



# **Installation & Service Manual for VM-10 Series Collectors**

**Models  
VM-10  
VMH-10**

*February 27, 2003*

VM-10 Series Collectors

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## VM-10 Series Collectors

### Disclaimer

Although instructions and recommendations are included for installation of your **Vertical Media Series Collector**, the manufacturer does not assume responsibility for the installation of this equipment nor shall he be held liable for direct or consequential damages resulting from improper installation, application, maintenance or use.

The immense variety of contaminants make it impossible to list all of the potential hazards that may be encountered with air pollution control systems. It is therefore important that the application of the equipment be discussed with an AER Control Systems representative or application engineer prior to use. Additionally, users should consult and comply with all National and Local Fire, Electrical and /or other appropriate codes when determining the application, location and operation of any air pollution control equipment.

Collection of combustible or explosive materials and collection on flame or spark-generating operations may require specific system configurations (contact AER Control Systems LLC. Applications Engineering Department for questions and/or design assistance). The combined collection of combustible or explosive materials and contaminants from spark or flame generating operations, with a common collector or duct system, is not recommended, unless special design provisions have been made to the system (sparks or flames resulting from such operations may ignite the combustible or explosive material). Under no circumstances should anyone be allowed to discard a lighted cigarette, other burning materials, or refuse into an inlet hood or the duct of the collection system. It is the responsibility of the end user to comply with all applicable national, state, and local fire and safety codes.

This manual should be read completely before attempting Operation or Maintenance of this equipment. All work should be performed by qualified personnel according to local requirements.

#### **WARNING**

**Failure to comply fully with the following instructions and local code requirements may increase your risk of physical injury due to fire, explosion or electrical shock.**

All data and dimensions in this manual have been thoroughly checked however, we cannot assume responsibility for possible errors or omissions. We reserve the right to change designs and/or specifications without notice.

## VM-10 Series Collectors

### **SECTION 1**

#### **Uncrating**

1. Remove banding and cardboard shipping carton and packing.
2. The VM-10 series unit is shipped in the vertical position and bolted to the skid using an angled shipping bracket. The four legs (if supplied) and plenum are typically shipped on the same skid. Mounting hardware, gasket material, and drain kit (or optional drain bottle) is included in labeled boxes, be sure to check all boxes before discarding.
3. Inspect the exterior of the unit and accessories for shipping damage or shortages that may not have been noticed or recorded when the shipment was initially received; you have 30 days to notify AER Control Systems LLC. of any discrepancies. Contact the shipping company if any damage or shortages have occurred.

#### **Description and Operation**

The standard VMD-10 and VMW-10 series collectors consist of a plenum, a standard 3 stage filtration module, and a blower module. The VMD Module houses disposable filter stages that include a 1 inch fiberglass filter, a 4 inch pleated multi-vee filter, and a 12 inch x 24 inch x 12 inch box style 95% ASHRAE efficient disposable fiberglass filter and is intended for dry or moist contaminants. The VMW Module houses filter stages that include a 4 inch cleanable Chevron Impinger, a 1" cleanable metal mesh filter and a 12 inch x 24 inch x 12 inch box style 95% ASHRAE efficient disposable fiberglass filter and is intended for wet contaminants. The plenum for wet applications has a drain fitting for removal of the coolant and a 10 foot drain hose to transport the coolant to either the sump of the machine or a suitable container. Also included as standard is a blower module which is typically mounted on the clean air side of the filters, which consists of a direct drive backward inclined fan and an electric drive motor. Two fan combinations are available with the standard VMD/VMW-10 series unit; each fan is driven by a ½ horsepower motor.

The VMDH-10-20 and VMWH-10-20 series collectors are the same units as described above with the addition of a HEPA Module and a 1 horsepower motor. The HEPA module houses a standard HEPA filter rated at 99.97% efficient at 0.3 microns (other efficiencies available). This module is typically mounted after the 3 stage filter module and before the blower module.

## VM-10 Series Collectors

### Optional Filter Modules & Accessories

1. VMM Module – This module is a 2 stage filter module for dry or moist contaminants and houses a first stage fiberglass disposable prefilter and second stage disposable 4 inch pleated multi-vee filter.
2. VMI Module - This module is a 2 stage filter module for wet contaminants and houses a first stage cleanable 4 inch Chevron impinger followed by a second stage cleanable 1 inch metal mesh filter.
3. VMM3 and VMI3 Modules – An optional, field retrofittable Zee track can be added to the VMM and VMI modules (reference VMM and VMI module description) that can house a third stage 4 inch filter (impinger, mesh, multi-vee, etc.). The 3 in the model code indicates that this third stage option was included on the unit from the factory.
4. VMC1 Carbon Filterfold Module - This module is a two stage filter module. The first stage is a 22-lb bed of activated carbon between two perforated metal walls which are formed into a continuous series of pleats. The second stage is a disposable 1 inch pleated multi-vee filter.
5. Blower Module – Three motor/blower configurations are available with the 10 series collectors. The VMD/VMW-10-18 & -19 have 1/2 horsepower motor/blower configurations. The VMD/VMW-10-20 and the VMDH/VMWH-10-20 use a 1HP motor/blower configuration. The three blower configurations have a direct drive blower (sometimes called a plug fan) mounted to the motor shaft; the nomenclature for a direct drive fan is at the end of the model number designated by a dash number identifying the fan and motor horsepower combination. The eight models are VMD/VMW-10-18, VMD/VMW-10-19, VMD/VMW-10-20, and VMDH/VMWH-10-20; the dash 18, 19, and 20 are specific fan and motor combinations.
6. Plenums - Plenums are generally supplied as part of the unit. The plenums provide a drain fitting to allow the coolant to drain back to a suitable container or the machine sump. The 10 series unit can also be machine mounted without the plenum. The inlet collar is part of the 3 stage media filter module and there is an option for a collar on either side of the unit.
7. Leg Kits – The standard leg kit consist of four separate channel shaped legs and are designed to support the VM-10 series collector with provisions for bolting the stand to the floor. The leg kits position the bottom of the inlet plenum at about 16 ¼ inches above the floor.

### Optional Equipment

Motor Starters  
Outlet Plenums

Special Filters  
Portable Collectors

Attenuators  
Mounting Brackets and Stands

### **SECTION 2**

#### **Applications – General**

1. Mist, dust, fume, smoke, and vapor – The VM-10 Series Collectors are designed for the capture and removal of mist, dust, fume, smoke, and gas/vapor contaminants from a wide variety of manufacturing processes. The standard VM series collector is a modular system consisting of a plenum, a 3 stage filtration module for wet and dry/moist contaminants, and a blower and motor module. A HEPA module can be added after the standard 3 stage filter module to handle smoke. Additional modules can be added depending on the type of contaminant being collected. (See optional filter module & accessories section). For example if a heavy load of mist is collected then an additional impinger can be added. If a gas vapor exists then the carbon module can be added. These are just a couple of examples, there are many more filter stages or configurations that can be created with the VM-10 series collectors.

The VM-10 series collectors can either be floor mounted with an optional leg kit, ceiling hung, wall mounted, or machine mounted (plenum not required for machine mounting).

2. Size – It is important that the proper size unit has been selected for the application. Too little airflow will not draw the contaminant into the filter and the unit will not be completely effective. Too much airflow may result in loss of efficiency or the unit will pick up large or heavy solid particles increasing the frequency of maintenance or filter replacement. Questions regarding proper unit sizing should be directed to your local AER Control Systems representative or the main office (toll free 866-265-2372).
3. Models - Model codes are utilized to identify the various unit configurations available. There are eight basic models available, the VMD/VMW 10-18, VMD/VMW 10-19, VMD/VMW 10-20 and the VMDH/VMWH 10-20. Four of these models are setup to do wet contaminants and the other four are setup for dry or moist contaminants. If a unit has filters for a dry contaminant, a D is added to the model, an example would be VMD 10-18. For a unit to filter a wet contaminant, a W is added to the model, an example would be VMW-10-19. The VM stands for Vertical Media and the 10 represents the nominal size of the filters, 12 inch x 24 inch. The dash 18, 19, and 20 represent the motor/blower combinations with a nominal airflow of 600, 750 and 950 CFM respectively for the 18, 19, and 20. The dash 18 and 19 series collector are available with a ½ horsepower motor, but two different diameter fan wheels. The dash 20 has a 1 horsepower motor with a larger diameter fan wheel.
4. Plenum and Collars – Plenums are standard with a base unit; the VMW 10 units are supplied with a 10 foot drain hose and fitting. The bottom of the plenum is trepanned for better drainage. The VMD units do not have a drain fitting and hose. One inlet collar is standard with the base unit, one additional collar is available. The size of the collar is dependent upon the airflow through the ductwork or flex hose. The inlet collar provides a method for attaching ductwork or flex hose to the unit.

### **SECTION 3**

#### **Installation**

#### **Assembly and Installation VM Series Collectors**

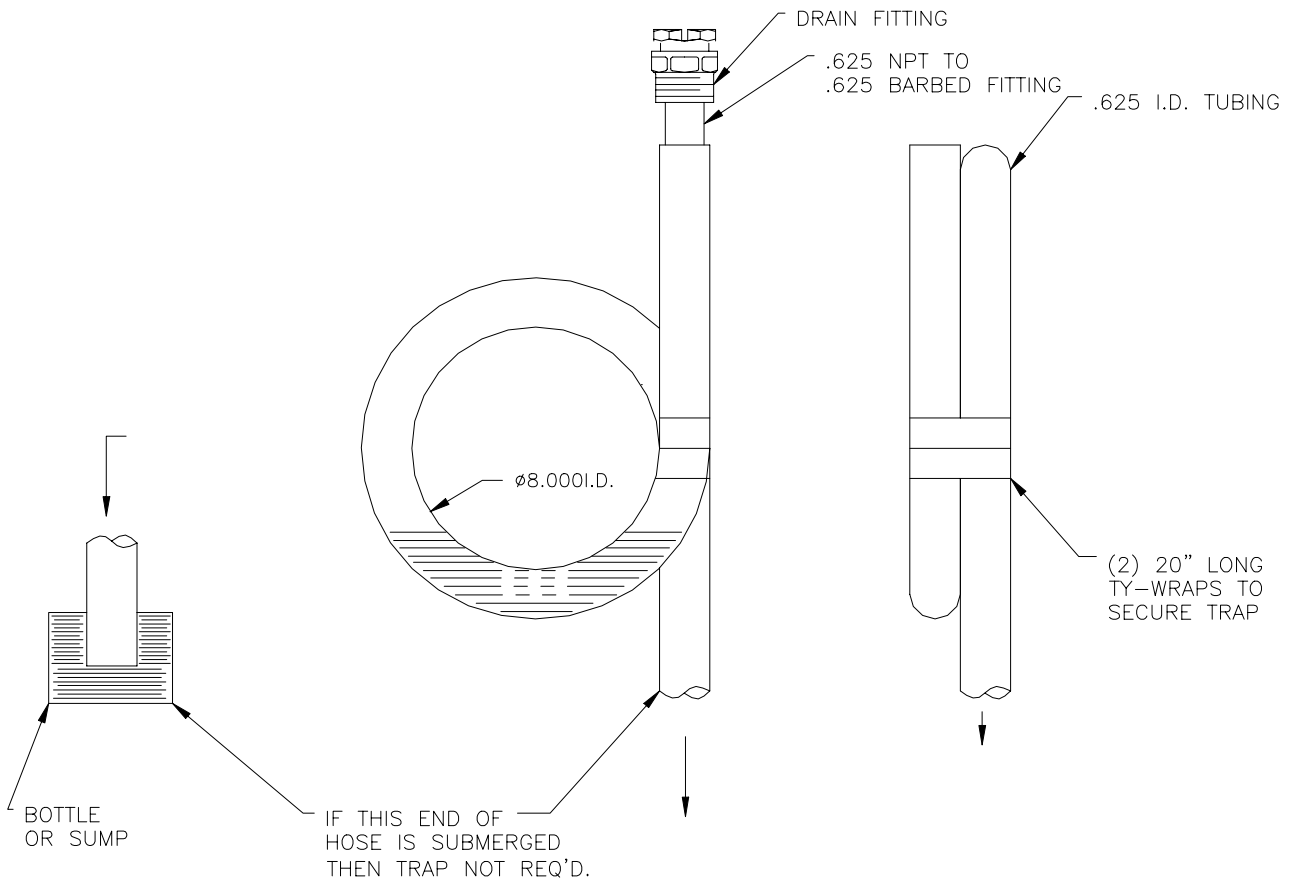
1. Standard collectors are shipped without the plenum and optional leg kit installed (mounting hardware and gasketing is included). The standard VM series is shipped in the vertical position on the skid using L shaped angled mounting brackets. Installation consists of machine mount or ceiling hung, wall mount with bracket, or floor mount with leg kit. The same L shaped angled shipping mounting brackets as mentioned above can be used for lifting and to ceiling mount the unit. For ceiling, wall, or floor mounting, the plenum attaches to the bottom of the VM-10 series cabinet. Apply gasketing (supplied) to inside horizontal lip of the plenum and lower the VM collector into the plenum. Fasten collector to plenum using hardware (supplied) and insert bolts through the holes in the lip of the plenum to the bottom four corners (weld nuts) of the collector.
2. Machine Mounting - Although designed for suspended or floor mounted installations, the VM-10 collector can be mounted on top of a machine enclosure with either an optional bottom pan w/collar or by using the L shaped shipping angle brackets to fasten the collector directly to the machine enclosure. A sealant will have to be used to prevent coolant leakage from around the bottom of the collector to the top of the machine enclosure if a direct mount is used.
3. Floor Mounting - Floor mounting the VM-10 is easy using the optional leg kit; the legs can be bolted to the unit and plenum using the hardware shipped with the unit. Bolting the legs to the plenum is similar to attaching the plenum to the unit using the same weldnuts at the bottom four corners of the collector. The top holes of legs are bolted to the weldnuts at the top of the media cabinet. Once the legs are attached to the VM-10 unit, it should be located close to the pick up source as possible. The VM-10 unit with legs should be level and bolted to the floor.
4. Ceiling Hung - For suspended installations the L shaped angle bracket can be attached to the top of the 3 stage media module and either threaded rod or cable can be used to suspend the unit from the ceiling.
5. Wall Mounting - Optional Wall Mount Brackets are available to mount the VM units to a vertical wall or the side of a machine enclosure. Before mounting, ensure that the wall has sufficient strength to support the VM unit. The brackets are attached to the top of the third stage media module, and the assembly is fastened to the vertical wall with suitable mounting hardware (customer supplied).

# VM-10 Series Collectors

## SECTION 3

### Installation continued

6. Plenum - The plenum is shipped with a drain fitting and 10 feet of 5/8 inch drain hose. The drain fitting is typically installed in the bottom of the plenum, the drain hose barb is shipped loose and should be installed in the fitting. The drain hose slips over the barb fitting and the other end should be submerged in the sump of the machine or suitable container. If the end of the drain hose cannot be submerged, then a loop should be created with the hose to provide a trap similar to the trap under a household sink. An alternative is to attach air tight drain bottles to the bottom of the plenum (two sizes are available as an option from AER Control Systems LLC). This is necessary so air is not drawn up through the drain line which would prevent fluid drainage. The inlet collars should be attached to the outside of the VM-10 unit using a sealant such as silicone or any other sealant that is suitable with the coolant used. The collars can be added before or after the unit is mounted to the inlet plenum.



1. ATTACH HOSE TO BARBED FITTING.
2. SCREW BARBED FITTING INTO DRAIN FITTING.
3. IF THE BOTTOM OF THE HOSE IS NOT GOING TO BE SUBMERGED THEN YOU NEED TO DO A TRAP AS SHOWN. IF THE BOTTOM OF THE HOSE IS GOING TO BE SUBMERGED THEN THE TRAP IS NOT REQUIRED.

Figure 1 Typical Drain Installation

## VM-10 Series Collectors

### **SECTION 3**

#### **Installation continued**

#### **Electrical**

1. Three phase units are standard, single phase units are an option. All three-phase units are wired for the input voltage specified on the purchase order. Unless specified otherwise, standard units are wired for 460 volt, 3 phase, and 60 HZ operation or optional 115 volt, 1 phase, 60 HZ.
2. Motors used on the VM series collectors are UL recognized and internal wiring is UL rated at 600 volts. Input power line protection is required for the motor and electrical components. Line load and current requirements are identified on the motor name plate. Unless ordered with the machine, the power switch for operating the machine, any fusible disconnect, motor starter or controller are to be provided by the customer/user and located externally to the machine.
3. All connections to the units are made at the motor electrical box. Wiring diagrams can be found on the motor nameplate or on the motor electrical box. Verify the incoming voltage and that the motor has been properly wired prior to connecting it to the machine.
4. Verify proper rotation of the blower motor. It will be necessary to view the blower wheel from the blower exhaust on the VM series unit to verify the rotation. Proper rotation is marked on the motor housing. The blower wheel should be rotating clockwise when viewed from the motor end of the wheel. Counterclockwise from the blower inlet cone side of the wheel. If opposite rotation is experienced, see Figure 2 for directions to switch rotation.

#### **NOTE**

**A motor starter with overload protection must be provided by the User. Thermal overload heaters are installed in the external motor starter. Consult the starter manufacturer for recommended heater size for the installed motor.**

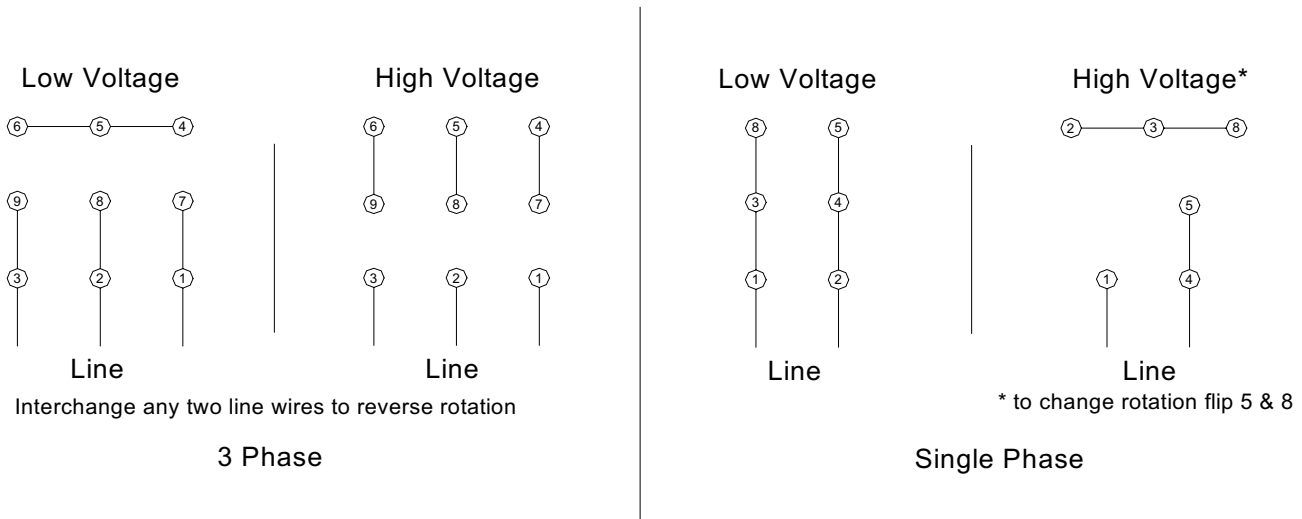
#### **WARNING**

**Permanent damage to the motor will be sustained if connected to voltages other than the normal operating voltage for which the unit is pre-wired.**

# VM-10 Series Collectors

## **SECTION 3**

### **Installation continued**



**Figure 2 Wire Connection Diagram**

### **Minihelic Gauge**

1. The Minihelic gauge is typically mounted on the 3 stage media module and measures the pressure drop across the 3 stages of filters. If a HEPA module is supplied the same gauge measures the pressure drop across the 3 stages of filters and the HEPA filter.
2. The Minihelic gauge has a red needle that indicates the pressure drop reading. To zero in the gauge, run the collector with clean filters and turn the screw at the bottom face of the gauge to zero. This is your starting point with clean filters in place. Periodically check the design airflow whether it be weekly or monthly to determine if the filters are dirty. Eventually the pressure drop reading will reach a point where there is insufficient airflow to capture the contaminants generated. Mark the gauge face with a black marker at the reading on the Minihelic gauge. In the future a quick look at the gauge will give you a sense of when the filters will need to be changed. In some cases the first or second stage filter could be dirty and the third stage filter (box filter) is fine. To check this scenario, pull out the first or second stage filter to see if the design airflow improves. If it does then either clean or replace the first or second stage and leave the third filter (box filter) alone. At some point the third stage filter (box filter) will need to be changed when removal of the first and second stage filters have little or no change on airflow or on the Minihelic gauge reading.

## VM-10 Series Collectors

### **SECTION 4**

#### **Ordering Replacement Parts**

Information required for prompt identification of replacement parts will be:

1. Model and Serial Number
2. Part Number and /or Description

Contact your local AER Control Systems LLC. distributor for replacement parts. Use either our toll free telephone number or our website [www.aercontrolsystems.com](http://www.aercontrolsystems.com) to obtain the nearest AER Control Systems LLC. distributor's name and telephone number.

**1-866-265-2372**

<b><u>Description</u></b>	<b><u>Part Number</u></b>
Minihelic Pressure Gauge	1217-01
<b>Miscellaneous Hoses and Clamps</b>	
4" x 10' Noeprene/Polyester Flexhose	1051-01
6" x 10' Noeprene/Polyester Flexhose	1051-02
Hose Clamp 4" Bridge	1050-10
Hose Clamp 6" Bridge	1050-11
<b>Miscellaneous Spare Parts</b>	
VMW-10 Impinger Cell	V40028-01
<b>Miscellaneous Filters</b>	
Fiberglass Prefilter 1" x 12" x 24"	1034-17
<b>6-Pack</b> Fiberglass Prefilter 1" x 12" x 24"	1034-18
Multi-Vee Filter 4" x 12" x 24" - 40%	1035-01
<b>6-Pack</b> Multi-Vee Filter 4" x 12" x 24" - 40%	1035-02
XE Box Style Filter 12" x 24" x 12", 95% ASHRAE, 28sq.ft.	1036-01
XP Box Style Filter 12" x 24" x 12", 95% ASHRAE, 70sq.ft.	1037-01
Aluminum Prefilter 1" x 12" x 24"	1034-15
<b>6-Pack</b> Aluminum Prefilters 1" x 12" x 24"	1034-16
HEPA Filter 12" x 24" x 12", 99.97% @ .3 microns	1040-01
HEPA Filter Metal Frame 12" x 24" x 12", 99.97% @ .3 microns	no part number
Carbon Filter Fold 12" x 24" x 7.875", 22lb	1044-02
Activated Carbon 50lb Bag	1046-02
<b>Miscellaneous Motors and Electrical</b>	
0.5 HP Motor, 3 PH, 3450 RPM for VM-10-18 and VM-10-19 Units	1003-01
1 HP Motor, 3 PH, 3450 RPM for VM-10-20 and VMH-10-20 Units	1003-05

## VM-10 Series Collectors

### **SECTION 5**

#### **Maintenance**

#### **Operation and Maintenance**

Lubrication or other routine periodic preventive maintenance is not required. All that is needed is an occasional check of fasteners and a general visual check of the unit to make sure that nothing has gone wrong. Periodic replacement of the filters is required when necessary. Dispose of filters in accordance with local standards and procedures for the material collected.

#### **Filter Replacement for the VM-10 Series Collectors**

##### **Disconnect and lockout electrical power to the collector before filter change**

Access to all the filters is accomplished by turning the wing knobs a quarter turn and opening the outside hinged door on the three stage media module.

1. Impinger Replacement on VMW collectors: The 4 inch aluminum impinger is the first stage of the three stage media module. Once the outside filter access door is opened, the impinger can be removed by dropping down the internal hinged gate door (flip down door) and sliding the impinger out. The aluminum impinger is cleanable and can be washed with mild detergent or solvent.
2. Aluminum mesh filter replacement on VMW collectors: The 1 inch aluminum mesh filter is the second stage of the three stage media module. This filter can be accessed by dropping down the gate door and sliding the mesh filter out of the cabinet. The cleanable aluminum mesh filter can be washed with mild detergent or solvent, but it is important to be gentle while washing. Observe the "direction of flow" indication on the filter. Insert the filter with this arrow facing the blower module direction.
3. Box Style Filter Replacement on both the VMW and VMD collectors: The box style filter is the third stage of the three stage media module. This filter can be accessed by dropping down the gate door and sliding the box filter out of the cabinet. Place filter in a plastic bag and dispose the filter in accordance to local requirements. Observe the "direction of flow" indication on the filter. Insert the filter with this arrow facing the blower direction.

## VM-10 Series Collectors

### **SECTION 5**

#### **Maintenance continued**

4. HEPA Filter Inspection and Replacement on VMH Module:
  - a. Open the access doors, and rotate the yellow handles down on both sides of the Cam Clamps.
  - b. Carefully remove the filter by prying it away from the sealing surface (toward the Cam Clamps).
  - c. Inspect the filter for damage. If ripped, or visibly damaged, discard.
  - d. Unpack new HEPA and inspect sealing surface. Carefully slide it into the cabinet with gasket toward the metal seal edge
  - e. Rotate the yellow Cam Clamps up and to lift and seal HEPA in cabinet; make sure the gasket is in full contact with metal seal edge of the cabinet.
  
5. Carbon Filter fold Module on VMC-I Module:
  - a. Open the access door for the carbon module. Rotate yellow handles down on both sides of cam clamp and pull carbon cell out (approximately 50 lbs) and frame with post filter out of cabinet
  - b. Remove the two piece post filter frame and check the 1 inch pleated multi-vee post filter. Separate frame and replace filter if required.
  - c. Remove screws from top of metal carbon cell, then empty carbon into suitable container.
  - d. Replenish the carbon cell with fresh carbon and rap cell to settle carbon. Refill as required and replace top.
  - e. Install post filter frame and filter on carbon cell and slide the assembly back into the carbon module.
  - f. Rotate the yellow cam clamps up to lift and seal the carbon cell and post filter assembly in the cabinet; make sure the gasket is in full contact with the metal seal edge of the cabinet.

**NOTE:** A simple method for maintaining carbon modules is to have an extra carbon cell on hand for replacement with a minimum of down time. The contaminated cell can be refilled or shipped to a refurbishing center

## VM-10 Series Collectors

### **SECTION 5**

#### **Maintenance continued**

6. Fiberglass disposable filter on VMD collectors: The disposable fiberglass filter is the first stage filter on the three stage media module (VMD collector). This filter can be accessed by dropping down the gate door and sliding the filter out of the cabinet. Observe the “direction of flow” indication on the new replacement filter. Insert the filter with this arrow facing up toward the blower module direction.
7. MultiVee Filter Replacement on VMD collectors: The multivee filter is the second stage filter on the three stage media module (VMD collector). Once the access door on the three stage filter media module is opened and the flip down gate door is hinged down then the disposable multi-vee filter can be slid out of the cabinet. Observe the “direction of flow” indication on the new replacement filter. Insert the filter with this arrow facing up toward the blower module direction.
8. Optional two or three stage prefilter module on the VMW or VMD collectors: The prefilter module can be mounted before the three stage media module and it houses a cleanable 4 inch aluminum impinger and 1 inch aluminum mesh filters (VMI) or a disposable 1 inch and 4 inch multi-vee filters (VMM) as a standard set up. The access to these two filters is accomplished the same as previously mentioned by dropping down the internal gate door and sliding the filters out of the cabinet. In the same prefilter module a third stage filter can be added with the addition of a Zee track to accommodate a 4 inch, third stage filter (VMI3 or VMM3). The access to this filter is the same as above.
9. Cleaning and Inspection of Cabinet: After dirty components have been removed, inspect cabinet interior. Remove foreign material, wipe interior, and clean all filter seating and sealing surfaces.

## VM-10 Series Collectors

### Troubleshooting

If after performing the above TROUBLE SHOOTING the unit fails to perform to specifications, contact your AER Control System's Representative for further assistance. In the unlikely event local help is unavailable, contact the factory for engineering assistance.

<u>Problem</u>	<u>Cause</u>	<u>Solution</u>
Motor fails to start	No power to unit	Check overload heaters in starter and fuses and replace or reset if necessary. Check for proper wire connections to and from the starter and collector.
Low airflow and/or suction	Blower is running backwards	Check rotation of blower. If running backwards, interchange 2 of the 3 input power leads (3 phase motors only)
	Filters are dirty or blocked	Replace or clean filters or check filters for blockage
	Obstruction in ducting or hose	Check ducting or hose for blockage. Check for dampers in the duct system, they may be closed.
	Duct or hose resistance too high	Improper duct design or higher pressure fan required.
Contaminant blowing out of collector exhaust	Damaged or hole in the filters	Replace filter
	Filters are not properly installed	Check seals around filter
Motor/blower noise or vibration	Wheel rubbing inlet cone	Check for wheel to cone interference.
	Motor cooling fan is rubbing on cover	Adjust motor cooling fan cover so that it does not rub or hit.

## VM-10 Series Collectors

### Specifications

The specification chart below will give the important information for each module. Overall sizes, weight, filter area can be figured out by totaling module data. The dimensions are taken as if you are facing the access doors on the unit, the doors would be the front of the unit and the depth dimension is from the front to the back. The width dimension is from one side to the other side.

<b>Model #</b>	<b>Nominal CFM</b>	<b>AER Control Systems Box Filter Type</b>	<b>Filter Area (ft<sup>2</sup>)</b>	<b>Motor (hp)</b>	<b>Fan Size</b>	<b>Wt.(lbs)-w/o plenum</b>	<b>Noise Level</b>
VMW-10-18	600	XE	28	0.5	8"	112.5	67 dbA
VMW-10-18	600	XP	70	0.5	8"	113	67 dbA
VMW-10-19	750	XE	28	0.5	9"	112.5	72 dbA
VMW-10-19	750	XP	70	0.5	9"	113	72 dbA
VMWH-10-20	950	XE	28	1	10"	118	75 dbA
VMWH-10-20	950	XP	70	1	10"	118.5	75 dbA
VMD-10-18	600	XE	28	0.5	8"	110	67 dbA
VMD-10-18	600	XP	70	0.5	8"	110.5	67 dbA
VMD-10-19	750	XE	28	0.5	9"	110	72 dbA
VMD-10-19	750	XP	70	0.5	9"	110.5	72 dbA
VMDH-10-20	950	XE	28	1	10"	115.5	75 dbA
VMDH-10-20	950	XP	70	1	10"	116	75 dbA

\* Nominal CFM ratings are at 0.5" external static pressure.

## VM-10 Series Collectors

### Specifications continued

<b>VM-10 Series Module Specification</b>						
VM-10 Series Module	Prefilter	Final/Main	After filter	Dimensions		
				Depth	Height	Width
VMI-10	Impinger 12X24X4			25	13.5	18
VMM-10	4" MultiVee 14.4sq.ft			25	13.5	18
VMH-10			12" HEPA 24X24X12	25	16.5	18
VMC1-10			Carbon 22Lbs 1" multivee 4.6sq.ft	25	16.5	18

<b>MOTOR SPECIFICATIONS</b>		
Motor - HP	1/2	1
Motor Temp. Max - C	40	40
Speed RPM	3450	3450
Voltage	230/460	230/460
Frequency Hz	60	60
Phase	3	3
Frame - NEMA	56C	56C
Power Factor	63	71
Efficiency	68	75.5
Start Current Amps (60 Hz.)	44/22	65.8/32.9
Full Load Amps (60 Hz)	12/6	22/11
Insulation Class - Min.	B	B
Enclosure	TEFC	TEFC
Service Factor	1.25	1.25
Duty Cycle	Cont.	Cont.
Bearing Grease	Exxon POLYREX®EM	Exxon POLYREX®EM
Specification	UL and CSA Approved	UL and CSA Approved



## Limited Warranty

AER Control Systems LLC warrants all products sold only to purchasers for use in business or for resale, against defects in workmanship or materials under normal use, for one (1) year after the date of purchase from AER Control Systems LLC. Misapplication of the product, decomposition by reaction or chemical action and wear caused by abrasion will not constitute, or be considered as a defect. Warranty is void if the product has been subject to damage, unreasonable use, neglect, improper service, improper installation, or other causes not arising from defects in original materials or workmanship. Any part that is determined to be defective in material or workmanship and returned to an AER Control Systems LLC distributor or authorized service facility, as AER Control Systems LLC designates, shipping costs prepaid, will be, as the exclusive remedy, repaired or replaced at AER Control Systems LLC's option. AER Control Systems LLC shall not be liable for any incidental or consequential cost, expenses, or damages resulting from any failure, defect, or malfunction of this product, liability is expressly disclaimed. AER Control Systems LLC's liability in all events is limited to and will not exceed, the purchase price of the product. Title and risk of loss pass to the buyer on delivery to the common carrier. If a product is damaged in transit, the recipient MUST make note of the damage upon receipt of the product and file a claim with the carrier. AER Control Systems LLC will make a good faith effort for prompt correction or other adjustment, with respect to any product that proves to be defective within the warranty period.

Collection of combustible or explosive materials and collection on flame or spark-generating operation any require specific system configurations (contact AER Control Systems LLC's Applications Engineering Department for questions and/or design assistance). The combined collection of combustible or explosive materials and contaminants from spark or flame generating operations, with a common collector or duct system, is not recommended, unless special design provisions have been made to the system (sparks or flames resulting from such operations may ignite the combustible or explosive material). Under no circumstances should anyone be allowed to discard a lighted cigarette, other burning materials, or refuse into an inlet hood or the duct of the collection system. It is the responsibility of the end user to comply with all applicable national, state, and local fire and safety codes. AER Control Systems LLC's liability for consequential and incidental damage resulting from a fire or explosion is expressly disclaimed.

Installation of suitable overload protection such as a motor starter, according to NEC guidelines, is required. Failure to provide proper overload protection will void warranty coverage on electrical components in the system. (Combination motor starters with fusible disconnect packages are available through your local AER Control Systems LLC representative). To ensure optimum collector performance, always use AER Control Systems LLC replacement filters.