

## INNORACK® 3.5 MOUSE

# HEPA Challenge Test Procedure

v11/20

The purpose of this document is to ensure that the Innovive blower system meets HEPA standards. This test validates proper HEPA frame construction and HEPA media quality. Additionally, this test validates the seal integrity in the Innorack® supply and exhaust blower assemblies.

### EQUIPMENT

- An aerosol generator capable of delivering a minimum challenge concentration of 10 µg/L of air (Innorack® Blowers operate @ 20 to 40 CFM)
- A calibrated particle-detecting photometer having a nominal sampling flow rate of 28.3 L/min (1 CFM)
- Flexible hose (4" Diameter, ~5' Length) - x 2
- HEPA Test Supply Top – Contact Innovive for ordering information
- HEPA test duct connector
- Bungee cord



### WARNING!

**POWER SUPPLY MUST ALWAYS BE OFF WHEN  
CONNECTING AND DISCONNECTING TO BLOWERS.**

### PROCEDURE

Each blower must be removed from the rack before performing the test.

1. Disconnect the power supply and the controller from the blowers.
2. To remove the supply and exhaust blowers from the rack, depress the clips and tilt the blower back towards the center of the rack. Slide the blower slightly forward and lift it up off of the rack.
3. Remove the power supply and controller from the rack.
4. Place all blowers, the power supply, and the controller on a flat surface. Rotate the blowers onto their sides.



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## EXHAUST BLOWER TEST

1. Plug the power supply cable and controller cable into the side of the exhaust blower as shown below:



2. Attach both flexible hoses to the Inline Centrifugal Duct Fan as shown below:



**NOTE: Use the variable transformer to control the flow output of the aerosol-mixing fan to  $\leq 10$  CFM.**

3. Attach flexible hose to HEPA test duct connector as shown below:



4. Using the bungee cord, strap the HEPA test duct connector over the hole on the bottom of the exhaust blower. Position the adapter with the flange against the sidewall of the exhaust blower as shown below:



5. Turn the power supply on and wait for the controller to boot up.
6. Simultaneously press and hold the bottom left and right controller buttons for 3-4 seconds to bring up the configuration screen.

7. Navigate to the HEPA Test screen by pressing the “Down” button until you reach the “HEPA Test” tab as shown below:



8. Press “Start” to detect the blower. The blower configuration will highlight.
9. Press “Begin Test”.
10. Wait for the fan RPM to stabilize.
11. Insert the outlet of the aerosol generator into the flexible hose connected to the inlet side of the mixing fan.
12. Poke a small hole in the flexible tube and insert the photometer probe into the opening as shown below:



13. Turn the aerosol generator on and adjust until the photometer reads between 10 and 50  $\mu\text{g/L}$  concentration upstream of the HEPA filter.

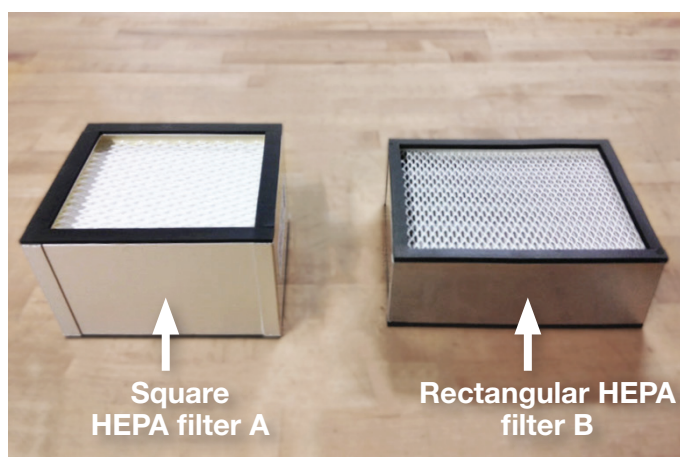
14. Record the aerosol concentration and adjust the photometer to read the upstream concentration as 100%.



15. Place the photometer probe inside the exhaust port of the exhaust blower as shown below:
16. Concentration should be  $\leq .03\%$ .
17. Press “Done” on the controller.
18. Turn the aerosol generator and power supply off. Remove the flexible hose and unplug the power supply and controller cables from the exhaust blower.

## SUPPLY BLOWER TEST

1. Remove the **Supply Blower** top. Examine the shape of the HEPA filter contained within:



- a. If blower unit contains a square HEPA filter A (see above), refer to the addendum section on pages 7 & 8 before proceeding to Step 2.
- b. If blower unit contains a rectangular HEPA filter B (see above), proceed to Step 2.



2. Install the HEPA Test Supply Top to the blower unit. Attach one of the flexible hoses to the HEPA Test Supply Top using the supplied hose clamp as shown below:



3. Attach the other end of flexible hose to the outlet side of Inline Centrifugal Duct Fan as demonstrated in Step 2 of Exhaust Blower Test.

**NOTE: Use the variable transformer to control the flow output of the aerosol-mixing fan to  $\leq 10$  CFM.**

4. Attach the power supply and controller cables to the supply blower.
5. Turn the power supply on and wait for the controller to boot up.
6. Simultaneously press and hold the bottom left and right controller buttons for 3-4 seconds to bring up the configuration screen.
7. Navigate to the HEPA Test screen by pressing the “Down” button until you reach the “HEPA Test” tab.
8. Press “Start” to detect the blower. The blower configuration will highlight.
9. Press “Begin Test”.
10. Wait for the fan RPM to stabilize.
11. Insert the outlet of the aerosol generator into the flexible hose connected to the inlet side of the mixing fan.
12. Turn the aerosol generator on and adjust until the photometer reads between 10 and 50  $\mu\text{g}/\text{L}$  concentration upstream of the HEPA filter.
13. Record the aerosol concentration and adjust the photometer to read the upstream concentration as 100%.

14. Place the photometer probe into the rack interface of the supply blower as shown below:



15. Concentration should be  $\leq .03\%$ .
16. Press “Done” on the controller.
17. Turn off the aerosol generator and power supply. Remove the flexible hose and unplug the power supply and controller cables from the supply blower.
18. Remove the HEPA Test Supply Top and place original blower top on supply blower.

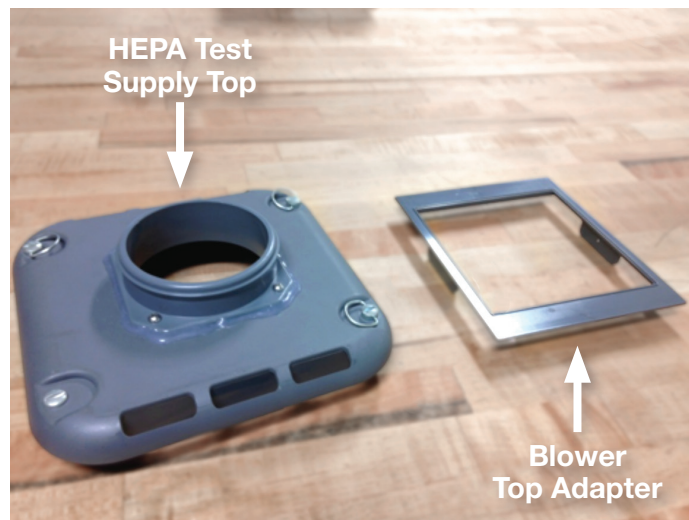
**INNORACK® 3.5 MOUSE**

**HEPA Challenge Test Procedure - Addendum**

If blower unit contains a square HEPA filter A, follow instructions below prior to continuing the *Supply Blower Test* section of *HEPA Challenge Test Procedure*.

**ADDITIONAL EQUIPMENT**

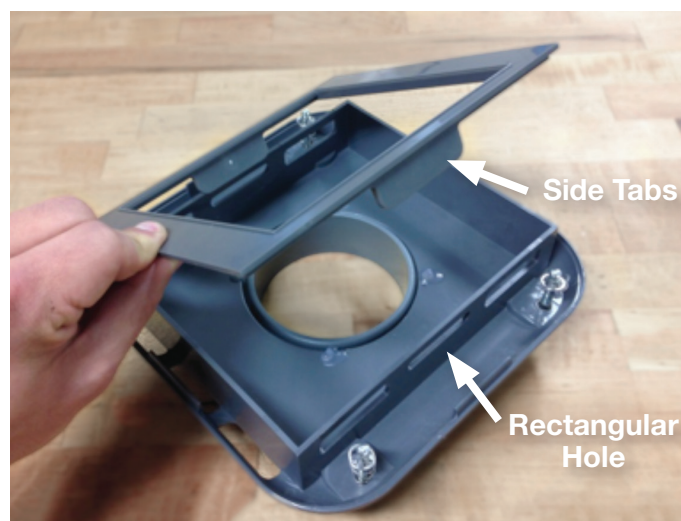
- *Blower Top Adapter - Contact Innovive for ordering information*



**PROCEDURE**

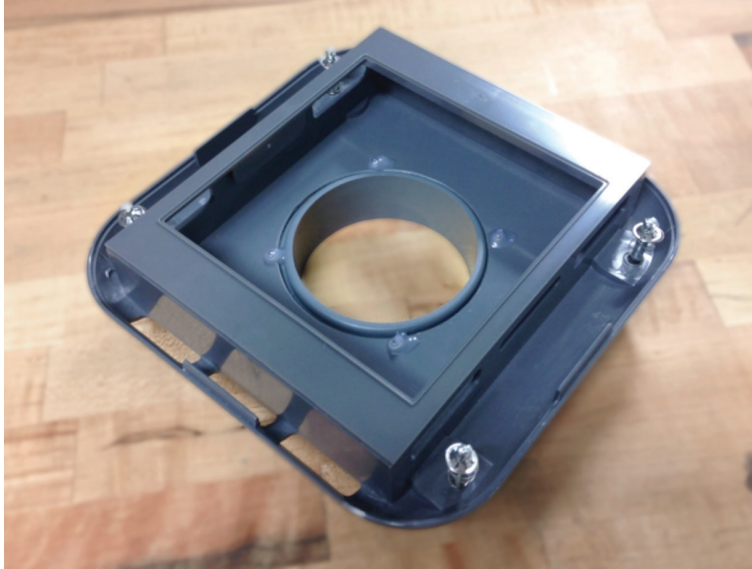
HEPA Test Supply Top must be removed from blower unit prior to performing procedure.

1. With HEPA Test Supply Top upside down, place the Blower Top Adapter in such a way that the side tabs on Blower Top Adapter align with the middle rectangular holes on either side of the HEPA Test Supply Top as shown below:





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2. The Blower Top Adapter will rest on the HEPA Test Supply Top. The finished assembly will look like the image below:



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3. Carefully place and secure the Top assembly on blower, ensuring the two components stay together.
4. Proceed to Step 2 of *Supply Blower Test* section of *HEPA Challenge Test Procedure*.