex Medical Vacuum Filter Accessories utilize a transparent glass bottle clearly marked with the biohazard symbol. When emptying the biohazard container, make sure proper PPE is worn and follow all facility protocols for disposal of biohazardous materials.

The filters are equipped with a dual-sided gauge indicating the state of the filter element. If the gauge is indicating the red, "Dirty," section, the filter element must be replaced.

### Filter Element Replacement Procedure

- SLOWLY open the isolation valves on either side of the reserve filter and isolate the filter being serviced by SLOWLY closing the valves on either side of it.
- Close the valve located before the biohazard collection bottle at the bottom of the filter. Remove the collection bottle and dispose of contents using proper procedure for biohazard waste. Sterilize removed collection bottle.
- Unscrew the filter housing from the head of the filter. The element should come out with the housing; if it does not, pull the element down to disengage it from the filter head.
- Dispose of the contaminated filter element by following all protocols for biohazardous materials.
- Replace gloves to avoid contamination of the new filter element.

- Place filter element with its feet down into the filter housing and move the filter housing and element underneath the filter head.
- Install new filter element by pressing element vertically up into the filter head.
- Reinstall filter housing by fully screwing the housing back on to the filter head.
- Reinstall the sterilized biohazard bottle by screwing it into the valve at the bottom of the filter and reopen the collection bottle valve.
- Ensure that one filter is put on reserve by SLOWLY closing the isolation valves on either side of it.
- Dispose of all contaminated PPE by following facility biohazard protocol.

## Maintenance Schedule

Item	Action Needed	Service Interval & Remarks
Filter Element	Replace	Check filter replacement gauge when performing scheduled vacuum system maintenance and service accordingly. Replace the filter replacement gauge if the indicator is red, or replace every year, whichever comes first.
Biohazard Collection Bottle	Inspect/Sterilize/Replace	Inspect collection bottle when performing scheduled vacuum system maintenance, when replacing filter element, or when facility biohazard policy requires. If bottle contains biohazard material remove and sterilize. If bottle contains any chips or cracks close valve between bottle and filter and replace.
Plumbing	Inspect	6 months: Inspect the plumbing for blockages and leaks; repair if necessary.

## Replacement Parts (By Filter Model)

Filter Model	Filter Element	Collection Bottle
T550VP	ST980990AV	ST943070AV
T1210VP	ST980991AV	
T1810VP	ST980992AV	

## Powerex Limited Warranty – Applicable to Customers in the U.S. & Canada Only

### Warranty and Remedies.

**(a) General.** Powerex warrants each Compressor System, Vacuum System, Vacuum Pump, Compressor Air-End, or Powerex branded Accessory (collectively “Products”, individually each a “Product”) to be free from defects in material and workmanship (“Defects”) at the date of shipment. This warranty shall apply only to Products that are purchased and used in the United States of America and in Canada. EXCEPT AS SET FORTH BELOW, NO OTHER WARRANTY, WHETHER EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE, SHALL EXIST IN CONNECTION WITH THE SALE OR USE OF SUCH PRODUCTS. TO THE EXTENT PERMITTED BY LAW, ANY AND ALL IMPLIED WARRANTIES ARE EXCLUDED. All warranty claims must be made in writing and delivered to Powerex in accordance with the procedures set forth on its website ([www.powerexinc.com](http://www.powerexinc.com)), or such claim shall be barred. Upon timely receipt of a warranty claim, Powerex shall inspect the Product claimed to have a Defect, and Powerex shall repair, or, at its option, replace, free of charge, any Product which it determines to have had a Defect; provided, however, that if circumstances are such as to preclude the remedying of Defect by repair or replacement, Powerex shall, upon return of the Product, refund to buyer any part of the purchase price of such Products paid to Powerex. Freight for returning Products to Powerex for inspection shall be paid by buyer. The warranties and remedies herein are the sole and exclusive remedy for any breach of warranty or for any other claim based on any Defect, or non-performance of the Products, whether based upon contract, warranty or negligence..

**(b) (i) Standard Period of Warranty – Parts Only (No Labor).** The purchase of any system includes Powerex’s standard warranty. Powerex warrants and represents all Products shall be free from Defects for the first eighteen (18) months from the date of shipment by Powerex, or twelve (12) months from the documented date of startup, or five thousand (5,000) hours of use, whichever occurs first. During such warranty period, Powerex shall be liable for all Defects in the Products (the “Product Defects”). Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(ii) Premium Period of Warranty – Parts Only (No Labor).** In order to be eligible for premium warranty coverage, a premium warranty for each system must be purchased when order is placed. Powerex warrants and represents all Products shall be free from Defects for the first thirty (30) months from the date of shipment by Powerex, or twenty-four (24) months from the documented date of startup, or seven thousand five hundred (7,500) hours of use, whichever occurs first. During such warranty period, Powerex shall be liable for all Defects in the Products (the “Product Defects”). Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(c) Replacement Pumps – Parts Only (No Labor).** For any replacement Air-End or Vacuum Pumps installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the Air-End or Vacuum Pumps shall be free of Defects for a period of thirty-six (36) months from the date of shipment by Powerex or ten thousand (10,000) hours of use, whichever comes first. For any replacement Air-End or Vacuum Pumps installed on a system that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the Air-End or Vacuum Pumps shall be free of Defects for the first twelve (12) months from the date of shipment by Powerex. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(d) Replacement Motors – Parts Only (No Labor).** For any replacement motor installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the replacement motor shall be free of Defects for the first twelve (12) months from the date of shipment by Powerex. For any replacement motor installed on a system or unit that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that the replacement motor shall be free of Defects for the first ninety (90) days from the date of shipment by Powerex. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(e) Replacement Parts – Parts Only (No Labor).** For other replacement parts besides motors, Air-End or Vacuum Pumps installed on a Powerex manufactured system or unit after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex warrants that such replacement parts will be free from Defects for the first twelve (12) months from the date of shipment by Powerex. For other replacement parts besides motors, Air-End or Vacuum Pumps installed on a system or unit that was not manufactured by Powerex after any initial warranty period has expired or where another warranty does not apply for any reason, Powerex makes no warranties. Supplier’s repair or replacement of any Product shall not extend the period of any warranty of any Product. This warranty applies to the exchange of part(s) found to be defective by an Authorized Powerex Service Representative only.

**(f) Coverage.** The warranty provided herein applies to Powerex manufactured units or systems only.

**(g) Exceptions.** Notwithstanding anything to the contrary herein, Powerex shall have no warranty obligations with respect to Products:

- (i) That have not been installed in accordance with Powerex's written specifications and instructions;
- (ii) That have not been maintained in accordance with Powerex's written instructions;
- (iii) That have been materially modified without the prior written approval of Powerex; or
- (iv) That experience failures resulting from operation, either intentional or otherwise, in excess of rated capacities or in an otherwise improper manner.

(h) The warranty provided herein shall not apply to: (i) any defects arising from corrosion, abrasion, use of insoluble lubricants, or negligent attendance to or faulty operation of the Products; (ii) ordinary wear and tear of the Products; or (iii) defects arising from abnormal conditions of temperature, dirt or corrosive matter; (iv) any OEM component which is shipped by Powerex with the original manufacturer's warranty, which shall be the sole applicable warranty for such component.

**Limitation of Liability.** NOTWITHSTANDING ANYTHING TO THE CONTRARY HEREIN, TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, UNDER NO CIRCUMSTANCES SHALL POWEREX BE LIABLE FOR ANY INCIDENTAL, CONSEQUENTIAL, PUNITIVE, SPECULATIVE OR INDIRECT LOSSES OR DAMAGES WHATSOEVER ARISING OUT OF OR IN ANY WAY RELATED TO ANY OF THE PRODUCTS OR GOODS SOLD OR AGREED TO BE SOLD BY POWEREX TO BUYER. TO THE EXTENT ALLOWABLE UNDER APPLICABLE LAW, POWEREX'S LIABILITY IN ALL EVENTS IS LIMITED TO, AND SHALL NOT EXCEED, THE PURCHASE PRICE PAID.

**Warranty Disclaimer.** Powerex has made a diligent effort to illustrate and describe the Products in its literature, including its Price Book, accurately; however, such illustrations and descriptions are for the sole purpose of identification, and do not express or imply a warranty that the Products are merchantable, or fit for a particular purpose, or that the Products will necessarily conform to the illustrations or descriptions.

**Product Suitability.** Many jurisdictions have codes and regulations governing sales, construction, installation, and/or use of Products for certain purposes, which may vary from those in neighboring areas. While Powerex attempts to assure that its Products comply with such codes, it cannot guarantee compliance, and cannot be responsible for how the product is installed or used. Before purchase and use of a Product, please review the Product applications, and national and local codes and regulations, and be sure that the Product, installation, and use will comply with them.

**Claims.** Any non-warranty claims pertaining to the Products must be filed with Powerex within 6 months of the invoice date, or they will not be honored. Prices, discounts, and terms are subject to change without notice or as stipulated in specific Product quotations. Powerex shall not be liable for any delay or failure arising out of acts of the public enemy, fire, flood, or any disaster, labor trouble, riot or disorder, delay in the supply of materials or any other cause, whether similar or dissimilar, beyond the control of Company. All shipments are carefully inspected and counted before leaving the factory. Please inspect carefully any receipt of Products noting any discrepancy or damage on the carrier's freight bill at the time of delivery. Discrepancies or damage which obviously occurred in transit are the carrier's responsibility and related claims should be made promptly directly to the carrier. Returned Products will not be accepted without prior written authorization by Powerex and deductions from invoices for shortage or damage claims will not be allowed. **UNLESS OTHERWISE AGREED TO IN WRITING, THE TERMS AND CONDITIONS CONTAINED IN THIS LIMITED WARRANTY WILL CONTROL IN ANY TRANSACTION WITH POWEREX.** Any different or conflicting terms as may appear on any order form now or later submitted by the buyer will not control. All orders are subject to acceptance by Powerex.