



Design Improvements for the Continuous Oil Drum Filter

The continuous oil drum filter is a true work horse in processing lines from Rosenqvists Food Technologies. It is used in all frying systems we design for potato chips, French fries and potato specialities. We met up with design engineer, Mikael Larsson, to find out more about why the filter is such a smart machine and what has happened since 1974 when the first drum filter was built.

The continuous drum filter

The drum filter can handle large volume of vegetable oil in short time thanks to its smart round design. This ensures that every drop of oil is filtered every 30-50 seconds. We can filter anything from 2 000 liters to 14 500 liters per minute depending on the size of the drum filter. Filtering the oil is essential for good final product quality and desired production economy.

The continuous drum filter filters the oil through a perforated stainless steel screen. This screen has an electro-polished surface and forms a drum; the particles are collected on the outside of the slowly rotating drum. To reduce the overall oil volume in the filter, a displacement body is mounted inside the filter. A set of special design stainless steel scrapers transfers the debris and particles to the waste auger. The design allows for removal of both floating particles and particles that are collected on the filter screen. The mesh screen size can be made from 800 microns size.

When working with the continuous drum filter you can expect a stable design with the same life expectancy as other parts of the frying system from Rosenqvists Food Technologies. The filter is built using fully welded design, according to SS-EN 1672-2:2020 standard.

After many years working with this filter, we feel confident it is doing the job relentlessly - day in and day out, when producing potato chips and classic French fries.

The continuous drum filter is a full flow filter capturing all oil in the system. When special products are produced, our engineers complement the drum filter with further fine filtration using centrifugal filtration systems as well as other types of fine filters. The complementary filtration system handles a smaller proportion of the oil flow for maximum cleaning of oil.

Maintenance and safety

Keeping the filter clean, checking the condition of the scraper springs and securing the positioning of the knife package are maintenance requirements for long-lasting performance. If needed, the filter screen can be exchanged without dismantling the drum filter. In case of leakage, there are pressure equalization holes mounted in the shaft making sure that steam can evacuate safely. The body is fully covered to protect the operator from heat.

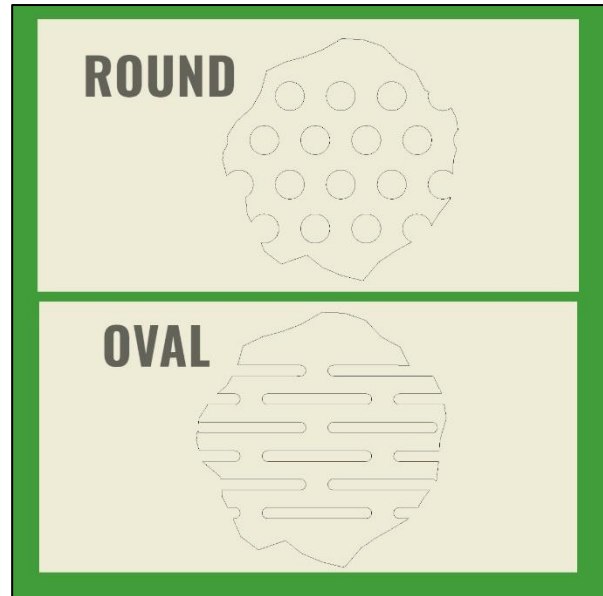
Special design improvements for the continuous drum filter

Mikael Larsson and the engineering team are always looking for ways to improve the functionality of the continuous drum filter and a lot has happened since 1974. Hygiene and performance have been the focus for the improvements for Mikael. The specific improvements he would like to highlight are:

- Full lift of the knife package
- Easier access for inspection
- Smooth hygienic surface to remove debris
- Fully welded design
- Better functionality of drum scraper
- Improved design of the mesh screen

The new improved way of lifting the full knife package for the operator is an important new feature. This makes it easier for the operator to clean the area under the knives saving time for maintenance. The lid opens in a better way allowing for an easier inspection of the knife package. The knife package cleans the mesh screen. The area under the knives is re-designed for a smooth hygienic surface allowing debris to pass through easier. The drum scraper cleans the outer surface of the drum. The latest update in design improves the scraper functionality to clean.

Finally, the shape of the small openings in the mesh screen ranges now from round to oval shape. Depending on the product application, we use round or oval shaped openings, see figure below. Every decision to maximize the debris we can collect with the continuous drum filter, concludes the design engineer.



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