

Filtration Group Application Example – Food & Beverages

Filtration of cooking oil in doughnut production



Food & Beverages

Initial situation

Our customer is part of the global structure of a large food discounter. In different departments they produce bakery products as well as ice cream. Our customer has two large production lines for the production of doughnuts. These are deep-fried with edible oil during the process. During the frying process particles of the doughnuts (sugar, dough) are remaining in the oil. The oil is used in circulation and is reheated in heat exchangers. If the particles are too big, they can block the heat exchangers and cause massive cleaning efforts. Furthermore the lifetime of the oil is reduced if the particles are not removed.



Solution statement

- Filtration Group uses a FG automatic metal edge filter type AF 7383 using 2 filter elements connected vertically. Filter housing in stainless steel
- Additional level of safety for people and the environment thanks to a control box with level gauge and alarm function
- Customer gradually increases the concentration of particles to be removed from the oil circuit to reduce the loss of usable oil
- Cleaning of the filter element when differential pressure is achieved, without opening the valve during each cleaning cycle



Challenge

The oil to be filtered flows from the inside to the outside through the filter element. This causes problems with the removal of the particles so that the filter had to be opened frequently and cleaned manually. During filtration, the oil has a temperature of approx. 170 °C, which means there are risks and dangers for employees and the environment. If the filter were to be opened, the oil would spread. Filtration Group has created a dust connection with two valves and a pipe in between for this application. When the differential pressure is achieved, the filter is cleaned and the upper valve opens. Then the lower valve opens and the oil can flow off with great pressure.

Technical Data

- Temperature: max. 180 °C
- Viscosity: 5 – 10 mm²/s @ 170 °C
- Product: cooking oil
- Particles to be separated: sugar and dough particles
- Flow rate: 49 m³/h

Customer value

- Cost saving by reduced loss of oil, less spare parts used as well as reduced cleaning of heat exchanger
- Less manual handling delivers a working filter system that automatically cleans itself
- Reduction of downtime: FG automatic metal edge filter keeps the oil circuit clean and removes particles that could block the heat exchanger
- Possible multiplication targets: big industrial producers of bakery products using any kind of oil

