Optimizing water and energy efficiency in the pulp and paper industry with FlowControl's SZ8 SealCooler™

Robert Clayhills, CEO Nipman Paper Technology

INTRODUCTION:

Revolutionizing Seal Water Management: In the pulp and paper industry, efficient use of water and energy is increasingly critical. One area where significant savings can be achieved is the sealing water used to lubricate mechanical seals in pumps. Traditional sealing systems operate in an open-loop setup, continuously flushing clean water through the seals. This water is typically discharged to the drain, adding to the mill's wastewater volume and treatment load.

A single paper machine may have around 100 pumps, each consuming 4 litres of water per minute. That adds up to over 570,000 litres of clean water per day—just for sealing purposes. Now imagine if that figure could be cut to almost zero.

A Finnish Innovation: The FlowControl SZ8 SealCooler™

FlowControl, a Finnish company with long-standing expertise in industrial lubrication and sealing systems, has developed a breakthrough solution to this challenge. The SZ8 SealCooler™ is a closed-loop thermosiphon system designed for use with double mechanical seals. Instead of relying on continuous water flow, it circulates a small amount of sealing fluid within a self-contained system.

This thermosiphon-based design ensures that the seal remains lubricated and cooled, preventing dry running and extending the life of the seal. The result is a drastic reduction in water usage, lower energy consumption for water treatment, and increased reliability of the sealing system.

Timo Huhtala of FlowControl explains:

"Water consumption can now be radically reduced. This helps both the environment and the mill's energy footprint. It's a simple change with a large impact."

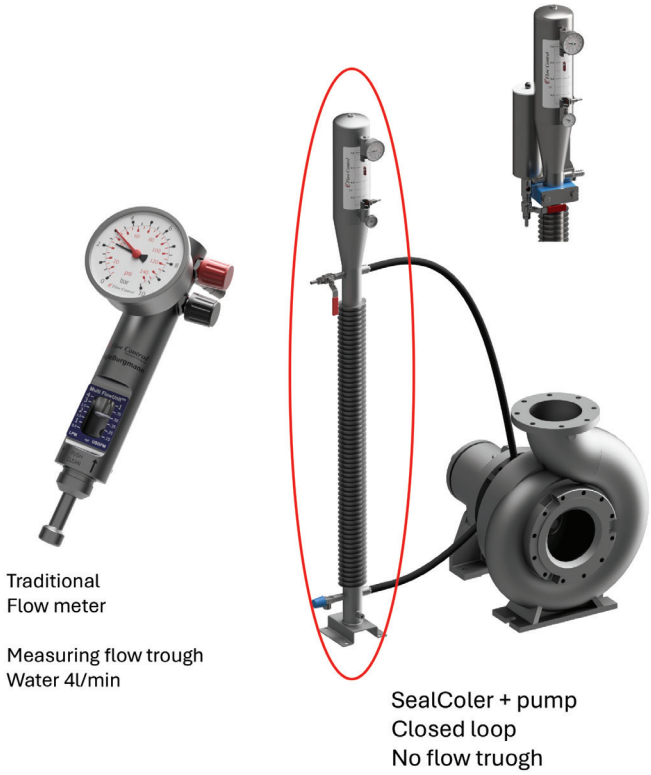

Figure 1: (Left) SZ8 SealCooler system installed in a mill in Sweden.

Efficiency Gains That Go Beyond Water Savings

The SZ8 SealCooler system doesn't just save water—it also improves process stability. By maintaining optimal lubrication conditions, the seal's operating life is extended, reducing unplanned downtime and maintenance frequency. This leads to increased Mean Time Between Failures (MTBF), enhancing overall plant reliability.

The design is robust and field-tested, with over 4,000 units already delivered and in operation across the pulp and paper industries. Installation is straightforward and can be carried out by mill personnel following the provided instructions. Units are shipped directly from FlowControl's facility in Muurame, Finland, fully assembled and ready for deployment.

Figure 2: Industrial pump market-research.

A Closed-Loop System with Wide-Ranging Impact

Unlike traditional systems that require constant water input and produce continuous wastewater, the SZ8 operates in a completely closed loop. This means virtually no seal water is discharged, drastically reducing the wastewater load from the mill. In fact, studies indicate that up to 10% of a mill's wastewater originates from seal water systems. That number can be brought close to zero with the SZ8.

Robert Clayhills, CEO of Nipman Paper Technology, underscores the broader implications:

"This isn't just about water—it's about rethinking process efficiency. The SZ8 SealCooler makes measurable sustainability gains possible almost overnight."

Why the SZ8 SealCooler™ Stands Out

This is not just another sealing product—it's a revolutionary process innovation that supports environmental, economic, and operational goals.

Advantages at a Glance:

- Radically reduced water consumption
- Quantifiable cost savings
- Proven performance and durability
- Suitable for paper, pulp, chemical, and mining industries
- Delivered fully assembled and easy to install
- Immediate impact on sustainability KPIs

Nipman Paper Technology, *are FlowControls exclusive representative of the product on the Scandinavian and European market. Including also Turkey and Middle East.*

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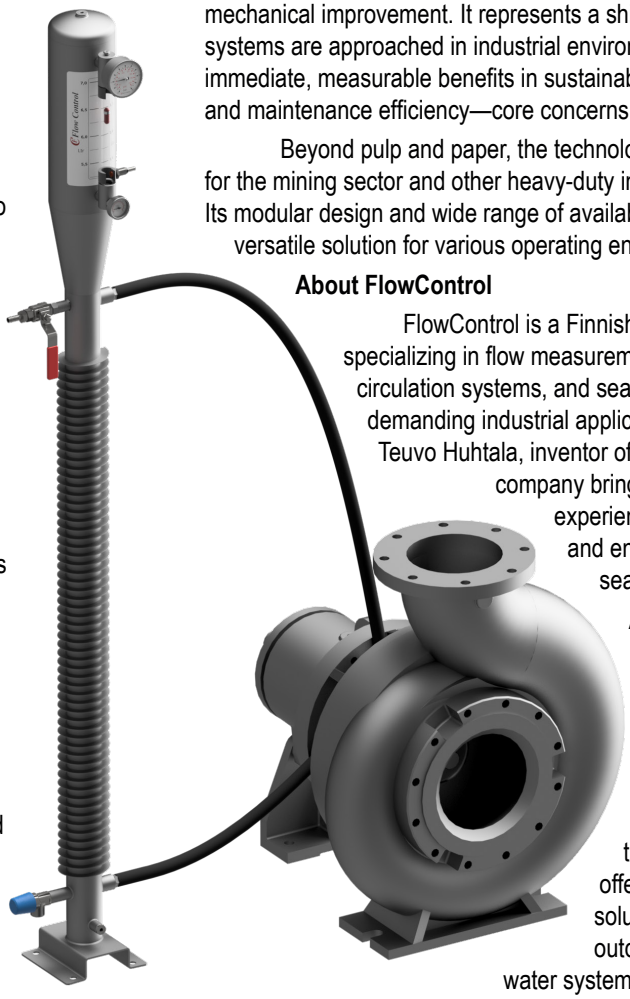
More Than a Product: A Process Innovation

FlowControl's SZ8 SealCooler is more than just a mechanical improvement. It represents a shift in how sealing systems are approached in industrial environments. It brings immediate, measurable benefits in sustainability, operating costs, and maintenance efficiency—core concerns for any modern mill.

Beyond pulp and paper, the technology is also suitable for the mining sector and other heavy-duty industrial applications. Its modular design and wide range of available options make it a versatile solution for various operating environments.



About FlowControl

FlowControl is a Finnish engineering company specializing in flow measurement systems, lubrication circulation systems, and sealing solutions for demanding industrial applications. Led by Teuvo Huhtala, inventor of the SZ8 system, the company brings decades of hands-on experience in optimizing water and energy use in mechanical seal applications.

A Smart Investment for a Sustainable Future

For mills seeking to cut costs, improve reliability, and advance their environmental goals, the SZ8 SealCooler offers a compelling solution. By replacing outdated flow-through seal water systems with FlowControl's closed-loop innovation, companies can quickly realize both operational and environmental returns.

With over 4,000 successful installations, the time to act is now. Order one today—and see the difference in your bottom line and your sustainability performance.