

CASE STUDY

Industry: Pulp & Paper
Customer: Paper Mill in Germany

OFF-HIGHWAY
POWERTRAIN SERVICES

► Off-Highway Powertrain Services improves the quality of paper production using High Tech Analysis

► Case Description

Our customer in the paper industry was incurring a problem with the coating section of a paper machine. The roller coating in the speed-sizer wore out faster than the planned maintenance interval, resulting in unavoidable quality issues and increased downtime.

The roller required regrinding and a new coating every few weeks to ensure and maintain product quality. Several other service providers had attempted to find the cause of the extreme wear without success.

Off-Highway Powertrain Services (OHP Services) investigated the complete system to determine the root cause, and by using a customised solution package based on several advanced analysis methods, was able to significantly improve the operation. (See the details in Technology Snapshot.)

A vibration analysis showed that the complex construction of the machine stimulated various frequency vibrations which then superimposed to cause resonance. OHP Services also identified that excessive vibration of the blade beam was causing damage to the roller cover.

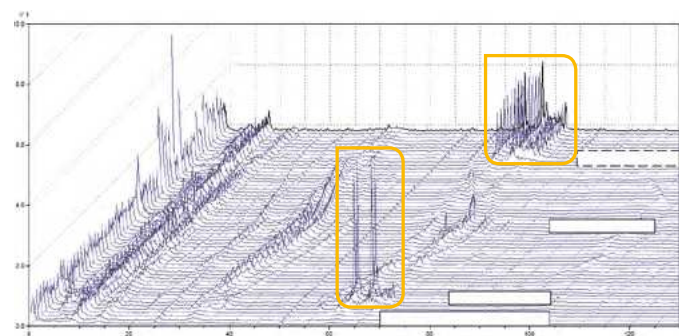
OHP Services improved the design of the blade construction tailored to its dynamic behavior and identified critical machine production speeds to avoid vibration creation. Additionally, OHP Services replaced a worn-out bearing on the roller stand and aligned the powertrain under machine operating conditions to ensure smooth operation. After these improvements were implemented, the service life of the roller cover **was increased by a factor of 3**.

► Technology Snapshot

High Tech Analysis:

Different technologies such as vibration measurement, thermographic measurement and alignment checks were used to determine the root cause of the problem. A multi-channel vibration measurement system was utilised for the analysis of the vibrations and natural frequencies. Sensors installed at different positions on the machine recorded these vibrations.

Detailed reports with confirmed facts were generated to support maintenance decision making process. Our service resulted in the early identification and rectification of fundamental powertrain faults, leading to minimised risk of unplanned machine downtime.



Resonance display in the frequency spectrum (FFT) as a waterfall diagram

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► **Challenge:**

- Determine the root cause for excessive wear of the speed sizer
- Extend service life of machine components
- Understand the complex machine structure and find a customer-friendly solution

► **Solution:**

- Hot-Spot Analysis of possible vibration sources
- Assess the importance of each vibration source
- Prioritise according to importance (Root Cause Analysis)
- Improve the reliability through corrective maintenance such as alignment, repair etc.
- Re-evaluate the situation (Offline Condition Monitoring)

► **Customer Value:**

- Customer specific solution package and simple solution-oriented reports
- Improved and sustained product quality
- Eliminate excessive roller maintenance costs. In this case the roller service **life increased by factor of 3**

► **What's special?**

- Unlike most service companies, OHP Services considers the complete system to understand the correlation of factors that may influence the production process to arrive at the root cause of the problem. By using an individual solution package based on several analysis methods, OHP Services then focuses on providing the correct solution tailored to customer needs.

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WORLDWIDE

Off-Highway Powertrain Services collaborates with manufacturers and logistics partners worldwide: benefit from our extensive network. By means of our Service Parts Availability Module, you can define which part are to be available, and how quickly they can be delivered to your location – regardless of manufacturers. We also offer customized spare parts to our clients on stock.

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This case study is exemplary only. Any and all information, data, values, products, procedures etc. which are mentioned in this case study vary from case to case and can be different. For calculation pertaining to your business, please refer to a Off-Highway Powertrain Services employee.