

Filter Leak Detection in Flour Milling



Early warning to protect hygiene and prevent hidden product accumulation



Continuous dust measurement downstream of filtration systems helps flour mills identify small filter leaks before escaped product can accumulate in unseen areas, supporting faster cleanup and reducing the risk of microbiological contamination or pests.



The Challenge

A Finnish flour mill producing around 400 tonnes per day of rye-, wheat- and oat-based flours, mixes and premixes wanted earlier warning of filter failures throughout its production process. The mill includes storage, cleaning, crushing, milling, sifting and mixing stages, with product transferred between process steps pneumatically.

Dust generated during milling must be contained effectively to maintain good housekeeping and hygiene. The plant was particularly concerned that a small filter leak could release flour into an unseen area, such as a roof space. If the accumulated product was not found and cleaned promptly, it could create conditions for microbiological growth or attract rodents and insects.



The Solution

The plant installed 21 Sintrol Snifter dust monitors at critical measurement points downstream of filtration systems in the mill. The instruments provided continuous indication of filter leakage in locations that could otherwise remain unobserved.

The monitors were connected to the plant DCS through 4-20 mA signals. During the project, RS-485 communication to Sintrol DustLog 8 was also used for data logging and comparison with earlier monitor versions. Following the comparison, the customer decided to complete the factory installation with the Snifter line.



Results

Twenty-one critical post-filter measurement points brought into continuous supervision.

The system gave the plant real-time warning of filter leakage and improved visibility in areas that were not continuously attended, helping maintenance and hygiene teams respond before escaped flour could accumulate unnoticed.

- ➔ Earlier detection of small filter leaks
- ➔ Real-time alarms for filter leakage
- ➔ Better supervision of unmanned post-filter areas

Today's Sintrol solution

Filter leak detection: The S101 / S103 Filter Monitor series is the current successor to the former Snifter series and is designed for real-time broken-bag and filter-leak detection. S101 provides relay outputs for dust alarms, while S103 provides an active isolated 4-20 mA output for continuous integration with plant control systems.

Hazardous areas: S101 / S103 Ex are available for filter-leak monitoring in Zone 22 combustible-dust environments.

Certified filter monitoring: For more demanding applications requiring certified filter leakage or filter dust monitoring, Sintrol offers the S304QAL-L and S304QAL-D series, certified according to EN 15859:2010.

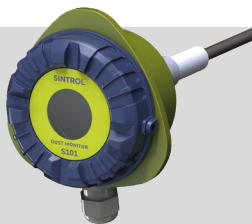
Configuration and diagnostics: DustTool 2 supports configuration of current S100-series devices, including alarm settings, Auto Setup and 4-20 mA range adjustment.

Centralized monitoring and reporting: For plants with multiple supported Sintrol monitors, DustCloud brings measurement trends, device status and alerts into one cloud-based environment, supporting remote oversight and consistent follow-up across many filter measurement points.

How it works

Sintrol filter monitors use Inductive Electrification technology. When solid particles contact or pass close to an insulated probe, they generate an electrical signal. Signal processing and filtration convert this response into a continuous indication of changes in dust levels, allowing small filter leaks and larger filter failures to be detected downstream of the filtration system.

Product portfolio for the case



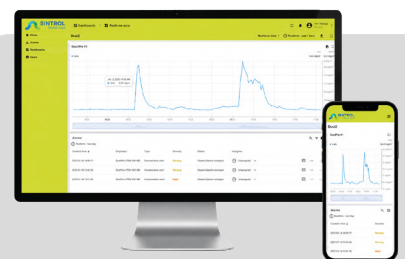
S101 / S103 Ex

Broken-bag detection



S304QAL-L / S304QAL-D

Certified filter monitoring



DustCloud

Centralized access to trends and alerts



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