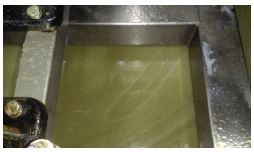
Klarwin Automotive & Industrial Technology

CASE STUDY

UPGRADE BAG FILTERS FOR EFFICIENT WASHING AND A LONGER LIFETIME



(1)

(2)

(3)

Application:

The internal circuits of diesel pump components are washed by flushing (turbulent flow), using a liquid made of water and detergent.

System operating parameters:

Tank volume:	3.5 m^3
Flow rate:	120 L/min
Pressure:	35-40 bars
Temperature:	30ºC

Problem:

High dirt loading in the tank (1), (2) leads to inefficient washing and end-user complaints due to component cleanliness.

Diesel pump failures in operation were traced back to mechanical contamination of the components.

Solution:

Previous filtration solution consists in bag filters with magnetic bars on several circuits (pressure line, return and kidney loop) down to 10µm nominal.

A process audit revealed that the process is a bottleneck since changing the washing fluid is a time-consuming process that is required every two weeks due to high contamination. Maintenance of washing fluid requires 8 hours.

Tramp oil coming from components and hydraulic circuit is contaminating the washing fluid leading to decreased washing efficiency.

For critical cleanliness requirements, upgrading bag filters to Marksman XLDM cartridge filters (3) reduces costs by improving process efficiency and ensuring manufactured parts meet cleanliness and quality specification. Coalescers were installed to separate the tramp oils to from the water-based fluid by coalescing media.

Benefits:

- ✓ The washing fluid and component cleanliness were improved significantly, as well as downstream processes.
- ✓ The number of client complaints decreased with 50%.
- ✓ Washing fluid life was increased from 2 weeks to 2 months or more, which leads to an increased production capacity.
- ✓ The number of breakdowns decreased with 70%, improving the reliability of the machines.
- ✓ Cost reduction in direct costs (water, detergent, spare parts, filters) are 30k€/year/machine.
- ✓ The real savings come from improvements in the production process and reject rates reducing client complaints.