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The Dynamic V8 Air Cleaning System:
Proven Performance, Proven Savings

The Dynamic V8 is the new standard in air cleaning—outperforming anything on the market in contaminant control, maintenance and cost of ownership.

Designed to meet the rigorous requirements of Green buildings, data centers, hospitals, pharmaceutical and clean manufacturing, the Dynamic V8 Air Cleaning System couples maximum effectiveness with unparalleled energy and operational savings.

The Dynamic V8 utilizes both the principles of existing Dynamic products as well as several important technological advances to create a system that is a quantum leap over the current state of the art.

The Dynamic V8 outperforms anything on the market.
In the past you had to choose between air quality and operating costs: Now you don’t.

The least expensive filter is the one that you never put in.

The New Standard in Air Cleaning

The Dynamic V8 provides MERV 13 performance more efficiently than either traditional non-ionizing filtration systems or ionizing options. It is constructed to eliminate bypass, a critical issue for maximum performance. Further, because of the various mechanisms of the Dynamic V8, the MERV results underestimate the real-world effectiveness, as shown below. A typical MERV 14 passive filter will have better performance, but over 1.1 ounces of dust particles. In actual installations, levels of ultra-fine particles and black carbon from vehicle exhaust were over 90% lower than outdoor levels.

In a highly urban environment, the Dynamic V8 provided indoor air with levels of ultra-fine particles and black carbon from vehicle exhaust that were over 90% better than the levels in the outdoor air.

The least expensive kilowatt is the one you never use.

Minimum Loading

The Dynamic V8 holds up to ten times the dust of standard cartridge and bag filters and up to 180 times the dust of shallow-bed passive filters, as shown in Figure 2. Loading is critical to the ongoing costs of filtration, but is often overlooked or not reported. Unlike passive filters (which load primarily on the face of the media), the Dynamic V8 loads throughout the full 1” depth of each of the eight filters and up to 100 times the dust of shallow-bed passive filters, as shown in Figure 2. Loading is critical to the ongoing costs of filtration, but is often overlooked or not reported.

The Dynamic V8 is completely consistent with the goals of LEED and Green Design: it does more with less: more IAQ, less energy, less time, less waste.

The Dynamic V8 slashes all three to deliver operating costs that are 1/3 that of alternatives.

Typical paybacks are less than three years.

Lowest Life-Cycle Cost/Longest Life

- Energy, maintenance and disposal account for over 50% of the cost of filtration.
- The Dynamic V8 slashes all three to deliver operating costs that are 1/3 that of alternatives.
- Typical paybacks are less than three years.

Longevity

As of September 2012, the first Dynamic V8 installations have been in service for over 4½ years. No filters have been changed. Pressure drop has increased only 2 cfm. The air cleaners will retain 90% of their performance for over 4½ years. No preventative maintenance is required.

Longest Maintenance Cycles

Dramatic loading means a typical maintenance cycle should be over three years. That means no quarterly pre-filter changes and one-month final filter replacements. That saves a lot of time for maintenance personnel to concentrate on other things. Last model change also saves more material cost, less disposal costs and a smaller environmental footprint for the building.

Energy & Carbon Calculations

On a 20,000 cfm air handler, the Dynamic V8 can save up to 30,000 kWh and 40,000 pounds of CO2 per year versus passive alternatives.

OSHPD Seismic Certified

The Dynamic V8 has passed rigid special seismic testing requirements to obtain California OSHPD Certification.

Maximum Energy Savings

Suppose building also achieves the pressure drop less than 0.15 w.g. This means big energy savings and the potential for smaller fan selection.

Energy costs are a major concern for facility managers and are, at current rates, typically 30-45% of the cost of operation, for outstanding results very fast.

A MERV 14 cartridge filter array with pre-filters will consume three times more energy than a Dynamic V8.

Green Design and LEED v4

- The Dynamic V8 is completely consistent with the goals of LEED and Green Design: it does more with less: more IAQ, less energy, less time, less waste.
- The choice for LEED certified projects including the LEED Platinum renovation of ASHRAE Headquarters and hundreds of sustainable Green design projects around the world.
- Exceeds MERV 13 with lower pressure drops that allow lower air speeds, contributing to the following credits:

Filtration: Enhanced IAQ Strategies (LEED) & IAQ Assessment (BD+C, ID&C)

Energy Efficiency: Minimum & Optimize Energy Performance (All)

Acoustics: Acoustic Performance (BD+C, ID&C)
Note on Filter Testing

ASHRAE 52 is what many rely on as an applicable performance test, but it is not truly applicable in the absence of a universally applicable test, and it is not truly applicable for typical atmospheric dust. However, in the absence of a universally applicable test, ASHRAE 52 is what many rely on. As stated in the standard, the MERV test is a test for passive filters (which load primarily on the face of the media), the Dynamic V8 loads throughout the full 1” depth of each of the eight pads. The three-dimensional loading account for the V8’s superior ability to collect contaminants. And the active-field technology tightly holds what has been collected so it is not shed back into the airstream.

Longevity

As of September 2012, the first Dynamic V8 installations have been in service for over 4½ years. No pre-filters are used. Pressure drop has increased only 2.4” w.g. The air cleaners are now over 90% lower than outdoor levels. That means no quarterly pre-filter changeouts and nine-month final filter replacements. That frees up a lot of time for maintenance personnel to concentrate on other things. Less media change also means less material waste, less disposal costs and a smaller environmental footprint for the building.

Longest Maintenance Cycles

Dramatic loading means a typical maintenance cycle should be over three years. That means no quarterly pre-filter changeouts and one-month final filter replacements. That frees up a lot of time for maintenance personnel to concentrate on other things. Less media change also means less material waste, less disposal costs and a smaller environmental footprint for the building.

The least expensive filter is the one that you never put in. And the least expensive kilowatt is the one you never use.
The least expensive filter is the one that you never put in.

In the past you had to choose between air quality and operating costs: Now you don’t.

The New Standard in Air Cleaning
The Dynamic V8 provides MERV 15 performance at MERV 8 operating costs and can generate positive air pressure control with 99.91% efficiency on 0.3 micron particles. It is constructed to eliminate bypass, a critical issue for maximum performance. Further, because of the various mechanisms of the Dynamic V8, the MERV results endure the real-world effectiveness test, as shown below. A typical MERV 14 passive filter will soon yield breakthroughs on 0.3 micron particles. In actual installations, levels of ultra-fine particles were over 90% lower than outdoor levels.

Lowest Life-Cycle Cost/Longest Life
- Energy, maintenance and disposal account for over 50% of the cost of filtration.
- The Dynamic V8 slashes all three to deliver operating costs that are 1/3 that of alternatives.
- Typical paybacks are less than three years.

Maximum Loading
The Dynamic V8 holds up to ten times the dust of standard cartridge and bag filters and up to 100 times the dust of shallow-bed passive filters, as shown in Figure 2. Loading is critical to the ongoing costs of filtration, but is often overlooked or not reported. Unlike passive filters (which load primarily on the face of the media), the Dynamic V8 loads throughout the full 1” depth of each of the eight 1” Dynamic V-banks. Hence each 2” Dynamic V-bank filter is rated for over 90% of the media and can normally be replaced as a single filter. These three-dimensional loading accounts for the V8’s character and ability to coalesce contaminants. And the active-film technology tightly holds what has been collected so it is not shed back into the airstream.

Longevity
As of September 2012, the first Dynamic V8 installations have been in service for over 4½ years. No filters have been used. Pressure drop has increased only 2” w.g. The air cleaner will have many more months of operation before the media needs to be replaced.

In a highly urban environment, the Dynamic V8 provided indoor air with levels of ultra-fine particles and black carbon from vehicle exhaust that were over 90% better than the levels in the outdoor air.

Results

The least expensive kilowatt is the one you never use.

Maximum Energy Savings
Sustainable building also includes the pressure drop for up to 70,000 cfm. This means big energy savings and the potential for smaller fan selection. Energy costs are a major concern for facility managers and are, at current rates, typically 40-60% of the cost of filtration, for maintaining maximum life. An MERV 14 cartridge filter array with pre-filters will consume three to four times more energy than a Dynamic V8.

Green Design and LEEDv4
- The Dynamic V8 is completely consistent with the goals of LEED and Green Design: it does more with less: more IAQ, less energy, less time, less waste.
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Configurations and Applications
The Dynamic V8 Air Cleaning System is configurable and fine-tuned for a wide range of applications and equipment types. The Dynamic V8 modules can be factory or field installed in the filter section of air handlers configured for high-efficiency passive filtration. Because of its low pressure drop and flat loading curve, the Dynamic V8 can also be used with smaller equipment such as packaged rooftops, fan coils, heat pumps, and VRF units.

Specifications
- MERV rating: 13
- MERV-RC rating: 13-18
- Typical clean pressure drop in an air handler: 1.0-2.4 in
- Typical clean pressure drop in a low flow application: 0.5-1.0 in
- Nominal 20 W/m² increase in pressure drop: 0.5 in
- Input Voltage: 208v

Technology
Like previous generations of Dynamic Air Cleaners, the Dynamic V8 utilizes active-field technology to polarize both media fibers and airborne particles. The polarized particles are then drawn to both the fibers of the media and other particles. This process brings about a deep cleaning of the air.

The Dynamic V8 outperforms anything on the market. Designed to meet the rigorous requirements of Green buildings, data centers, hospitals, pharmaceutical and clean manufacturing, the Dynamic V8 Air Cleaning System couples maximum effectiveness with unparalleled energy and operational savings.

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Dynamic V8 Air Cleaners vs. Passive Alternatives

<table>
<thead>
<tr>
<th>Maintenance Hours</th>
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<th>Energy Cost</th>
<th>Green Design &amp; Environmental Footprint</th>
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Configurations and Applications

The Dynamic V8 Air Cleaner has been field-proven and fine-tuned for a wide range of applications and equipment types. The Dynamic V8 modules can be factory or field installed in the filter section of air handlers configured for high-efficiency passive filtration. Because of its low pressure drop and flat loading curve, the Dynamic V8 Air Cleaner can also be used with smaller equipment such as packaged rooftops, fan coils, heat pumps, and VRF units.

Specifications

- MERV rating: 13
- MERV-NC rating: 15-16
- Typical clean pressure drop in an air handler: 0.02 in. wc
- Typical clean pressure drop in a filter box application: 0.015 in. wc
- Dust required for 0.25 in. wc increase in pressure drops: 2.5 lbs.
- Input Voltage: 24vac

Technology

Like previous generations of Dynamic Air Cleaners, the Dynamic V8 utilizes active-field technology to polarize both media fibers and airborne particles. The polarized particles are then drawn to both the fibers of the media and other particles. This process brings about a deep cleaning of the air.

The Dynamic V8 outperforms anything on the market in contaminant control, maintenance, and cost of ownership.

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