National Account

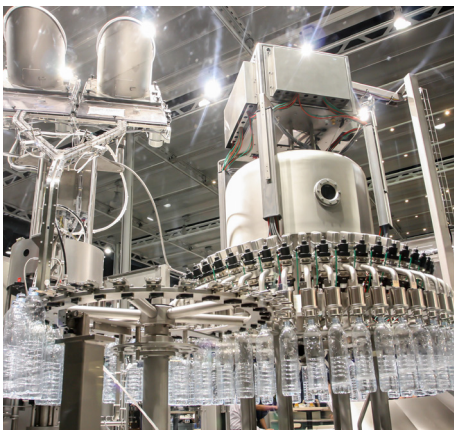
CASE **STUDY**
Food Processing



BOTTLED WATER PRODUCER

AIR FILTERS. GLOBAL LEADER IN THE BEVERAGE INDUSTRY CUTS ANNUAL FILTER USAGE BY MORE THAN 80% . . . SIGNIFICANTLY LOWERING LABOR AND WASTE

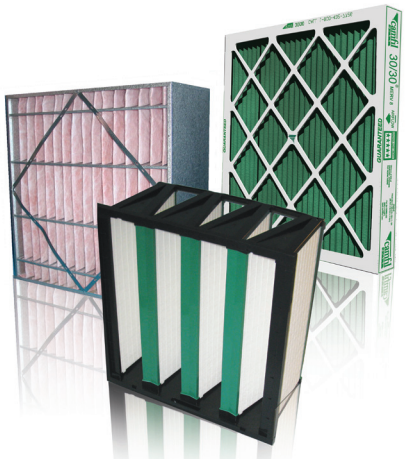
COMPANY PROFILE
One of the largest food companies worldwide and a global leader in the bottled water industry with production in more than 35 countries. The manufacturer is committed to health, hydration and especially the environment when it comes to water use, packaging and energy.



THE SITUATION
As a result of airborne contamination from packaging operations, the manufacturer was frequently changing air filters on their bottling line conveyor intakes. If filters were not changed as needed they risked line flow problems and product contamination. Earlier trials with low cost competitive filters showed consistent failure. The pleated and final filters failed prematurely and gained resistance at an unacceptably high rate resulting in system contamination, continued line airflow adjustments, production loss and lower case counts. The filter changing process and constant airflow adjustments led to ongoing maintenance problems and added significant cost burden to the plant's material, labor and logistics.

Faced with escalating expenses and an increased demand on maintenance personnel's time, the beverage manufacturer understood the need to provide effective filtration; but realized they needed to do it at a reduced cost. The beverage manufacturer required a clean air solution that would reduce air filter life-cycle costs, and reduce maintenance costs.

THE ACTION
Camfil, the corporate air filter contract holder, was invited to the facility to make recommendations. Camfil's representatives recommended simple field modifications to the filter housings using Camfil fasteners. This allowed the bottling facility to convert from 4" pleated prefilter and 4" final filter combination to a 2" prefilter and 12" box-style filter configuration. Two different filter combinations were then tested. Camfil's 2" FARR 30/30® and 12" Riga-Flo® combination was compared side-by-side with Camfil's 2" FARR 30/30 and 12" Durafil® ES. Also, Camfil agreed at trial completion, sample filters would be tested in Camfil's field laboratory per ASHRAE Standard 52.2-1999 – test criteria of contaminant removal efficiency, contaminant holding capacity, and resistance to airflow.



"CAMFIL REDUCED TOTAL FILTER COSTS BY 60% AND INSTALLATION COSTS BY 75%."

THE RESULT
The tests proved Camfil's filter combinations significantly outlasted the bottlers 4" prefilter/final filter solution. The 2" FARR 30/30 prefilter lasted more than six months versus the 4" that lasted one month. Camfil's Riga-Flo and Durafil ES lasted six and 12 months respectively versus the three-month performance the bottler was experiencing with the 4" final filter. Filter resistance is minimal therefore constant line airflow adjustments are not required.

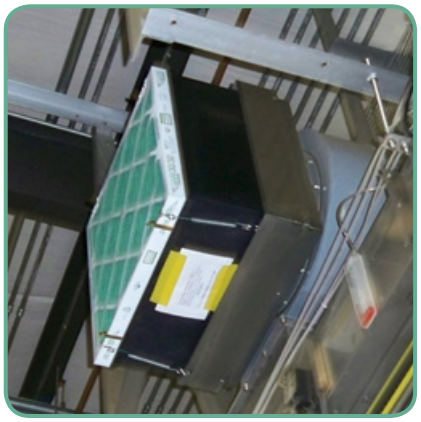
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CASE STUDY
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THE PROOF

Less Filters, Labor & Waste...Less Cost
As a result of the trials performed, the beverage manufacturer has proof the facility will experience substantial savings and dramatic improvement in line performance. Because the new approach provides lower resistance and gains resistance at a slower rate, constant adjustment of line flow is no longer required and maintenance staff will be freed up for other activities. Filter changes are less frequent which means the production facility benefits from less labor, less waste and lower disposal costs.

Energy Savings...An Added Benefit
Converting to Camfil's pre- and final filter solution substantially improved the airflow resistance performance in the air handling system. The new solution operated at a 0.80" wg pressure drop change which will save the bottling operation $11,851.00 on an annual basis.



Modified Housing with 2" 30/30® pre-filter and 12" Durafil® final filter

ENERGY SAVINGS CALCULATION	Data indicated Camfil's recommended configuration would operate at an average pressure drop change of **0.80" wg.**		
E, kwh			
q = volumetric flow rate (cfm)	1200	**n** = fan efficiency	0.65
Δp = resistance to airflow (in. w.g.)	**0.80**	**8515** = units conversion factor	8,515
t = time (hours)	8,760	**$/kwh** = cost per kwh ($)	0.065
E = *q x Δp x t / n x unit con* 1200 x 0.80 x 8760 / .65 x 8515 = **1,515.418 kwh**		$ = *E x $ per kwh* 1515.418 x .065 = **$98.76 Yearly/Opening**	
Total Energy Savings:	**120 Openings x $98.76 Savings per Opening = $11,851.46**		

COST SUMMARY	EXISTING SOLUTION		ALTERNATIVE SOLUTION	
	Camfil 30/30 4"	Flanders® PrecisionCell 4"	Camfil 30/30 2"	Camfil Durafil ES
Total # Openings	120	120	120	120
Changes/Year	12	4	2	1
Filters Required Annually	1440	480	240	120
Cost/Filter	$11.56	$66.00	$7.49	$125.00
Total Filter Costs:	**$16,646.40**	**$31,680.00**	**$1,797.60**	**$15,000.00**

ENERGY SAVINGS @ $0.065/ KWH=$24/0.01"	**$11,851.46**
TOTAL MATERIAL SAVINGS	**$31,528.80**
TOTAL ANNUAL SAVINGS:	**$43,380.26**