



GIMNAIRE 18000

HEPA Air Filtration Machine



Operation and Maintenance Manual

WARNING

Do not use with combustible or explosive material. Do not expose to water or rain. Connect only to grounded outlet with GFCI device. Disconnect power for cleaning and servicing. This equipment to be operated only by trained personnel.

Safety Warning Instructions:

READ AND SAVE THESE INSTRUCTIONS

This equipment to be operated only by trained personnel.

Do not use with combustible or explosive material.

Do not expose to water or rain.

Disconnect power for cleaning and servicing.

Do not operate if cord or plug is damaged. Contact a authorized service facility for examination and/or repair.

Do not run cord under carpeting. Do not cover cord with throw rugs, runners, or similar coverings. Arrange cord away from traffic areas and where it is not a tripping hazard.

Avertissement de sécurité Instructions:

LIRE ET CONSERVER CES INSTRUCTIONS

Cet équipement doit être utilisé que par un personnel formé.

Ne pas utiliser avec des matières combustibles ou explosives.

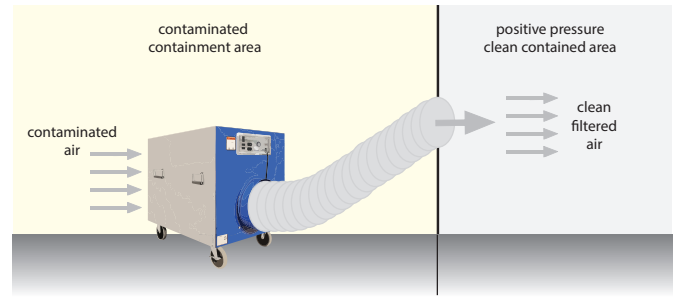
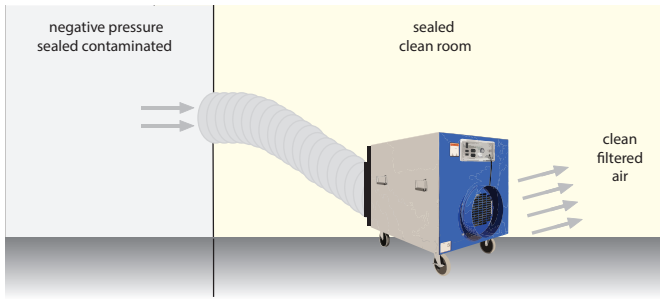
Ne pas exposer à l'eau ou à la pluie.

Coupez l'alimentation électrique pour le nettoyage et l'entretien.

Ne pas utiliser si le cordon ou la fiche est endommagé. Contactez un centre de service autorisé pour examen et / ou réparation.

Ne pas passer le cordon sous un tapis. Ne pas couvrir le cordon avec des carpettes, les coureurs, ou revêtements similaires. Éloigner le cordon des endroits passants et où il n'est pas un risque de déclenchement.

Application Examples



To create **NEGATIVE PRESSURE** inside the containment, more air has to be exhausted out than leaks into the containment. Place the machine inside the containment and hook a flexible duct to the outlet ring of the machine exhausting to outside the containment. (See Above) All of the air being exhausted has been treated by the HEPA filter so no contaminants are being exhausted from the containment.

To create **POSITIVE PRESSURE** inside the containment, more air has to be pumped in than leaks out of the containment. Place the machine outside the containment and hook a flexible duct to the outlet ring of the machine ducting the exhaust into the containment. (See Above)

The OmniAire 18000 is our largest portable HEPA air system with a 18,000 CFM air flow capacity. The OAI8000 is a modular air filtration machine with a unique versatility in setup and number of optional filters to assist you on your projects. The OmniAire 18000 can be used to purify and re-circulate air or create positive or negative air pressure containment areas. It is used for mold, asbestos & lead abatement projects, construction sites, restoration projects, water or fire damage clean-up and many other applications.

Blower Cabinet Features

The OmniAire 18000 modular system consists of Blower cabinet and three Filter cabinets, all connected by flex hoses. The cabinets are easy to transport and setup at any type of projects, including high-rise buildings and HAZMAT removal jobs. The Blower cabinet contains twin 22 vane-axial blowers with 7.5 HP motors and controls and operates on a 3-phase 480 VAC/60HZ/30 AMP power source. The portable blower cabinet is mounted on (4) 5" heavy duty casters with brakes. The reinforced steel internal frame enables the blower unit to be moved by forklift or crane.

HEPA Cabinet Features

Each Filter cabinet contains 3 filters, which could be 99.99% HEPA or bag filters. The individual filter cabinets each have a differential pressure gauge to measure loading of the filters with particulates. Filter cabinets are mounted on (4) 5" casters with brakes, weigh 200 lbs. when fully loaded with HEPA filters. Options such as HEPA, Carbon, and Bag filters allow flexibility from project to project. Three (3) flex hoses connect the modular filter cabinets to the blower cabinet. Hoses are 18" dia, 25' long.

OmniAire 18000 Specifications

For Blower Unit: Quantity (1)

Airflow - 18000 cfm*

Power Requirement - 480V/60 Hz/3 phase/50 amp.

Fault Current - 5KAIC

ELECTRICAL DWG - E01

Controls - Dual motor starter boxes with 16A disconnects w/lockout feature, overload protection, contactor and START/STOP switch. Power ON Indicator and hour meter.

Blowers - (2) 22" Vaneaxial fans with 7.5 hp motors.

Blower Cabinets - Aircraft grade aluminum, closed end rivet construction. All seams are silicone sealed before riveting. (4) - 4" locking casters for ease of movement, 900Lbs., 30" wide, 48" long, 72" high

Exhaust - (2) 24" diameter rings. Inlet (3) - 18" dia

OmniAire 18000 Specifications (continued)

For Filter Cabinets: Quantity (3)

Powder coated galvanized steel, closed end rivet construction. All seams are silicone sealed before riveting.

200 lbs. Ea. (with filters), 26" wide, 80" high, and 28" long, (4) 3" locking casters for ease of movement.

Outlet connection 18" dia ring, Inlet (3) 12" dia. rings

Filter's dust loading gauge - 0"-5" WC

Filtration Stages

- Final stage HEPA Filter 99.99%, 0.3 μ ,
- Primary/secondary MERV 9 polypad filter
- Optional OdorGuard 600 carbon filter
- Optional MERV 14 multi-pocket bag filter

Flexible hoses – (3) 18" dia hoses, 25' long, Vinyl material, wire reinforced, rated at operation of 10" WC of vacuum.

*Airflows are based on blower manufacturer curves. Different HEPA filters may cause the flow to vary.

If the filter is not seated correctly then remove the filter tabs, reposition the filter, and reinstall the filter tabs before operation to ensure that there is no bypass around the filter. If the filter tabs are loose, verify that the filter is in the correct position and retighten the filter tab nuts.

Important Instructions

Read all the instructions before using this machine.

- Connect ONLY to outlets that are properly grounded.
- Customer to provide main disconnect to disconnect all power sources.
- Size of main breaker must be a minimum of 50 amps and NRTL approved.
- Do not operate blower with damaged cord or plug or after it has been damaged in any manner.
- Place cord out of the path of foot and equipment traffic to avoid trip hazard.
- To shut down the blower unit, turn both motors off and then unplug the cord.
- Do not locate the blower cabinet outdoors, use only in DRY locations.
- The motor and the protection circuit has arcing or sparking parts inside. Avoid operating in an environment with flammable liquids, gas, or paint.
- Do not use to exhaust combustible or explosive gases or operate in hazardous atmosphere.
- Do not insert or allow foreign objects to enter intake or outlet openings as this may cause electrical shock or fire and will damage the blower.
- DO NOT BLOCK OFF blower cabinet INTAKES or operate HEPA filter cabinets above 4.0" WC of vacuum to prevent possible damage to the blower cabinet, HEPA filters and the HEPA cabinets. All three blower intake connections to HEPA cabinets must have hoses rated to operate at 10" WC vacuum or more.
- DO NOT operate the system without all 9 HEPA filters securely in place.
- Always unplug unit when not in use.
- Use the OAI8000 only as prescribed, any other use may cause fire, shock or injury to persons.

SAVE THESE INSTRUCTIONS

WARNING: GROUNDING INSTRUCTIONS - This appliance must be grounded. In the event of a malfunction or breakdown, grounding will reduce the risk of electric shock by providing a path of least resistance for electric current. This appliance is equipped with a cord having an appliance-grounding conductor and/or a grounding plug. The plug must be plugged into an appropriate outlet that is installed and grounded in accordance with all local codes and ordinances.

WARNING

Improper connection of the appliance-grounding conductor can result in a risk of electric shock. Check with a qualified electrician or service representative if you are in doubt whether the appliance is properly grounded. Do not modify the plug provided with the appliance; if it will not fit the outlet, have a proper outlet installed by a qualified technician.

Introduction

OmniAire 18000 consists of a blower unit and three HEPA cabinets. The HEPA cabinets must be connected to the blower unit with three flexible hoses at all time for the system to operate properly.

The Blower unit contains two 22" vaneaxial blowers with direct drive motors. Two motor starter enclosures are mounted on the front of the blower cabinet. One power cord connects the unit to 240 VAC/3 phase/50-amp power supply. The intake side of the Blower unit has (3) 18" rings for flex hoses from HEPA cabinets. The exhaust side of the machine has (2) – 24" rings which could be left open or ducted.

Each HEPA cabinet holds three HEPA filters and pre-filters. The HEPA filters are secured with 4 tabs to maintain a tight seal to prevent any air bypass around HEPA filters. Each HEPA cabinet has a vacuum gage, 0'-5" WC, to measure pressure drop across the filters, representing loading of filters with dust. All three HEPA filters must be installed and function properly for the system to operate. The function of the prefilter is to capture larger dust particles and to extend the operation of the HEPA. The dense, orange side of pre-filter must face the HEPA.

All three HEPA cabinets must be connected to blower cabinet to assure proper operation of the whole system. The hoses have to be rated to operate at minimum of 10" WC of vacuum.

Unpacking and Preparation

- Check the HEPA cabinets for any distortion or damage.
- The motor blower unit has reinforced frame mounted inside the cabinet and the entire unit can be safely lifted off the pallet with a fork lift. The weight is over 900 lbs.
- Each filter cabinet contains three HEPA filters and weighs approximately 200 lbs. The construction of the filter cabinet is designed to be moved around with a fork lift as well.
- Remove the primary/secondary filters and check the HEPA filters for any visible damage and see that it is seated properly.

The HEPA must be seated well against the internal housing flange and the bottom supports. The tabs must be tight to compress the HEPA gasket to the HEPA filter. **NOTE: If any one of the HEPA filters is leaking or has a bypass, the whole system will fail the required DOP efficiency test.**

The blower cabinet with motor controls should be inspected for visible damages. The intake plenum which operates under vacuum must be well sealed.

Inspect flex hoses for cuts, tears and breaks. The hoses must be secured to the rings on the HEPA cabinets and the blower cabinet with clamps to prevent any air leaks. The ducting operates under negative pressure of 2"-4" WC and any small openings or cuts will allow contaminants to enter the purified air. Periodically check the silicone seal around all the rings.

Operation

The OmniAire 18000 offers many variations for the set-up of the blower and filter cabinets. To protect the blower cabinet from contamination of asbestos or other hazardous materials, the unit could be operating in a clean environment while the filter cabinets could be inside the containment area connected by flex ducting. For Asbestos and mold abatement, the machine must be operated with all HEPA filters in place. Also, it is recommended to use

the primary/secondary filter and replace it frequently to extend the life of the HEPA. Check that the blower cabinet is connected to three HEPA filter cabinets and the filters are properly installed.

It is important to closely monitor the differential pressure gauge, 0"-5" WC on each of the HEPA filter cabinets to not exceed the safe operating DP of 4" WC. Operating at a higher differential pressure could reduce the required efficiency of the HEPA filters and release contaminants downstream. (See Replacement of Filters below). Our powerful blowers are capable of producing up to 9" WC negative pressure when the HEPA filters are fully loaded with dust.

To Start the Machine

With flex hoses connected, move the HEPA cabinets to desired positions and block the wheels. The hoses should be running straight to minimize airflow resistance.

To turn the machine on, plug the power cord into a 480VAC, 60Hz, 30Amp outlet or hard wired to a generator. To start blower #1, place the motor starter disconnect switch handle in the ON position and then push the START pushbutton. Let the blower run for about 10 seconds. Then turn ON blower #2. Check the DP indicator on each of the filter cabinets. When filters are clean, the DP gauge will read about 2.1" WC. As the filters fill with dust the efficiency of the filters is maintained, but the air flow will decrease, and the vacuum reading will increase. Change the primary/secondary filter frequently to protect the HEPA and to get more air flow. The HEPA filter must be replaced before the DP gauge reaches 4.0" WC.

Check the vacuum reading on all HEPA cabinets. Note the vacuum reading while all filters are clean. With all clean filters, the flow should be evenly distributed, and the DP gauge should read about 1.8"-2.0" WC. The filters will gradually load with dust and the gauge reading will increase. Loading may not be evenly distributed as some HEPA cabinets may be in an area with more dust.

DO NOT OPERATE THE HEPA CABINETS ABOVE 4.0" WC.

NOTE:

- Primary filters can be changed while the machine is running.
- The OAI8000 can run with a single blower but all (3) HEPA cabinets must be connected to the blower cabinet.
- As the filters fill with dust, the efficiency of the filters are maintained, but the air flow will decrease and the vacuum reading will increase.
- Change the primary filters frequently to protect the HEPA and to get more air flow. When the vacuum reaches about 3.5" WC with a clean prefilter, the HEPA filter will have to be replaced to increase the air flow.

To turn OFF the machine

Push the STOP pushbutton for each blower. Then turn the motor starter disconnect switch handle to the OFF position to prevent unauthorized operation of the equipment. The disconnect switch handle can be padlocked. Please see the manual for motor switch disconnect switch handle instructions.

WARNING

The HEPA filters and the cabinets are designed to operate at maximum of 4.5" WC of vacuum. When filters get fully loaded with dust, the blowers are capable of generating 9" WC of vacuum and may destroy the HEPA, and potentially the integrity of the HEPA cabinets. The vacuum reading on individual HEPA cabinets must be monitored and not to exceed 4.0" WC.

Troubleshooting

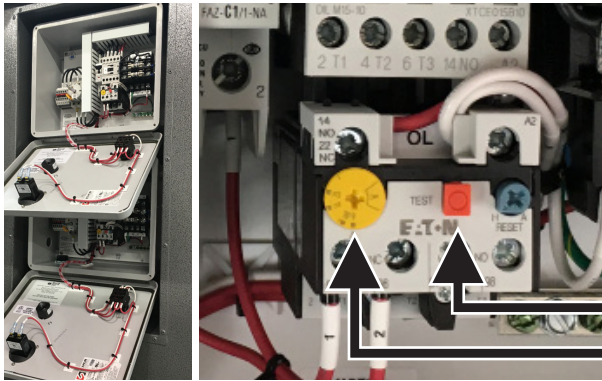
Your Omnitec Design machine is designed and engineered to provide years of trouble-free service. Occasionally problems occur. Here are some helpful tips and solutions to common issues.

Unit does not start

Check that the unit is plugged in and there is 480VAC available and verify power is available. Check that the motor starter disconnect switch handle is in the ON position, then push START on the pushbutton. Test one blower at a time to determine which one is failing to start.

Machine starts but shuts down

Check that the unit is plugged in and there is 480VAC/30Amps available for power. Check that the motor starter disconnect switch handle is in the ON position, then push START on the pushbutton. Test one blower at a time to determine which one is failing to start.



Each motor blower has a separate starter cabinet with overload protection which may be set to low. Unplug the power cord. Open the motor starter as described above and check the overload protection setting. The dial knob should point to 11 amps. Push the RESET button. (see photos for details)

RESET button

Amp Dial

Blower starts yet no air flow

If the blower is running yet no air is coming from the outlet, it indicates the blower is running backward. To reverse the operation of the blower, your qualified electrician will need to swap any 2 phases on the power cord connection or in the motor starter enclosure. To proceed, unplug the unit from the power source. Turn the motor starter disconnect switch handle to the OFF position to unlatch the internal interlock. Remove the two screws to open the enclosure. Test the performance of both blowers individually to insure proper operation.

Machine starts to vibrate

Vibration could be caused by an imbalance of the propeller which runs at 3000 RPM. Please refer to the attached Aerovent maintenance manual for cleaning and repairs.

Maintenance

The OAI8000 is easy to maintain. The HEPA cabinets are epoxy powder coated and can be easily cleaned.

Periodically examine the flex ducts for tears and rips. The ducting operates under negative pressure of 2"-4" WC and any small openings or cuts will allow contaminants to enter the purified air.

When HEPA filters are removed, inspect the silicone seal inside the unit plenum and around the filter flange. Before installing new HEPA filters, check the silicone seal around the filter flange and the forward, upper and lower corners of the cabinets.

Check the flex hose connection rings on the blower units and filter cabinets to insure a silicone seal is around the inside and outside of the ring where it is attached to the cabinet. The silicone seal will prevent contaminated air seeping into filtered air.

Lubrication

The vaneaxial blowers require periodic lubrication. Grease fittings are easily accessible by removing the exhaust rings door. Check the Aerovent manual for the maintenance schedule and the type of lubricants.

Filter Changes

Change the primary/secondary filters when...

Visual inspection - white filter side surface is loaded with dust and it starts to show on the orange side.

Pressure gauge – reading increased by 0.3" WC since the last clean pre-filter was installed.

Change the HEPA filter when...

Holes or cracks are found in HEPA filter media.

Air flow from the machine is not sufficient.

The pressure gauge reading, with clean HEPA filters is about 1.8"-2.0" WC, The HEPA filter will need to be replaced when the pressure gauge reads 3.5" WC with a clean primary/secondary filter.

During your projects, your HEPA filter purifies the air and gradually becomes loaded with sub-micron particulates. Even when the HEPA filter is fully loaded, the filter is still removing particulates from the air at the rated efficiency yet, at a reduced airflow. This will affect the ability of the machine to provide positive or negative pressure within the containment.



filter tab

To replace the HEPA filter, turn the blower unit OFF. Open the door and remove the pre-filter. You will see 4 filter tabs holding the HEPA filter in place (see photo). These tabs are secured with 1/4-20 Nylock nuts, which require a 7/16" wrench or socket. Remove all (4) filter tab retaining nuts, remove the filter and set aside. Slide the HEPA filter out along the filter guides and remove it from the machine. ALWAYS TREAT THE USED HEPA FILTER AS HAZMAT AND PROCESS IT ACCORDING TO YOUR ESTABLISHED HAZMAT PROCEDURES.

When replacing the HEPA filter, ensure that the gasket on the HEPA filter faces inward toward the flange, slide the filter in place along the filter guides and re-install the filter tabs and filter tab securing nuts. The nuts should initially be tightened to where the stud is flush

with the end of the nut. This will compress the gasket on the filter approximately 1/2 of the thickness. This allows for the filter to be reseated and tightened later if necessary.

Bag Filter Replacement (if used)

The bag filter housing can be installed in the place of the HEPA filter using the filter tabs and nylock nuts. The bag filter is secured inside the housing with (4) P-clips. To remove the filter, turn the P-clips 90 degrees and pull it out. Then install the new bag filter and secure it using the P-clips.

Please note the bag filters have a large dust holding capacity and require replacement when the airflow of the machine drops below required minimum flow or the DP gauge reaches 3.5" WC. Even when the filter is fully loaded, it is still removing the particulates from the air at the rated efficiency but at a reduced airflow. Typically bag filters do not require the use of prefilters.

Vapor Trap Filters

Activated carbon filters are designed to remove odors and gaseous pollutants from air. These filters are an effective and quick solution to your VOC's and odor problems. The selection of the carbon filter depends on the type and amount of the gaseous pollutants. You will need to determine the requirements of your application. The Vapor Trap is a disposable V-Bank, 24"x24"x12" filter and contains 36lb of activated granular carbon. It can be installed in place of a HEPA filter. We recommend using our primary/secondary filter in front of the Vapor Trap to extend its odor absorption capacity.

Ordering Info

OmniAire 18000 Blower

HEPA Cabinet (3 required)

HEPA Filter 99.99%, 0.3 μ

Primary/Secondary Filter (qty 20)

OdorGuard 600 Carbon Filter

Carbon Vapor Trap, Disposable V-Bank, 36lbs of Carbon

Bag Filter Housing with one bag filter

Bag Filter, MERV15

PVC Hose, Wire Reinforced Flexible Duct, 18" x 25'

Clamp S.S. with Worm Drive, 18" to 20" dia

Quick Clamp to 14" dia, Stainless Steel, Worm Drive, Quick Adjusting

Part

OA18000B

OA18000F

OAH2424G

OAP2424

OG2424D

OCVT2424

HBF2200

OBF10

OARD18

QCW18

QCW14

Omnitec Design LIMITED WARRANTY

Omnitec Design warrants, for a period of twelve (12) months from the date of purchase, that all Products, component parts and accessories, excluding filters, will be free from defects in material and workmanship under normal use and service.

THE PURCHASER'S SOLE AND EXCLUSIVE REMEDY UNDER THIS WARRANTY IS LIMITED TO THE REPAIR OR REPLACEMENT OF DEFECTIVE PARTS F.O.B., Omnitec Design 4640 Campus Place Ste. 100, Mukilteo, WA 98275
Phone: 425-290-3922

In order to keep this warranty in effect for the aforementioned twelve-month period, the purchaser must (i) promptly, i.e., immediately upon discovery, inform Omnitec Design Inc's customer service of any defects, and (ii) properly use and maintain the Product prior to the discovery of any defect.

This warranty does not cover normal wear and tear or defects caused by (i) improper or negligent handling or unauthorized modifications; (ii) defective or improper premises, chemical, or electrical influences; or (iii) weather or other forces of nature.

In order to provide the best customer service possible, Omnitec Design requests that purchaser completes the enclosed LIMITED WARRANTY REGISTRATION FORM and returns it to Omnitec Design Inc within 30 days of purchase date.

LIMITATIONS OF WARRANTY

THIS WARRANTY IS EXPRESSLY IN LIEU OF ANY AND ALL OTHER WARRANTIES AND OBLIGATIONS OF Omnitec Design Inc OR ITS SUPPLIERS, EXPRESS OR IMPLIED, AND Omnitec Design EXPRESSLY DISCLAIMS ANY WARRANTY OF MERCHANTABILITY OR FITNESS FOR ANY PARTICULAR PURPOSE.

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PRODUCT SUITABILITY

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