

## Air Filtration & Energy Savings

### End User Finds Camfil Farr Filters to Provide Longer Filter Life, Optimal Energy Savings and Lower Total Cost of Ownership

#### Company Profile:

Multi-billion dollar, global pharmaceutical manufacturer.

#### The Situation:

The manufacturer was faced with whether or not to renew a five-year filter contract with their current HVAC filter vendor.

With 15 manufacturing sites in North America and Puerto Rico and multiple global locations, their current supplier was 'happy' supplying replacement filters with no added value. Over the last five years, the end user made major investments in new facilities. Camfil Farr has, and is currently supplying all 'new construction' equipment, Pharmaseal®, Pharmatain™, Megalam®, BIBO and Camtain™ (BIBO Dust Collectors) are the products of choice.

#### The Action:

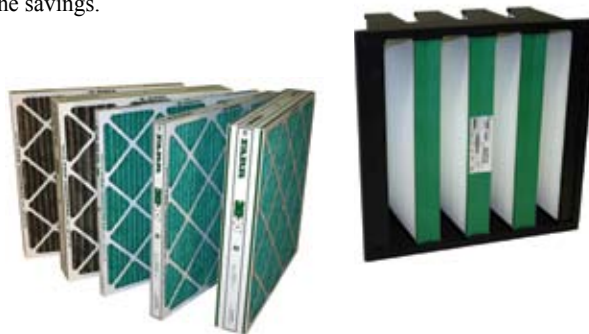
Camfil Farr educated the end user on how investing more dollars initially with Camfil Farr extended surface HVAC filters would extend life, reduce change frequency, and cost less from a 'TCO' (Total Cost of Ownership) point of view. Camfil Farr also explained the importance in using fine fiber (glass) media in critical (if not all) applications and understand the risks related to the less costly (and less efficient) coarse fiber (synthetic) media.

Multiple North America sites were surveyed, In-Situ tests were conducted at several facilities, and the Camfil Farr recommended combination of 30/30® and Durafil® was demonstrated showing the significantly lower pressure drop. Proof was also provided that their current supplier's filter performance was 50% lower in efficiency than their published data.



#### The Result:

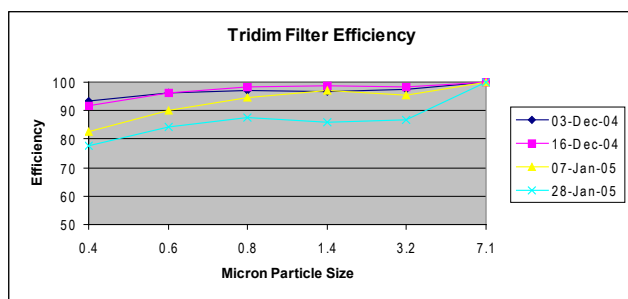
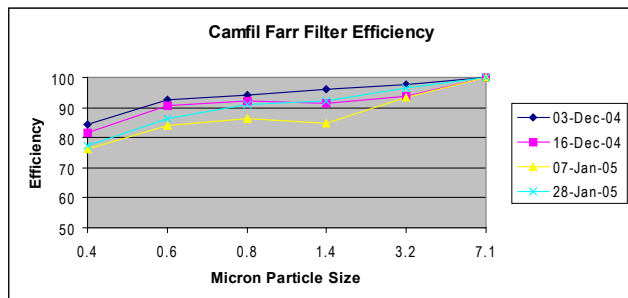
The end user created a specification based on providing filters that met a certain pressure drop and efficiency criteria. Of the original eight vendors asked to participate in the bid, only four stayed in the process. Camfil Farr was successful even though the pricing was 30% higher than the nearest competitor based on 'first cost.' The success resulted from the Camfil Farr '5-Star' products outperforming the others and proving a \$1.2 million savings. At 0.15 cents a kw/hr in Puerto Rico, energy reduction was obviously the major contributor in the savings.



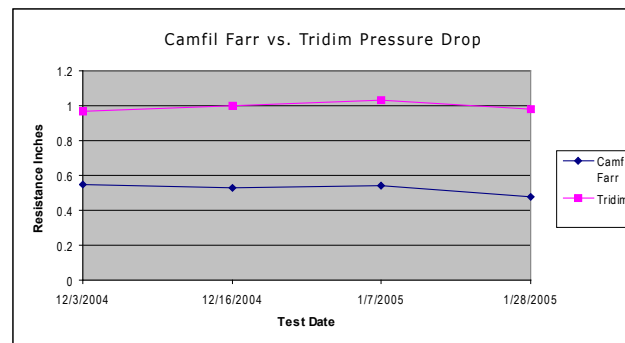
“The selected Camfil Farr ‘fine fiber’ filters were 30% higher in initial cost, but the filters will deliver a \$1.2 million annual savings.”

### The Proof:

The field tested filter efficiencies were fairly similar. Looking at the E1 particle size (.3-1 micron) (this particle size range is used by ASHRAE for testing the filter efficiency in this efficiency range), the Camfil Farr initial efficiency was approximately 90%; had a minimum of 82%; and its last efficiency (1/28/05) was 85%. The Tri-Dim® initial efficiency was approximately 95% but continually dropped in efficiency. Its last efficiency (1/28/05) was 83%.



The filter pressure drops tested in the field were quite different. Camfil Farr and Tri-Dim pressure drops were fairly flat over the approximate 60-day period. The pressure drop differences were very dissimilar. Camfil Farr DP averaged 0.53", while the Tri-Dim DP averaged 1.00". The velocities through the two different AHU filter banks were very similar, at approximately 365 fpm. The fan energy penalty cost, from using one 24" x 24" filter set supplied from Tri-Dim, compared to Camfil Farr would be approximately \$80.00 per year.



The cost of these filters are roughly the same at approximately \$35.00, with the Camfil Farr lower DP filters costing about 10% more. Based on the additional \$80.00 energy cost per year of using the Tri-Dim filters versus the Camfil Farr filters, the economic result of installing Camfil Farr filters was better.

Filter Comparison	Tridim Filter TCO theoretical data		Camfil Farr Filter TCO theoretical data		Current Configuration Camfil Farr Filters (No Spacers)		Camfil Farr Optimized Configuration (Spacer)	
	3A	2B	3A	2B	3A	2B	3A	2B
Average Air Velocity (fpm) Actual	NA	NA	NA	NA	500	449	500	449
Average Air Velocity (fpm)	400	400	400	400	NA	NA	NA	NA
Average Resistance (in. wg) after 170 days Actual	NA	NA	NA	NA	0.81	0.67	0.65	0.56
Average Resistance (in. wg) after 170 days @ 400fpm	NA	NA	NA	NA	0.65	0.59	0.52	0.50
Average Resistance (in. wg) after 365 days @ 400fpm	1.26	1.26	0.56	0.56	0.67	0.63	0.55	0.54
Annual Energy Costs @ current Air Velocity	NA	NA	NA	NA	\$5,453	\$4,059	\$4,376	\$3,575
Annual Energy Costs @ 400fpm	\$7,015	\$7,015	\$3,159	\$3,159	\$3,501	\$3,177	\$2,962	\$2,854
Annual Saving over current	\$0	\$0	\$3,865	\$3,865	\$3,514	\$3,838	\$4,053	\$4,161

Note: At 500fpm, the filter loads faster than anticipated by the TCO 400fpm.