



Air Cleaners vs Fantech by-pass HEPA

Efficiency and Approval

Electronic air cleaners are fairly effective units for removing large and small particles from the air. They do this by straining the larger particles out of the air with a pre-filter. The remainder of the smaller particles are negatively charged as they pass through ionizing wires (8000+ volts) where they are then pulled onto positively charged collector plates. These types of air cleaners are not recommended by the EPA or the American Lung Associations and are frowned on by respiratory professionals as the units themselves release ozone. Ozone is natural (note mercury, lead and radon are also natural) in the atmosphere, natural occurring ground level ozone combined with man made ozone exceeds safe limits and even at low levels irritate asthmatics and sensitive lungs.

HEPA units on the other hand are recommended air cleaners by allergist and respiratory specialists as well as the American Lung Association and the EPA. Ozone is not an issue with the Fantech HEPA. The Fantech HEPA has a certified HEPA media which is 99.97% efficient at removing particles as small as 0.3 microns in size as well as a 30% pre-filter to protect the HEPA from larger particles and an activated carbon filter to remove odors and other VOCs. It should be noted that electronic air cleaners are only 70% efficient at removing particles 0.3 microns in size and don't become as efficient as HEPA filters (99.97) until the particle is larger than 2 microns. Unfortunately for the electronic air cleaner the particles below 2 micron are the ones that get caught in the deepest part of the lungs causing irreversible damage. Cigarette smoke and radon particles fit into this size range. According to Honeywell deep pleated media is only 15% efficient, 1" 24V powered media is 3%, electronic air cleaners are 72% and standard 1" filters are 0% efficient at removing particles 0.3 microns in size.

Function

An example of how an electronic air cleaner works is to take tape and wrap it around your hand with the sticky side out. Place your hand down on the carpet where the tape gathers a large amount of dirt and fibers. The tape surface represents the collector plates of the electronic air cleaner. Place your hand down again and you collect a lot less. Do it again and you get nothing because the face of the tape, the "collector" is full.

The Fantech HEPA is a by-pass unit which means it takes a portion of the air (10-20%) out of the return of an air handler/furnace, scrubs it of sub-micron particles and returns the clean air back into the furnace. This unit cleans the **total volume** of the air in an average size house, every hour. The misconception about

electronic air cleaners is that they clean the entire air path in the furnace; after all they block all the air. In fact the paragraph above explains that as the collector plates plug quickly, less and less of the particles are removed because there is less surface area for them to attach to and although totally in the air stream the particles increasingly "by-pass" the dirty collectors.

Maintenance

Another major drawback with electronic air cleaners is that they require frequent service. This service should be done at least three weeks and usually consists of removing the unit from the furnace and cleaning the coils in a dish washer. The ionizing wires of the units are brittle and the unit is expensive if its damaged. These systems are rarely cleaned as people are busy and forget about them. After weeks of continuous use, particles that hit the dirty plates explode on impact on impact and release many more particles back into the air.

The Fantech HEPA requires minimal service which consists of replacing the inexpensive pre-filter and carbon media every 3 months, and the HEPA on average, once every 3 years. If maintenance is not performed, the HEPA continues to clean and actually becomes more efficient to a point, over time.

Summary

The Fantech HEPA has many advantages over electronic air cleaner including:

- Higher efficiencies at removing sub micron, health threatening size particles
- Very low maintenance
- Durable unit without fragile wires
- No Ozone to worry about
- Recommended by health professionals
- Easy to retro-fit onto existing duct work
- Can be used in conjunction with electronic air cleaners or other filters
- 3 prong plug in for easy electrical connection
- Easy "plug-in" furnace blower interlock that turns the HEPA on/off
- 7 Year warranty on motor, 5 year on parts
- Can be installed without a furnace/air handler