

Installation, Operation and Maintenance Guide

Particulate & Gas Phase Filtration Series

OUR MISSION

To design and build quality engineered air cleaning systems to provide indoor comfort, protect occupants, and ensure the reliability of critical systems and processes.

IMPORTANT

Save this Document for Future Reference & Warranty Information



Bioclimatic.com
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!IMPORTANT!

READ THIS BEFORE STARTING INSTALLATION.
DO NOT THROW AWAY THIS GUIDE.

For installation you **MUST**:

- Always disconnect power to the unit before handling any of the components.
 - DO NOT connect to the power before the installation is complete and personnel are aware of the imminent operation.
 - Carefully read this instruction booklet before beginning the installation.
 - Follow each installation or repair step exactly as shown and explained in this guide.
 - Observe all local, state, national and international electrical codes.
 - Pay close attention to all warnings and caution notices given in this guide.
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How to Contact Us: If you need help, please contact a Bioclimatic Air Systems Representative for technical assistance.

!CAUTION!

Do not touch while in operation shut off electricity before servicing!

This equipment should be inspected frequently and collected dirt removed from it regularly to prevent excessive accumulation that may result in flashover or risk of fire.

!MISE EN GARDE!

Ne touchez pas pendant le fonctionnement couper l'électricité avant l'entretien

Cet équipement doit être inspecté fréquemment et la saleté collectée doit être retirée régulièrement pour éviter toute accumulation excessive pouvant entraîner un court-circuit ou un risque d'incendie.

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01 INTRODUCTION

1.1 Disclaimer

These instructions are submitted with the implicit understanding that:

1. This manual is to guide the user of Bioclimatic equipment in the proper installation, operation and maintenance procedures to insure maximum equipment life with efficient operation.
2. The customer has assigned competent maintenance and operating personnel to the system described herein and will assume operational and maintenance responsibility upon start-up of the system.
3. The customer will read and thoroughly examine the foregoing instructions and will notify the seller of any points not fully understood, points of conflict or error.
4. The customer, in lieu of any notification to the contrary, has read and fully understands the operation of the system and is aware of the hazards of corrosion, abrasion and fire or explosion and shall take the necessary steps in the operation of equipment to control such hazards to the maximum extent possible.
5. Start-up assistance or field engineering service provided by B.A.S. shall in no way relieve the customer of responsibility for the proper operation of the system.



IMPORTANT: Any modifications to the unit by unauthorized personnel will void factory warranty. The unit must be installed in accordance with the manufacturer's instructions to preserve warranty.

1.2 Receiving

Products leaving the B.A.S. factory are inspected and in satisfactory operating condition. All equipment should be thoroughly inspected when received. Although all units are properly packaged, rough handling in transit can cause breakage. Any shortage or damage should be reported at once to the transportation company. Note the damage on the bill of lading before signing for the shipment. **No equipment may be returned to Bioclimatic without written authorization. Returned equipment sent without authorization will be refused and returned to sender.**

All products are shipped F.O.B. (Ex Works, FCA) Bioclimatic warehouse. Responsibility for all equipment passes to the buyer at the time equipment is loaded onto the carrier's truck.

1.3 Handling

All equipment, whether assembled or otherwise must be handled with extreme care. The tracking sections are in most cases shipped in one complete assembly on wooden pallets. The wooden pallet will facilitate movement by lift truck without damage. Wooden pallets must be removed once the tracking sections are in their location. Before moving pallet(s), check overall height and width as well as any weight imbalances.

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Handle with care when removing pallets or moving to prevent damage to surface coatings. A small chip in the paint or coating will break the continuity of the surface treatment and destroy its protective value. Always touch-up scratched surfaces prior to installation and start-up.

The foundation for the equipment must be rigid and level. The equipment must be securely fastened to foundations prior to operation.

Install shims in any spaces between the equipment base and its foundation to ensure the equipment weight is uniformly distributed. This uniform weight distribution is important to avoid excessive vibration, distortion, and alignment of equipment.

1.4 Storage

When storing media holding modules and any other filtration components care must be taken to protect from moisture and contamination. Do not store outdoors for any length of time. Do not open plastic wrapping. Do not store any other material on top of palletized filtration components. Periodic inspections of the components should be made until it is ready to be put into service.

Note: If components are not installed upon delivery, it must be stored in a weather-protected area.

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1.5 Warranty

The seller warrants the equipment against defective workmanship and material for fifteen (15) months from date of factory shipment or one (1) year from commissioning, whichever occurs first. In the fulfillment of its warranty, the sole obligation of seller shall be to repair or replace, at its option, F.O.B. its factory, any part or parts which are returned F.O.B. its factory, shipping charges prepaid, and which after inspection by seller are found to be defective. Buyer shall notify seller of defect in writing, promptly upon discovery and within the warranty period. This warranty does not cover defects caused by corrosion or normal deterioration; it does not extend to consequential damage, loss or delay associated with a warranty defect; and it does not cover any cost of labor, travel, or other expense associated with the repair or replacement of defective parts. Seller assumes no liability for product loss or other claims whatsoever arising out of the use or application of the equipment in any operations, whether the machine is used alone or in conjoint use with other equipment or processes. Notwithstanding the foregoing, seller's warranty obligations with respect to any items not manufactured by seller shall not exceed the obligations undertaken by the manufacturer thereof under express warranty to the seller. This express warranty is in lieu of all other warranties of fitness of the machine for any particular purpose.

There are no other representations, warranty of condition in any respects either expressed or implied, statutory, or otherwise in contract or tort, other than what is stated above.

The seller shall not be held liable in any way for consequential damages, however caused.

This warranty will not apply if the seller's equipment has been damaged due to improper installation, alteration, abuse or misuse, accident, fire, flood, or unavoidable circumstance. Further, this warranty will not apply if repairs, replacements, or alterations are made by others without the seller's prior written authorization.

In the event the state in which the equipment is installed does not permit the limitation or exclusion of implied warranties or conditions under given circumstances, the provisions of this written warranty are in addition to and not a modification of the statutory warranties and other rights and remedies provided by such laws.

Any modification to original equipment by any company or person other than the manufacturer will serve to cancel and void all of the seller's liability under the manufacturer's warranty. Enclosures containing electronic components are normally sealed by the manufacturer to prevent unauthorized tampering or adjustments. Only authorized service providers may break seals to complete calibration or to trouble shoot the unit. Unauthorized tampering or breaking seals will release the seller from any future liability under the warranty.

Disclaimer: The air purification technologies provided by Clean Air Group are intended to improve indoor air quality. They are not intended as a replacement for reasonable precautions aimed at preventing the transmission of contaminants, airborne or otherwise. All persons having access to the serviced premises should comply with applicable public health laws and guidelines issued by federal, state and local governments and health authorities such as the Centers for Disease Control and Prevention (CDC). Clean Air Group does not maintain that its products will protect people from all modes of transmission of bacteria, viruses or other contaminants, and excludes liability for loss or damage arising from any such claims or the consequences arising out of the application, use or misuse of its products.

02 INSTALLATION

2.1 Initial Setup

- 2.1.1** All connecting duct work shall be supplied and installed by others in accordance with local codes.
- 2.1.2** A structural engineer should review installation drawings and load data to ensure that the building structure is capable of supporting the equipment.
- 2.1.3** Provide a rigid, level foundation for direct mounting of floor installed equipment. For suspended equipment, use threaded rod to support from structural members which are either factory supplied or approved. Do not support equipment directly from the sheet metal housing.
- 2.1.4** In the event the equipment is shipped in sections, assembly will be required at the job site. Prior to assembly, apply a uniform bead of silicone type adhesive to mating parts. This procedure is required to prevent air leakage or bypass during operation.
- 2.1.5** Provide a minimum of 30 inches (760mm) clearance on the hinged access panel side of all filter sections for filter servicing and replacement.

2.2 Filter & Media Module Installation

When installing filters and/or media modules, refer to the label located on the inside of the access doors. This label itemizes all filters and/or media modules in the unit and their arrangement.

Note: Make sure that airflow arrow on the filter or module points in the direction of airflow through the unit. Be sure media modules are installed with the foam seals in contact with the adjacent module. If modules seem too tight in the racks then double-check their orientation.

Check the filter and/or media module gaskets and seals to make sure that there is no air bypass.

03 PHYSICAL DESCRIPTION

3.1 Principle of Operation

The components provided are designed for filtration of environmental air so as to control particulate and gaseous contaminants for new or retrofit HVAC applications. Please refer to the filter arrangement drawings for proper filter orientation.

3.2 Prefilter, Primary & Post Filter Sections

Prefilter Section

Pleated or ply throw-away filters. These filters are to protect the equipment from premature loss of performance due to particulate contamination. MERV values shall be minimum MERV 11.

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Primary (Final) Filter Section

There are different types of primary particulate filters available in different efficiency ratings. The available space in the filter section will determine the filter type.

Filter Type: HEPA, HEPA Type

Efficiency: 99.99% HCX, Gel Seal

Differential Pressure Monitoring System

Differential pressure gauges or pressure transducers monitor the pressure drop across their respective filter bank. As the fibrous filter removes particulate contaminants from the air, it loads resulting in a higher static pressure across the filter. When the maximum recommended static pressure is reached, the filters should be replaced (see section 5.3).

3.3 Gas Filter Media Selection

Refer to the included Material Data Sheets for more information on the media that was supplied with your unit.

04 START-UP INSPECTION

4.1 General

Before starting the System, a complete inspection should be made to ensure that all the equipment is installed for proper operation. It is particularly important that the system is free of all foreign objects. Be sure all access doors are securely closed.

4.2 Inspection Check List

Filters:

- Complete filter installation
- Surface continuity between adjacent filters & seal surfaces
- Check filter maintenance
- Gauges are operational
- Wipe entire section clean
- Check gauge tubing

Panels:

- Insulation is intact
- Fasteners are secure
- Gaskets are intact
- Casing leaks

05 OPERATION & MAINTENANCE



IMPORTANT: Any modifications to the unit by unauthorized personnel will void factory warranty. The unit must be installed in accordance with the manufacturer's instructions to preserve warranty.

5.1 General

One (1) initial set of particulate and gas phase (if applicable) filters is included and shipped with the unit. Spare filters may be included if specified for the unit. Do not open the packaging of spare filters until required for service.

5.2 Filter Change Signal Adjustment (if applicable)

The particulate and gas phase filtration (if included) require periodic maintenance in order to ensure satisfactory system performance over an extended period.

If applicable calibrate the static pressure differential gauges:

1. Zero all gauges (with system off).
2. Turn the unit on with clean filters installed.
3. Turn the left-hand adjustment knob (clean filter indicator) to align with the actual pressure drop as indicated on the gauge.
4. Turn the right-hand adjustment knob (indicator for filter change) so that the right-hand needle is pointing at twice the value of the clean filter indicator gauge reading. **Do not set the filter change indicator to exceed 75% of the filter manufacturer's maximum pressure drop recommendation or filter failure may occur.**

5.3 Filter Maintenance

Filters must be replaced as the dust and dirt that collects on the filter media causes a reduction in airflow.

A filter will require replacement before the trapped dust "breaks through", into the system. [This condition may be determined in advance by checking the maximum rated pressure differential as published by the filter manufacturer and avoided by setting gauges or filter alarms for approximately 75% of the rated value.]

5.4 Particulate Filters

Changing dirty filters must be performed periodically. Periodic filter replacement will result in proper airflow, filtration, and system performance. Filter change out will depend on local conditions and can be determined only by inspection of the filter gauges and the filters. Check filters and gauges weekly until the maintenance interval is established. When the interval is determined establish a filter replacement schedule program.

It is important to use high quality filters with the same specifications as those provided with the unit. The filter label affixed on the inside of the access panel lists the part number of the filters supplied with the unit. Contact the Bioclimatic local representative or call the Bioclimatic service number for the specifications of the proper replacement filters for your unit.

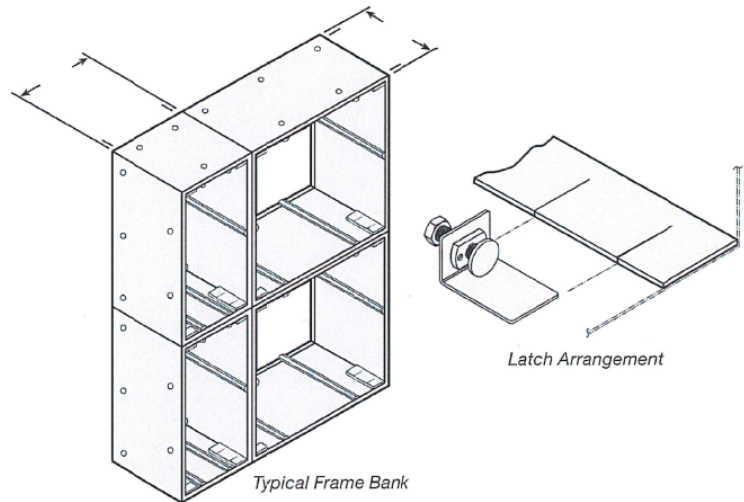
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When changing filters, the following procedure must be followed:

1. Turn off fan and lock in OFF position.
2. Unlatch access panels and inspect gasketing. (Replace damaged or worn gasketing.)
3. Use protective masks. Remove the used filters taking care not to disturb the filters and cause dusting inside the equipment.
4. Vacuum or wipe clean the holding frames.
5. Remove and inspect the new filters from their carton (do not install damaged filters or those that appear to be defective) and install in accordance with the manufacturer's instructions. Take care to install the HEPA filter securing the pressure bolt latches for positive sealing to prevent bypass.

Do not install damaged filters or those that appear to be defective. Periodic filter replacement will result in proper airflow, filtration, and system performance.

Note: Make sure that airflow arrow on the filter or module points in the direction of airflow through the unit.



5.5 Gas Phase Filter Media

The life of the media will vary depending on the contaminants present and their concentration. A predetermined schedule for media change-outs is **NOT** recommended since it may result in establishing an incorrect maintenance schedule. In order to obtain the maximum operating time from the gas filtration media, Bioclimatic offers a Laboratory Service to inform the customer of the remaining media life and the correct time to change the media.

Special Precautions for Handling Gas Filtration Media

Keep replacement media modules in their protective plastic wrapping until ready for use. Premature exposure to ambient air may reduce the usable lifetime of the media.

Inhalation

A well-ventilated work area is suggested for changing the media, since dusting from fresh pellets results due to handling abrasion. In closed unventilated spaces, dust masks, such as the 3M No. 8500 are strongly recommended. Avoid direct inhalation of media dust. Refer to Material Data Sheets.

Water

DO NOT expose the Gas Filtration Media pellets to water or moisture since this will cause leaching of permanganate or other impregnate. Exposure of permanganate solution to the skin will stain but will not burn or blister. The staining condition is temporary. This staining may be neutralized by washing in a solution of sodium bisulfide.

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Eye Contact

In the event that eyes or other sensitive areas are exposed to media dust, flush thoroughly with water and seek treatment from a physician, for exposure to abrasive dusts. Refer to Material Data Sheets.

Laboratory Service (Media Life Analysis)

Laboratory Service is a support system offered to our customers. This service will ensure timely media change out for cost effective and efficient system operation.

Media Sampling Procedure

1. Remove module from filter bank. (Tag module as "Test" module). Empty contents of module into a box.
2. Take four separate one cup samples from different areas of box.
3. Place samples of media into a clean container.
4. Mix contents thoroughly.
5. Fill a plastic lined sample bag from the prepared media sample. Label bag. Refill and reinstall module. Sample bags can be obtained from Bioclimatic.
6. Enter the date on the media sampling label located on the inside of the housing door.
7. Label the sample bag and ship to:

Bioclimatic Air Systems
600 Delran Parkway
Delran, NJ 08075
Attn: Laboratory Services

Disposal

Dispose of in accordance with federal, state, and local regulations. In general, unless the contaminant of concern is a strictly regulated compound, poison, or toxin the modules typically can go to a landfill.

5.6 Gasket Replacement

After a period of operation, the gasketing on the unit may need to be replaced. It is important to replace it only with **closed cell neoprene gasketing**. Do not use rubber gasketing, as it is not suitable for use in this application.

06 PRODUCT NUMBERS*

Filters

Standard Size Particulate Filters for MERV 8, 11, 13, 14 & 16
12x24x2
20x25x2
24x24x2
16x20x2
18x20x2
12x24x4
16x20x4
18x20x4
24x24x4
12x24x6
24x24x6
12x24x12
24x24x12

Media

Gas Phase Media Available in Throw-Away Panels, Bulk Media, Half-Size or Full Size BD18 & BD12 Modules
BS100
BS100XL
BS135
BS135XL
BS145XL (only available in panels)
BS900
BC200A
BC300
BC400 (only available in panels)
BC700B or C

*If your specific model is not listed please contact the factory at:
1-800-394-3458 for operating instructions, safety information and replacement parts or service.