



Bread maker improves safety through changes to filtration process

Location:
Toronto, Ontario, Canada

Segment:
Food and beverage

Challenge:
The potential hazards to operators when manually changing filter bags while working with high water temperatures

Solution:
Eaton's mechanically cleaned DCF-800 filter

Results:
A safer work environment plus additional financial and environmental gains recognized by replacing filter media with automatic cleaning

'Eaton's mechanically cleaned filters are believed to be one of the most efficient mechanically cleaned filters on the market.'

Background

Based on the appearance a bagel, a bakery item that is growing in popularity around the world, it's hard to imagine that processing these delicious treats may pose an occasional hazard.

According to officials at a Canadian bread manufacturing company based in Ontario, it's true.

Highly pressurized hot water is used extensively in the bagel making process and requires boiling to offset potential quality problems. The process also requires a filtration system to clean raisins, sesame seeds, bits of dough, cornmeal, and other materials out of the hot water. And that's where the danger can occur.

The company was using duplex bag filters for several years and was concerned about employee safety because of the hazards associated with manually changing filter bags while working with the high water temperatures.

Challenge

Plans were in place to install a new bagel boiler in its Canadian plant and it required a filtering system to clean the recycled boiler water of raisins, sesame seeds, bits of dough and cornmeal. Cornmeal can create water quality problems if the temperature falls below a certain level, requiring an expensive and time-consuming water change. It is critical that the water in a bagel boiler remain at a high temperature, even as it is filtered and recycled.

With the safety of its employees a top priority, the maintenance supervisor at the company's plant wanted a filtration system that required less operator intervention than a bag system. High water temperatures used in the process can be a serious hazard to an operator changing filter bags, especially when pressed for time during the shutdown process, when an operator may open up the filter housing while it is still pressurized.



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According to the U.S. Center for Disease Control and Prevention (CDC) website, workers exposed to conditions of extreme heat in the workplace may be at risk of developing heat stress. Continued exposure to high levels of heat can result in occupational health issues and injuries such as burns from hot surfaces or steam, heat stroke, heat exhaustion or heat rashes. The CDC site goes on to say that working in conditions with extreme heat, like those encountered during the bagel making process, can also increase the hazards workers may experience like fogged-up safety glasses and dizziness.

"Safety in the workplace is the joint responsibility of the entire workforce of an organization," comments said Mary Jo Surges, vice president and general manager, Eaton's Filtration Division. "At Eaton, we are committed to improving employee safety, reducing energy and water use, and waste generation. We work with organizations around the world every day to help attain these goals."

Solution

Decision makers at the plant wanted a filter they could count on, without the hazards that can be associated with bag filter maintenance. Working with Eaton, the plant manager and maintenance supervisor determined that the Eaton DCF mechanically cleaned filter was the permanent solution to meet their business objectives. The plant installed two Eaton DCF-800 filters on the boiler water recycle line at their facility. DCF filters successfully removed the raisins, sesame seeds, bits of dough, and cornmeal that would adversely affect the final product. Uninterrupted filtering by the DCF also ensured consistently high water temperatures required to maintain boiler water quality.

The DCF filter performs a self-cleaning action by mechanically scraping collected debris from the filter screen with a disc that travels up and down the screen, parallel to the liquid flow. The collection chamber at the bottom of the filter automatically purges collected debris without halting production, in a process that takes less than seven-tenths of a second. Because the DCF filter continuously cleans the screen without interrupting production, it maintains a consistently high flow rate and provides the highest quality filtering. In addition, this filter collects and discharges only the contaminants, not a filter bag or cartridge loaded with valuable product.

Results

The company has eliminated the risk of operator injury related to changing filter bags because there are no bags to remove and media cleaning is automatic.

The facility's supervisors were also impressed with the unsurpassed filtering of its bagel boiler water, the ability to maintain high water temperature, and avoid water quality problems. Meanwhile, the plant is realizing financial and environmental gains by eliminating media, reducing worker exposure, and reducing labor and disposal costs.

In fact, the company was so happy with the performance of the DCF filters at its initial installation, they also installed DCF filters on its bagel boiler systems at a second location – instead of previously planned bags.



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