

Pall Supralon® filter element retrofit extends service life and reduces Paper Mill operating costs by 40%



CASE STUDY

PICSSUPPIEN



Background

As many industrial sectors, the Paper Industry is very a competitive industry, continuously looking for innovative solutions and process efficiency improvements. The energy cost increase has dramatically impacted the profitability of production sites, particularly in Europe.

Operators are chasing cost savings to navigate into this very volatile and uncertain economic environment.

Introduction

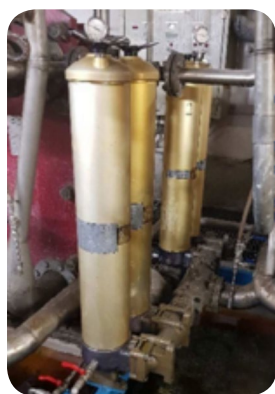
In a paper mill, the Lubrication central system is vital as it is directly connected to the calendars in the press and dryer sections. This equipment is very sensitive to particulate contaminants, generating wear mechanisms, typically fatigue wear for journal bearings or hydrostatic bearings.

When the contamination of the lubrication oil gets out of control, mechanical failures quickly occur on rotating parts and components.

Installing fine filtration on the lubrication system avoids such catastrophic scenarios.

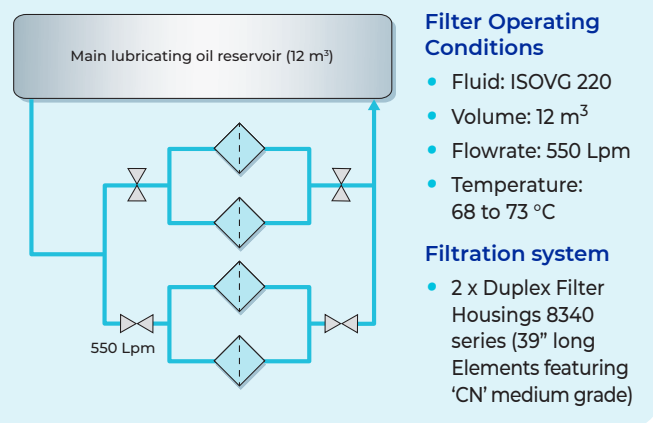
Problem

A major Paper mill in Europe wanted to reduce its running costs to remain competitive against other production sites much less impacted by the energy cost increase (sites mainly located outside Europe). A drastic cost reduction program was initiated by its Production & Maintenance Engineers for both consumables and equipment covering raw materials, chemical products and other utilities, including filtration spend. The goal was to reduce its consumable budget by at least 20%, especially on the lubrication system where the high flow filters were installed.



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Solution

We proposed the plant to upgrade their current Pall Coralon® filter solutions with Pall Supralon filter elements, the new Lube and Hydraulic filtration platform replacing both Ultipor® III and Coralon filter element designs. With no adaptation of existing equipment necessary, the plant agreed a trial to demonstrate a direct comparison between Coralon & Supralon filtration efficiency and service life.

The results achieved in real operating conditions exceeded expectations as the service life of the filter elements increased by 40% while the fluid cleanliness was 2 ISO code cleaner compared to the previous solution.

Configuration	Average ISO Code	Service Life
Coralon	17/15/12	6 weeks
Supralon	17/13/10	8.5 weeks

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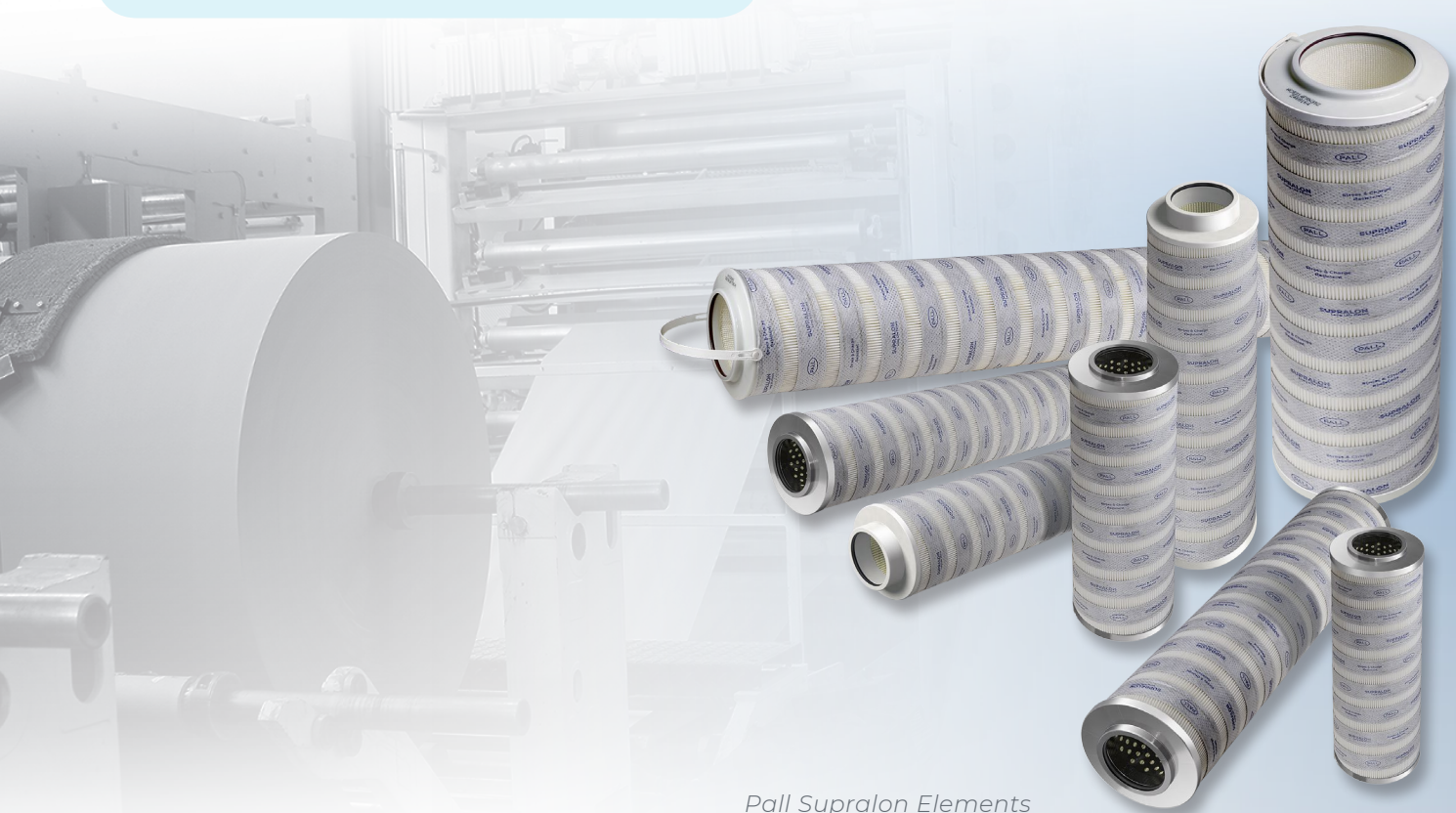
Conclusion

Using Pall Supralon filter technology, the paper mill was able to reduce the lubrication system filtration spend by 40%. This was a direct replacement operation without any additional maintenance work. The fluid cleanliness level measured on-line was also improved, showing that the lubrication system was under control. A fluid cleanliness level of 17/13/10 per ISO4406 was achieved throughout the full service life of the filter elements, controlling the chain reaction of wear on the critical lubrication system.

Cleanliness Code Ratings

Media Grade Code	Rating ($\mu\text{m } \beta_{x(c)} > 2000$ based on ISO 16889)	CST* ISO Code Rating based on SAE ARP 4205
Z	3	06/04/<1
P	5	12/08/<1
N	7	14/09/04
S	12	18/16/08
T	25	19/17/12

* CST: Cyclic Stabilization Test to determine filter rating under stress conditions, based on SAE ARP4205. Note these ISO codes are laboratory measurements under standard conditions. Cleanliness measured in actual operation will depend on operating conditions and sampling method.



Pall Supralon Elements



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