



HEALTHCARE FACILITY

THE CAMFIL ABSOLUTE® VG HEPA FILTERS REDUCED TOTAL INSTALLATION TIME BY 33%, CUT PRESSURE DROP IN HALF AND DELIVERED A PROJECTED SERVICE LIFE OF TEN YEARS

COMPANY PROFILE

North American management company, partnering with over 3,000 healthcare facilities, seeks high-quality building solutions so caregivers can focus on better patient outcomes.

THE SITUATION

The facility is a large and busy 3.5 million sq. ft. hospital with over 800 beds in a major metropolitan area so service interruptions must be kept to a minimum. Most of the air handling units in the facility are configured for three stages of filtration; a prefilter followed by a higher efficiency second stage filter with a HEPA filter as the third and final stage. Three years before, the facility switched to the Camfil 30/30® Dual 9 as their prefilter followed by the Camfil MERV 14A Hi-Flo® ES bag filter in the second stage.

The hospital was pleased with the longer service life, ease of installation and energy-saving features of the Camfil filters in stages one and two. The HEPA filters in stage three were not due to be replaced at that time, but when the local Camfil representative approached the hospital about the Absolute® VG HEPA filter, they were open to evaluating these at the first opportunity. Soon after, nine hundred HEPA filters were scheduled to be replaced and the facility split the order between the Absolute VG and their current supplier's product.

THE ACTION

450 Absolute VG filters were delivered along with 450 of the HEPA filters the hospital traditionally had installed. The Absolute VG filter weighs approximately half as much as the other filter which made the Camfil shipment almost 10,000 lbs lighter. The amount of time and effort required to install both sets of filters was recorded. Once in service and operating under normal conditions, pressure drop readings were taken to calculate the energy usage required to operate each filter. Finally, an evaluation was conducted to determine filter service life.

THE RESULT

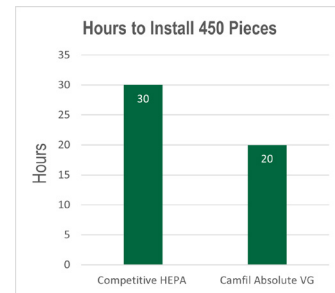
The Absolute VG is nearly 20 lbs lighter than the competitive HEPA. Installation was much easier and safer for the staff. The installation time was reduced by a third compared to the other filter. The usable service life of the Absolute VG in this application was estimated to be a minimum of ten years, twice as long as the HEPA filter they had been using. Pressure drop readings were taken when both filters were installed and operating at rated capacity. The initial pressure drop of the Camfil Absolute VG was approximately half that of the other filter which equates to significant energy savings.



The maintenance staff reported, "the installation time was much quicker and moving the air filters was much easier with less risk of damage due to the handles."

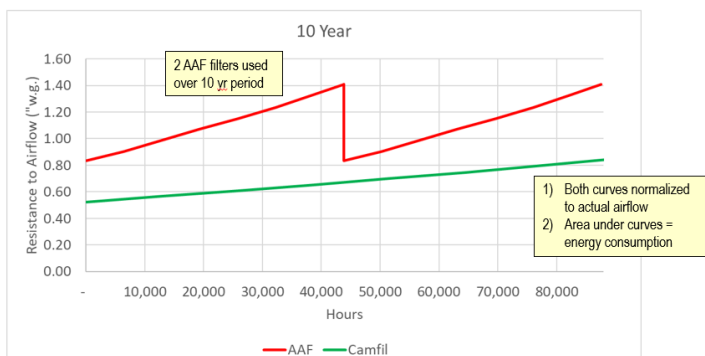
THE PROOF

The time invested to change air filters represents a significant drain on the maintenance staff. There is a multiplier effect that should be considered when calculating cost savings because that time could have been invested on other projects which have their own cost savings. The heavier and cumbersome competitive HEPA filters took 30 hours to install while the Camfil Absolute VG filters required only 20 hours. What's not as easily calculated is the health and safety benefits of handling lighter filters with integrated installation bars.



The energy cost to operate any air filter is significant but particularly so with a HEPA filter due to their higher resistance to airflow. A HEPA filter can have a service life of 10 years and resistance increases as dirt accumulates over the years. A HEPA filter's ability to capture particles while maintaining low resistance over this length of time is critical, but easily overlooked if only the initial resistance to airflow when the filter is brand new is considered.

Projected airflow resistance vs. hours of operation



Resistance projected to 10 years based on extensive analysis beginning at in-service date. Airflow rate in this application was lower than standard. Filter life depends greatly on air quality and proper use of prefiltration.

The initial resistance difference of both filters when brand new is notable, but far from the entire picture. The Camfil Absolute VG began at 0.55" w.g. while the AAF began at 0.82".

However, after five years (43,600 hours) the AAF Astrocel HCX was plotted with a resistance of 1.40" of w.g. at which point needed to be replaced. The Camfil Absolute VG during this same point in time was plotted to have a resistance of only 0.65" and was only halfway through its service life.

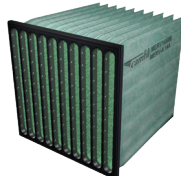
Note the area between the red and green line directly represents the energy consumption difference between the two filters. The relatively close resistance measurements when both filters were brand new is dwarfed over time.

The total cost of ownership is a calculation that includes all the component costs of operating an air filter. While the Absolute VG has a slightly higher initial purchase price, the operational cost of the Astroncel HCX was significantly higher. Not only was the energy cost almost twice as much as the Absolute VG, due to a service life only half as long, the installation and disposal cost doubled. Considering that there are over 900 HEPA filters in the facility, the value of determining the total cost of ownership becomes clear.

Component	Astrocel HCX	Absolute VG	Notes
Service life:	5 years	10 years	
Filter cost:	\$500 (2 @ \$250)	\$650	Over 900 total filters
Energy cost:	\$1,130	\$685	\$0.04/kWh
Installation:	\$60	\$30	\$30/installation
Disposal:	\$10	\$5	\$5/disposal
Total:	\$1,700	\$1,370	



30/30 Dual 9



Hi-Flo ES



Absolute VG

With the addition of the Absolute VG, the hospital has the highest performing air filter in every stage of their air handling units.

- Camfil 30/30® Dual 9 as a prefilter with MERV value of 9/9A
- Camfil Hi-Flo® ES as a secondary/final filter with MERV value of 14/14A
- Camfil Absolute® VG as a HEPA with an efficiency of 99.99%