

Air Filtration - Lifetime Efficiency

Prestigious Hospital Achieves Optimized Air Quality by Choosing Fine Fiber Media Filters over Synthetic Media

Company Profile:

A prestigious healthcare clinic is rated among the top three hospitals in the country with 11 of its specialty areas ranking among the nation's top ten. The facility employs 1,500 full-time physicians and treats 54,000 hospital admissions per year.

The Situation:

With prestige, comes very high expectations from both patients and employees for excellence in all facility systems and conditions. Concerned that their indoor air quality was not optimized, they called in experts to help evaluate the situation. Camfil Farr determined that the bag filters used for final filtration in some of the air handling units were using coarse fiber synthetic media (highly electrostatically charged to get a high initial efficiency). These type of filters were allowing air quality to diminish early in the useful life of the filters. An In-Situ test (air filter testing in systems to capture true operating efficiency versus in a laboratory) would prove that the fine fiber glass media bag filters recommended by Camfil Farr would provide consistent indoor air quality.

The Action:

Two air handling units of equal airflow and close location (24 filters each) were selected to test the existing and incumbent products. The Flanders Precisionaire® 95% efficiency 8-pocket final filter (24"x24"x30") with a charged synthetic media versus a Camfil Farr Hi-Flo® 8-pocket bag filter with fine fiber media at the identical 95% efficiency rating (24"x24"x30") were installed. The test was conducted following Eurovent Standards for in-place filter testing, and the competitor was invited to witness the test. Efficiency was tested at 0.4 microns – the average particle size in outside air. The air handling units used recirculated air which is why filter performance was extremely important.



The Result:

After eight weeks, a second In-Situ test was conducted. The Flanders bag filter was at 54% efficiency versus 86% efficiency for the Camfil Farr product.

In an adjacent air handling unit where the identical Flanders product had been in operation for two years, an In-Situ test revealed an efficiency of only 26%. Thus, the filter dropped its performance dramatically early after installation and never improved. This proves the right product means consistent air quality delivery the entire life of the product with the benefit of energy savings.



“The Hi-Flo filter is higher priced, but not more expensive when filter life and energy savings are added to the equation.”

The Proof:

After the test bank of new filters from Flanders and Camfil Farr were installed, an initial In-Situ test was run. As expected, the Flanders filter had an initial pressure drop of 0.18” while the Camfil Farr Hi-Flo® had an initial pressure drop of 0.30. Charged synthetic medias offer a low initial pressure drop due to less dense fiber structure.

IN-SITU TEST - 8 WEEKS
MERV 14 (90-95% DS)

| Major Hospital | | 8 Weeks | |
|----------------------------------|-------------------|----------------------|-----------------------|
| 24 Filters (Recirculated air) | MFR | Camfil Farr | Precision-air® |
| | Type | Hi-Flo 95/24/24/30/8 | PAP 985S4430 |
| | Media | fine | coarse |
| Initial performance | ΔP (inWG) | 0.30 | 0.18 |
| | 0.4mm Eff. (%) | 85 | 78 |
| Final performance | ΔP (inWG) | 0.30 | 0.19/0.45* |
| | 0.4mm Eff. (%) | 86 | 54/26* |

* 8 weeks/104 weeks

Efficiency is important for all applications, but for a hospital when lives are at stake, it is critical that the filters supplied deliver the required efficiency from day one and throughout the entire life of the filter. Many hospitals under the guise of reducing expenses have switched to coarse fiber charged synthetic medias due to a price savings of about 15% over fine fiber filters. Hospitals require MERV 14 filters, and assume that these filters deliver MERV 14 throughout the entire life, not just for the first month.

Particles that can cause infections are very small. Reflected in the test, the difference between 86% efficiency of fine fiber vs coarse of 54% is a major liability for the hospital, the surgical staff, and the patients.

© Camfil Farr

IN-SITU TEST

