Time to execute and excel! - ExO 4D: A new generation of press fabric innovation

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INTRODUCTION:

The global pulp and paper industry is experiencing a period of significant transformation. Production efficiency, digitalization, sustainability, and energy consumption have become decisive factors for mills striving to remain competitive in a demanding market.

For suppliers to the industry, this evolution creates a clear responsibility: develop technologies that directly improve machine performance while reducing operational costs. As a global leader in Paper Machine Clothing (PMC), AstenJohnson continues to focus on innovations that help customers operate more efficiently and reliably. Doing business with AstenJohnson means more than simply buying PMC, it means having a team behind you that helps you sleep better at night!

One of the latest examples of this commitment is the launch of **ExO 4D**, a new press fabric enhancement designed to improve dewatering performance, reduce contamination, and extend fabric lifetime.

Performance: The Key Metric on Modern Paper Machines

In today's mills, performance is measured by efficiency. Machine operators continuously seek to optimize production output while minimizing energy consumption and avoiding sheet breaks.

Even small improvements can have significant economic impact. A slight increase in dryness after the press section can reduce the energy required in the drying section, while stable press operation enables higher machine speeds and increased production capacity.

The press section therefore remains one of the most critical areas for innovation in the PMC sector.

Figure 1: Examining a used Ex O4D felt which ran record life.

Engineering for Extreme Press Conditions

Press fabrics operate under extremely demanding conditions. High water volumes, significant mechanical and hydraulic loads, and contamination continuously challenge the structural integrity of the fabric.

Over time, these forces can lead to compaction, reduced void volume, and decreased dewatering efficiency.

To address these challenges, AstenJohnson developed **ExO 4D**, an innovative structural enhancement that acts as an **"exoskeleton"**, surrounding the base fabric structure.

This additional support element helps maintain the openness of the press felt while reinforcing the base structure against compaction and contamination buildup.

The concept behind **ExO 4D** is simple but powerful: protect the internal structure of the press fabric so it can maintain optimal performance for longer periods.

Early Trials Reveal Significant Benefits

When development began, the primary expectation was improved break-in time and extended lifetime. However, early trials delivered results that exceeded expectations.

Field installations demonstrated measurable improvements across several key performance indicators:

- Break-in times reduced from three to four days to less than 12 hours
- 10–25% increase in press fabric lifetime
- Higher machine speeds
- Increased total dewatering
- Reduced steam consumption
- Fewer sheet breaks
- Up to 25% reduction in contamination compared to standard felts
- Reduced caliper loss and wear
- Stable operation without vibration even in sensitive press positions

In some installations, customers reported operating for up to seven consecutive days without a single sheet break, compared with typical operations where breaks usually occur daily.

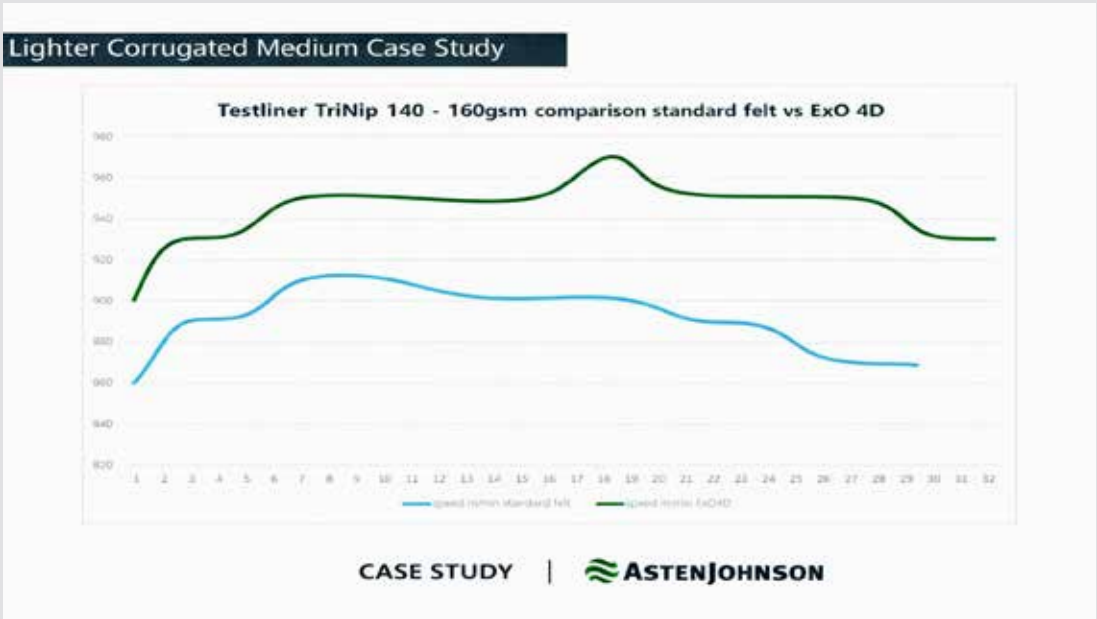
Translating Innovation into Customer Value

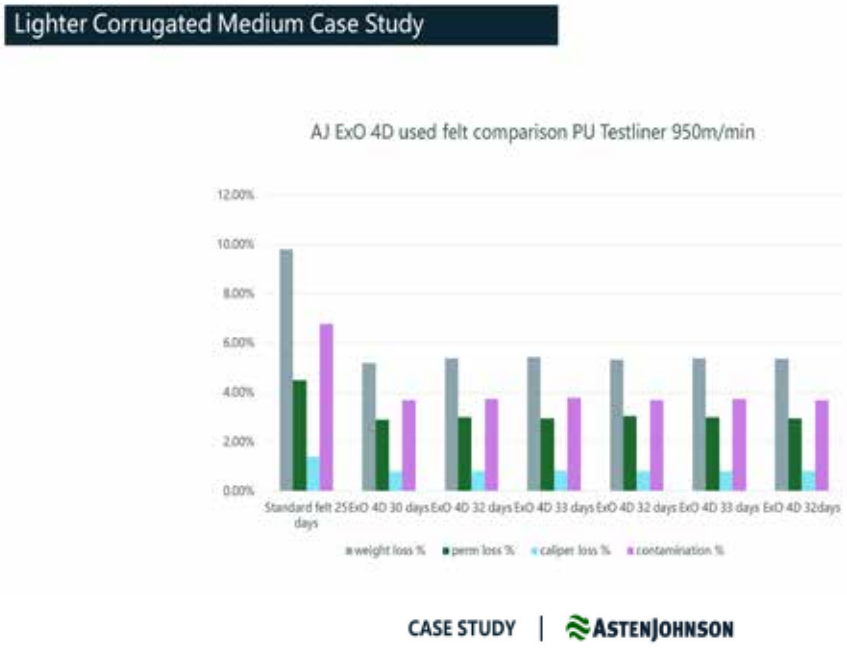
The advantages of **ExO 4D** extend beyond improved fabric performance.

Faster break-in times allow machines to reach full production faster after installation. Reduced contamination and improved structural stability contribute to more consistent machine operation.

Longer fabric lifetime reduces overall PMC consumption, while improved dewatering lowers steam demand in the drying section - resulting in significant energy savings.

Taken together, these benefits enable mills to achieve higher production efficiency while lowering operating costs.





A Successful Market Introduction

Following extensive trials and early commercial installations, AstenJohnson has officially launched **ExO 4D** as a new enhancement available across its current press fabric portfolio.

The solution can be applied to both endless and seamed press fabrics without restriction, allowing mills to implement the technology across a wide range of machine configurations and paper grades.

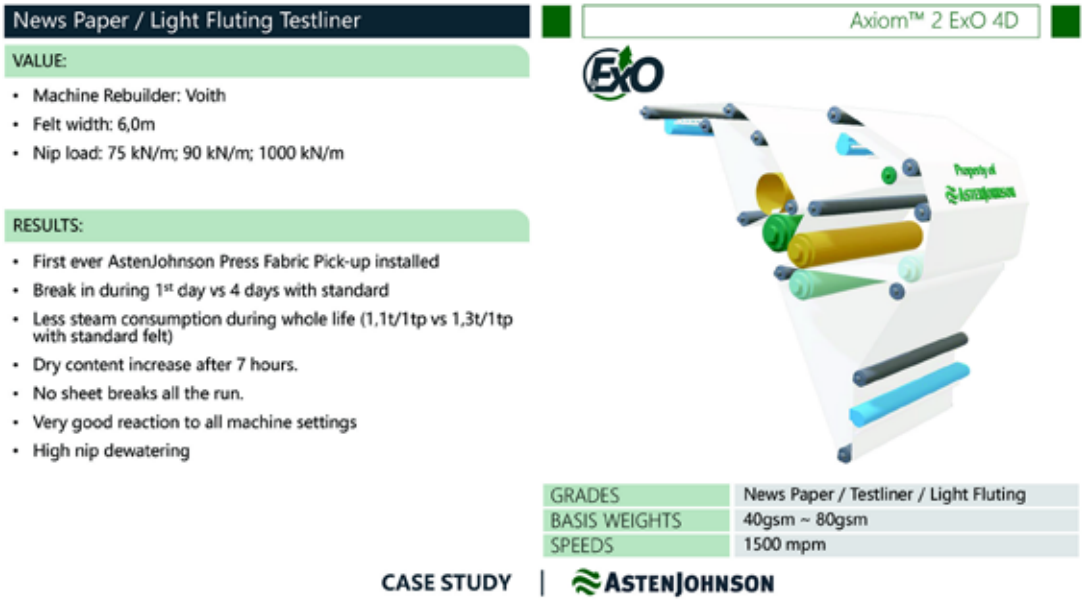
Market acceptance has been strong. With more than 150 pieces already ordered or reordered, **ExO 4D** has quickly become one of AstenJohnson's most successful recent developments.

Supporting the Future of Efficient Paper Production

As the pulp and paper industry continues to focus on sustainability, energy efficiency, and operational reliability, innovations in paper machine clothing will play an increasingly important role.

With **ExO 4D**, AstenJohnson has introduced a technology designed not only to improve press fabric durability but also to support the broader goals of modern paper production: higher efficiency, lower energy consumption, and more stable machine performance.

For paper producers worldwide, solutions like **ExO 4D** demonstrate how targeted innovation can deliver measurable value where it matters most—on the paper machine.



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