



Air Filtration - Lifetime Efficiency

Government Labs Rely Solely on Camfil Farr Bag Filters to Deliver Peak Performance and Energy Savings

Company Profile:

U.S. Department of Energy facility responsible for developing science-based technologies to support national security in five core areas: nuclear weapons, energy and infrastructure, non-proliferation, defense systems, and Homeland Security.

The Situation:

The research and development center site was facing air quality issues; and, while responsible for energy programs nationally, their own campus was challenged with escalating costs. Camfil Farr identified that the final bag filters in their air handling units were that of highly-charged synthetic (coarse fiber) medias. This media type likely being the cause of rapid efficiency loss in contaminant removal. Camfil Farr offered to conduct an In-Situ test, meaning taking actual efficiency measurements inside air handling units to document air filter performance in “real life” use conditions. By using particle counters and software analysis, this testing could determine the exact performance of their existing product versus the recommended solution by Camfil Farr – a Hi-Flo® bag or pocket final filter constructed with Camfil Farr’s proprietary fine fiber media that maintains its efficiency the entire time in use.

The Action:

Two air handling units of equal airflow and close location were selected to test 12 of the existing incumbent products, a Flanders Precisionaire® 85% efficiency final bag filter (12-pocket) with a charged synthetic media versus a Camfil Farr Hi-Flo 85% bag filter (9-pocket) with fine fiber media. The test was done 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 Result:

The government lab now only buys Camfil Farr product knowing the lab’s filters will maintain peak air quality performance and provide energy savings. Proof came after a series of tests were performed in the lab where Camfil Farr’s Hi-Flo filter outperformed the Flanders Precisionaire filter with the Hi-Flo operating at 38% higher efficiency while at the same time maintaining pressure drop 10% lower than the competitor’s filter.



“After tests reveal significant difference between fine fiber filter media and coarse fiber, government lab undoubtedly makes the switch to fine fiber media.”

The Proof:

After the test bank of new filters from Flanders and Camfil Farr were installed and an initial In-Situ test was run. The Flanders Precisionaire® PAP-12 985S had an initial pressure drop similar to the Camfil Farr fine fiber Hi-Flo® media product but efficiency was 36% lower than the Camfil Farr product.

After only eight weeks (only two months into the operation of a filter that should be in service 18 months or longer) a second In-Situ test was conducted. The Flanders Precisionaire synthetic bag filter was at 26% efficiency versus 64% efficiency for the Camfil Farr Hi-Flo® bag filter and the Camfil Farr recommended product was still operating at a pressure drop 10% lower than Flanders.

IN-SITU TEST - 8 WEEKS

Coarse Fiber vs. Fine Fiber MERV 13 (80-85% DS)

	MFR	Camfil Farr	Precisionaire
12 Filters (100% Outdoor air)	Type	Hi-Flo 85 20/20/15/9	Pocket 85S PAP-12 985S
	Media	fine	coarse
	Quantity	12	12
	Initial performance	ΔP (inWG)	0.48
	0.4mm Eff. (%)	63	42
Final performance	ΔP (inWG)	0.56/0.61*	0.60
	0.4mm Eff. (%)	64/64*	26

* 8 week /21week

IN-SITU TEST - 8 WEEKS

Fine Fiber vs. Fine Fiber MERV 13 (80-85% DS)

	MFR	Camfil Farr 21 weeks	Precisionaire 8 weeks
12 Filters (100% Outdoor air)	Type	Hi-Flo 85 20/20/15/9	Pocket 85G PAP-12 985G
	Media	fine	fine
	Quantity	12	12
	Initial performance	ΔP (inWG)	0.48
	0.4mm Eff. (%)	63	52
Final performance	ΔP (inWG)	0.61	1.04*
	0.4mm Eff. (%)	64	58*

* 8 week data as AHU was starved for air

The government facility then challenged Camfil Farr to test the fine fiber Hi-Flo bag filter against the Flanders fine fiber fiberglass bag filter PAP-12 985G. The challenge was worth taking due to Camfil Farr's tapered stitch bag and proprietary media. After only eight weeks, the Flanders product was at over 1" pressure drop indicating time to change; while the Camfil Farr Hi-Flo bag filter after 21 weeks was only at a 0.61" pressure drop, and just as importantly, was at a 10% higher efficiency level than the Flanders product after only eight weeks in service.



Synthetic Coarse Fiber (400X Magnification)



Fine Glass Fiber (400X Magnification)