

INSTALLATION, OPERATION & SYSTEM MAINTENANCE

Camfil Job #: G19671
Camfil P/N: MP5S6Z001

Disclaimer

Before proceeding with installation, operation or maintenance, review this Installation, Operation, and Maintenance Manual and all safety procedures with your company's safety personnel.

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Camfil is committed to providing air filtration products, which meet or exceed our customer's expectations. We are dedicated to a corporate-wide policy of continual improvements as a means of ensuring our leadership position in the air filtration marketplace.

Carefully study this manual and your safety personnel's amendments so that you have the safety and the entire process in mind before initiating installation, operation or maintenance.

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1 Safety Information

Prior to any maintenance being carried out, a full risk assessment should be performed. Ensure proper personal protection equipment and adhere to local regulations when servicing.

Read instructions before starting!

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1.1 Safety Considerations

- Before starting to work on the system, all safety and health protection decrees must be abided.
- Never drill or grind through, weld to, or otherwise penetrate the interior or exterior of the filtration system, housing, collectors, etc.
- Check the system for any visible damages. If there are any visible damages, inform your supervisor.
- Never perform any maintenance while system is under operation.
- Motor can get very hot under operation, take special care and avoid contact with motor
- **Check with facilities safety officer to make sure the system is clean or has been properly decontaminated before accessing.**

2 Introduction

Camfil's Procarb Horizontal Deep Bed (HDB) systems are durable cost effective molecular filtration solutions for industrial supply or exhaust streams. These systems have been designed to meet the filtration needs of industrial facilities that handle odorous and toxic gases. The emissions are controlled by pre-filtration (if applicable) and a single deep suspended carbon media bed in a horizontal orientation completely sealed in a steel housing. The carbon media is used in a "Horizontal Deep Bed" configuration configured for vertical airflow, allowing a single deep suspended bed of carbon media to cover the entire surface area of the airpath. This configuration creates an inherently leak free system, ensuring zero air bypass of the media.

Note: The media bed must be protected from particulate matter, which can cause a blockage, an increase in pressure loss, and potentially a reduction in flow rate. A prefiltration unit is recommended to be installed upstream from the carbon media.

This system is inherently leak-free when filled with the appropriate carbon, and provides extremely high removal efficiencies. Media selection, flow rates, and pressure losses, are critical during the design process. Consideration has been given to ensuring that issues such as motor sizes, power consumption, noise, space, accessibility, service life etc. have been optimized.

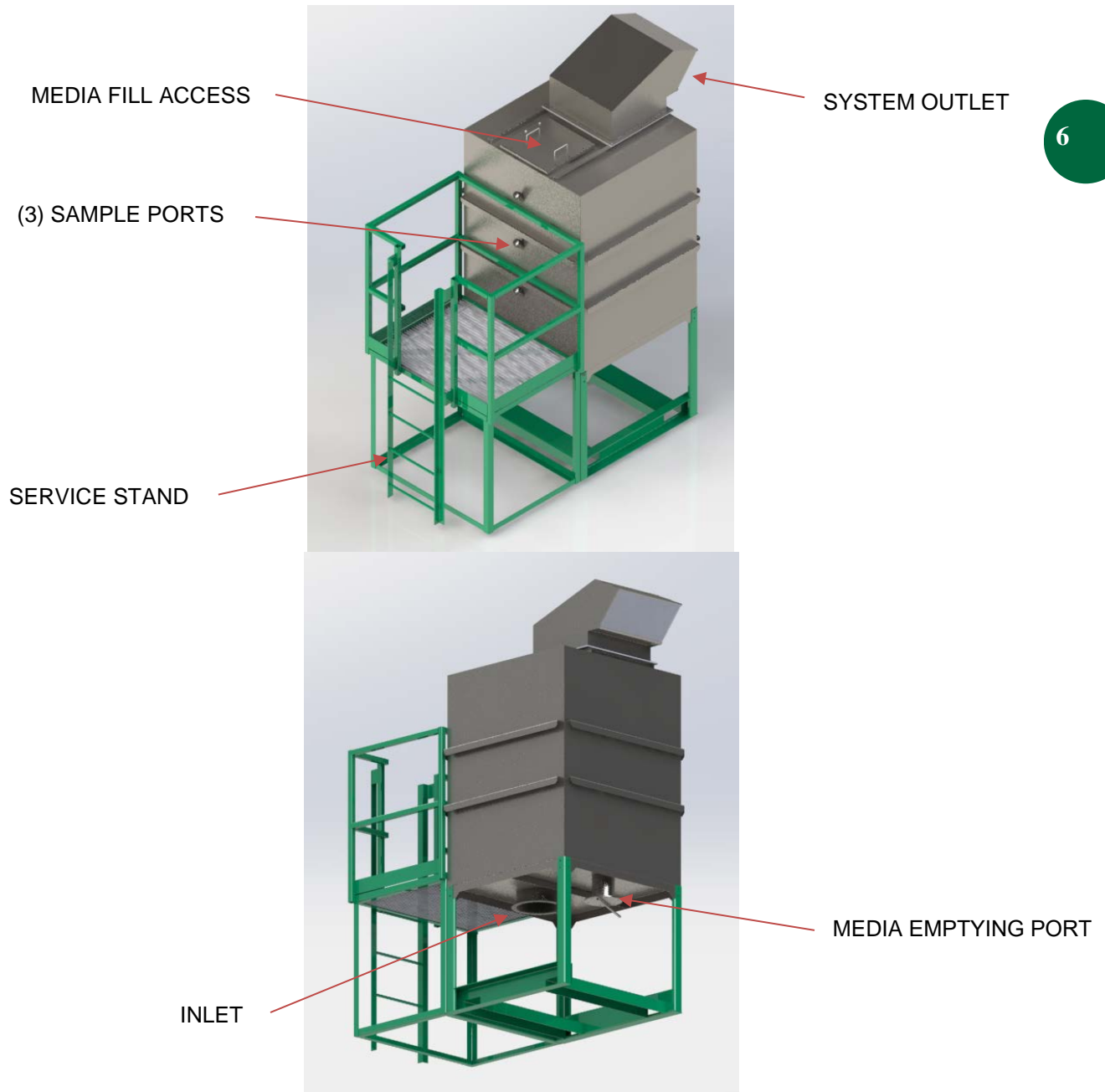
2.1 Features

- Convenient gravity removal port.
- Can be used with multiple layers of media
- Aluminum or stainless steel construction
- 316/L stainless steel media support screen
- Allows for compact rectangular footprint

2.2 Options

- Fan
- VFD speed control
- Sight glass for visual media inspection
- Sampling port
- Access platform and ladder

2.3 Main Components



3 System Start up

3.1 Positioning the Unit

Due to the weight of the units, pay special attention to the strength of the foundation. In most applications, level concrete slabs are best suited for the system placement. System should be properly anchored to the foundation to eliminate racking, misalignment or tipping of the unit. Consult with your engineer to determine the proper base and anchoring systems. System shall be located with adequate room to allow for periodic maintenance. When positioning the unit ensure that test ports, service access, and inlet/outlet remain accessible. Service clearances can vary depending on the equipment being used for loading and unloading of media. Please contact your sales representative for recommended service clearances.

3.2 Media Filling

Filling of system is critical for proper system operation, only use media specified for the unit to allow system to operate to its maximum efficiency. Refer to table below for media capacity.

Model	Required Media	Media Volume	Media Depth
HDB-170 (P/N: MP5S6Z001)	Camfil Molecular Filtration Medias	60 ft ³	30 inches From screen (Nominal)

3.3 Media Filling Procedure

1. Disconnect power supply to blower.
2. Locate media service access on top of the unit.
3. Remove all access screws and remove cover.
4. Pour media in to opening to fill the horizontal bed.
5. Rake media to ensure a level bed media bed height.
6. Install access cover and tighten bolt evenly.
7. Reconnect power supply.

4 Media Replacement

In normal use, the carbon media will progressively become saturated with contaminant. Consequently, the removal efficiency will deteriorate due to media saturation and will require media replacement.

Depending on the size and arrangement of the system; media replacement may require specialized industrial equipment. Apart from the provision and loading of new material, it is essential that the disposal of the expended media is compliant with all your local regulations.

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*Note: Sampling media for analysis of remaining life is recommended to establish a scheduled service interval.

4.1 Procedure

1. Disconnect power supply to blower.
2. Locate media service access on top of the unit.
3. Remove all access screws and remove cover.
4. Locate media drain located on the bottom of the unit.
5. Remove bolts leaving one to allow cover to be used as flow control.
6. Collect expended media into a suitable transfer containers until media flow stops.
7. From the top fill access sweep remaining media towards the drain port.
8. Install drain cover and tighten bolts evenly.
9. Refer to media filling for refilling of media (sec. 4.3)

Note: If needed, expended media can be removed by vacuuming using top access fill ports.

5 Maintenance Schedule

The filtration system is essentially passive in operation, and therefore requires little routine maintenance. Other than routine media servicing and visual inspection checks, no additional maintenance is required to maintain proper system performance. The filtration media will require replacing when media is saturated with contaminants.

5.1 Media Sampling

It will be necessary to check the condition of the media with reasonable frequency, to ensure that the media is still offering a high level of contaminant removal. Using a sample probe, check media by taking a sample of the media utilizing the three (3) 1 ½" NPT test ports located on the side of the unit and send individually labeled samples for lab analysis. Media sampling schedules vary from application to application; the standard recommendation is to sample every 90 days and send for analysis until routine sampling and media replacement can be established.

5.2 Equipment

Take proper safety precautions when sampling is performed. The following PPE is required:

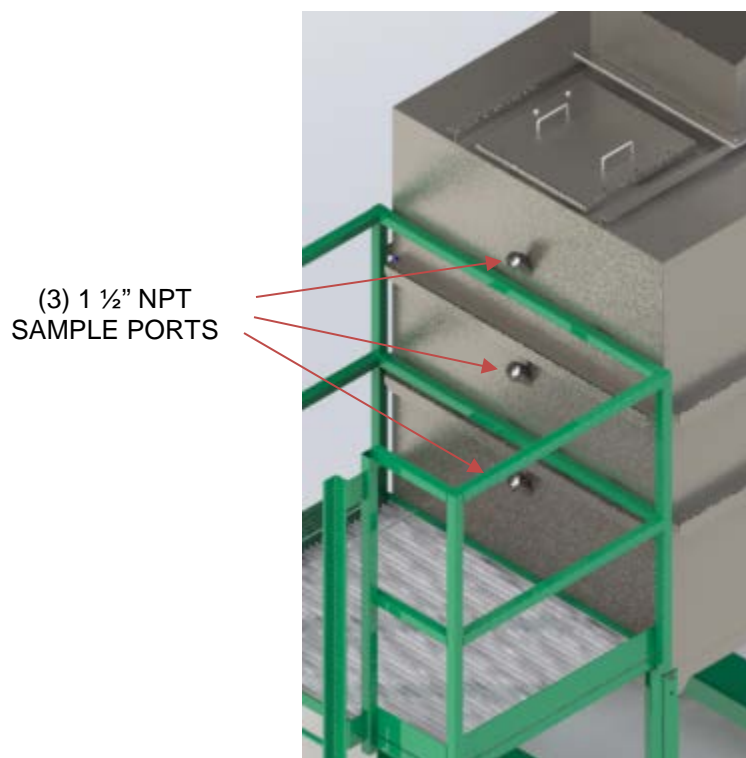
- Safety Gloves
- Dust mask
- Sampling probe (probe cannot be more than ¾" in diameter)
- Sealable jars or plastic bags
- Tape for sealing jars and plastic bags (1/2 Liter or 16 oz is required per sample)
- Test request forms and permanent marker pen

5.3 Procedure

1. Disconnect power supply.
2. Access the three test ports located on the side on the system.
3. Beginning from the top media sampling port, remove the cap.
4. Set sampling probe to the open position.
5. Insert probe into sampling port to a maximum depth of 8".
6. Close sample probe and remove it from the unit.
7. Place the media contents into a carbon sample container and label with sample port location (top,center,bottom) .
8. Identify each sample with information listed in the media testing request form. (refer to pg. 12 for the testing request form).
9. Install cap back on sample port.

10. Repeat steps when taking samples from the center and bottom sample port.
11. Send samples along with the testing request form to:

Camfil USA - Molecular Filtration Lab
200 Creekside Drive
Washington, NC 27889



5.4 Visual Inspection

The system should be periodically inspected and routine maintenance checks or other planned surveillance should be performed. Check each system for torn gasket, broken welds, screen punctures, or any other indication that the system's ability to contain the process airstream has been compromised. Prior to filling unit with new media, perform a visual inspection for any signs of damage to the perforated screen or media support structure.

5.5 Spare Parts and Accessories

Please contact Camfil for spare parts. When placing an order for replacement parts, please provide Camfil with the original job order number and housing model number. This information can be found on the housing label.

MolecuLab Testing Prices			
Test description	Test Standard	Camfil P/N	Net Price per test
Apparent Density	ASTM D 2854	MLAB00001	-
Particle Size Distribution	ASTM D 2862	MLAB00002	-
Total Ash Content	ASTM D 2866	MLAB00003	-
Moisture Content - Oven Drying Method	ASTM D 2867	MLAB00004	-
Moisture Content - Xylene Extraction Method	ASTM D 2867	MLAB00005	-
Ball-pan Hardness	ASTM D 3802	MLAB00006	-
pH of Activated Carbon	ASTM D3838	MLAB00007	-
Butane Activity	ASTM D 5742	MLAB00008	-
Volatile Matter Content	ASTM D 5832	MLAB00009	-
KMnO ₄ content of used Campure media	Camfil TM 2-10-20	MLAB00010	--
KOH Content of used media	Camfil TM 2-10-34	MLAB00011	-
CamPure Coupon Analysis	ASTM B 825	Contact Camfil	-
Testing packages:			
Butane activity, moisture content		MLAB00101	-
Butane activity, apparent density, volatile matter content, moisture content		MLAB00102	-
Blend analysis - Carbon butane activity, moisture content - KMnO ₄ content, moisture content		MLAB00103	-
<p>Notes:</p> <ol style="list-style-type: none"> Quantity required per sample is ½ liter. Please send sample(s) to: <ul style="list-style-type: none"> Camfil USA - Molecular Filtration Lab 200 Creekside Drive Washington, NC 27889 Please be sure the samples are legibly identified and please include a media testing request form for each sample. Rebate: Camfil offers account credit for lab testing that leads to sales of molecular filtration products. Customer may be eligible for 0 – 100% of the cost of lab testing. Please fill out a lab testing credit form and submit with the future purchase order that results from the testing. 			

Adsorbent / Absorbent Testing Request Form			
Company:		Date of request:	
Person Requesting testing:			
Contact information (e-mail / phone):			
Type of testing requested:			
Manufacturer of media:			
Media type / model:			
Media application / process:			
Installation date of media:			
ID number of media sample (to also be marked on sample container):			

Please complete form (for each sample) and send along with sample(s) to:

Camfil USA
 Molecular Filtration Lab
 200 Creekside Drive
 Washington, NC 27889

Please contact Will Watts at will.watts@camfil.com (252) 975-1141 with any questions.



200 Creekside Drive
Washington, North Carolina, USA 27889
Phone: (252) 975-1141
Fax: (252) 975-1041
Email: SalesWA@camfil.com

North American Manufacturing Locations

Jonesboro, Arkansas • Riverdale, New Jersey • Corcoran, California • Delano, California • Crystal Lake, Illinois
Holly Springs, Mississippi • Laval, Quebec • Conover, North Carolina • Washington, North Carolina • Concord, Ontario

World Wide Manufacturing Locations

Belgium • France • Germany • Ireland • Malaysia • Sweden • Switzerland • United Kingdom

Camfil USA, Inc.

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Camfil has a policy of continuous research, development and product improvement. We reserve the right to change designs and specifications without notice.