

Air Filtration - Hi-Flo® ES Lasts Longer

Leading Confections Maker Gains Longer Filter Life and Reduces Labor and Maintenance Costs

Company Profile:

A market-leading manufacturer of gums and candies with worldwide distribution and a reputation for high quality products.

The Situation:

Dry ingredient processing presented filtration challenges to the US-based food and snack manufacturer. The production environment generated large volumes of heavy particulate which would slow or stop production if not managed properly.

There were several small rooftop air handling units (AHUs) equipped with sliding metal frames and sub-MERV 8 pleated roll media filters. Aggressive particulate loading caused the differential pressure to increase quickly after each filter installation, which caused weekly labor-intensive change-outs in order to maintain required airflow. The facility also had larger AHUs where the particulate loading was even heavier. The units had a bank of 2" deep MERV 8 Koch pleated filters, which were ill-equipped for the heavier volume. The differential pressure increase of the pleated filters also resulted in costly, time-consuming change-outs every seven to 14 days.

The process of frequently changing filters to maintain production schedules was an ongoing maintenance issue and represented a significant cost burden to the plant in labor, material, and logistics.

The Action:

Camfil representatives proposed testing the high capacity Hi-Flo ES MERV 11 bag filter in the small and large AHUs because the proven higher efficiency of the Hi-Flo ES would be able to capture a greater percentage of particles and operate at a lower resistance to airflow. The Hi-Flo ES could extend the time between change-outs, reduce maintenance costs, and lower energy and labor expense.

In the small AHUs, the Hi-Flo ES 12" deep, 10-pocket bags offered



three times the available filter surface compared to the previous product. In the larger AHUs, the 30" deep bags provided five times the surface area versus the original solution.

The Result:

Remaining in service nearly two months, the Hi-Flo ES differential pressure tested at .24" w.g in the smaller AHU – a 68% improvement compared to the .75" w.g. reading of the original pleated roll media filter that required weekly change-outs. In the larger unit, the 30" Hi-Flo ES differential reading was recorded at .67" w.g. after being in service 86 days; whereas the 2" Koch filter differential pressure recorded at 1.25" w.g. after only 10 days. Based on maintenance records, the Koch filter would need to be replaced six times in attempt to sustain the performance delivered by the Hi-Flo ES.



“The Hi-Flo ES lasting longer saved 26% in annual filtration expenses.”

The Proof:

Air Handling Unit 11

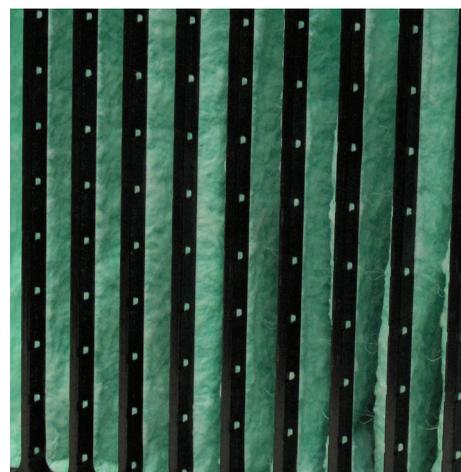
AHU-11 was the smaller unit selected to test the 12" filter bags. Prior to testing, a differential pressure reading taken on the existing, competitor products showed .75" w.g. At the time of installation, the new Hi-Flo ES bags measured .24" w.g; readings were taken regularly to monitor the progress. The Hi-Flo ES test bags remained in service nearly two months.

After 52 days, the differential pressure for the 12" Hi-Flo ES bags installed on AHU-11 was .58" w.g. Maintenance records showed the previous roll media would have been replaced about eight times at this point, resulting in high labor and filter costs - and a veritable mountain of landfill waste.

Air Handling Unit 22

AHU-22 was the larger unit selected to test the bags in an environment containing heavier particulate. Prior to removing the Koch 2" MERV 8 pleats, the differential pressure was recorded at 1.25" w.g. and the pleats were beginning to collapse inward. At the time, these filters had been in-service for 10 days. The 30" deep Hi-Flo ES bags were installed and their initial pressure drop was .1" w.g.

After 86 days, the differential reading for the 30" Hi-Flo ES bags installed on AHU-22 was .67" w.g. Maintenance records showed the previous pleated filters would have been replaced about six times within the same timeframe.



Hi-Flo ES
12" Deep
MERV 11
Before



Hi-Flo ES
12" Deep
MERV 11
After

Total Cost of Ownership Comparison

Unit	Filter Style & Description	Size	Filter Count	Product Cost	Filter Life (days)	Filter Changes per year	Annual Product Cost	Labor Cost for Filter Changeouts	Disposal Cost @\$2.00	Annual Cost per Unit
AHU- 11 'smaller unit'	sub-Merv 8, synthetic pleated roll media loaded in sliding frames	24x25x1	17	\$3.00	7	52	\$2,652.00	\$3,900.00	\$520.00	\$7,072.00
	Merv 11, Hi-Flo ES 12" deep, 10 pocket bag filter	24x25x12	17	\$48.00	73	5	\$4,080.00	\$200.00	\$50.00	\$4,330.00
AHU- 22 'larger unit'	Koch Multipleat 2" Merv 8	24x24x2	22.5	\$5.00	10	35	\$3,937.50	\$3,500.00	\$350.00	\$7,787.50
	Merv 11, Hi-Flo ES 30" deep, 10 pocket bag filter	24x24x30	22.5	\$70.00	90	4	\$6,300.00	\$400.00	\$40.00	\$6,740.00