



EXPERIENCE THE EXCEPTIONAL

## Mondi Meets Sustainability Targets

International packaging and paper group Mondi is replacing quench-to-drain flushing and lubricating systems fitted to mechanical seals at its Richards Bay mill with AESSEAL® systems incorporating a continuous loop water management design.

The AESSEAL® systems will cut water usage at the plant by more than 60 000 kilolitres per month, helping to conserve scarce water resources in northern KwaZulu-Natal.

Mondi placed its order for replacement systems in February on fluid sealing and wear resistance company Easy Coat, the AESSEAL® agent for Richards Bay. The order provides for 167 AESSEAL® type-SW2 and SW3 water management systems that will use recycled water to cool, lubricate and flush mechanical seals in the Richards Bay plant. They will replace a competitor's once-through flushing designs that need a constant supply of fresh water.

**The order follows successful trials of 152 such systems installed by Easy Coat over the last twelve years.**



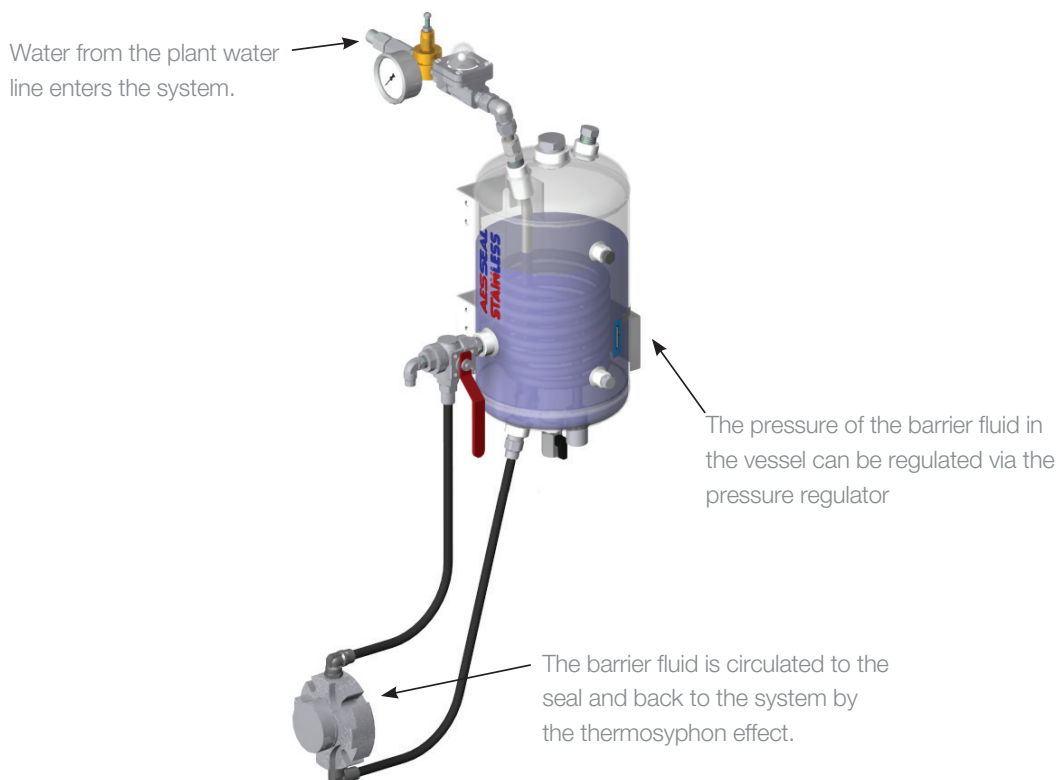


AESSEAL's SW2 system uses an integral vessel to store flushing water for continuous recycling. The system is connected directly to the plant water line which becomes the system's fluid and pressure source, the pressure being adjusted so that the barrier fluid pressure within the system is maintained at 1 bar above stuffing box pressure, resulting in a pressure differential that keeps harmful products away from mechanical seal faces and increases seal and pump reliability. The barrier fluid is circulated to and from the mechanical seal by the thermosyphon effect, minimising water wastage and providing more efficient cooling than the once-through quench-to-drain design.

AESSEAL's SW3 system is supplied with finned tubing as standard so that it can be used on high heat applications. Mondi will use a mix of SW2 and SW3 systems according to process product temperature.

Besides lowering costs by conserving water, the SW2/SW3 system is superior to the once-through format in three ways: first, there is an indicator that shows when any inboard seal failure occurs; second, the system is kept pressurised by a non-return valve which helps to prevent cross contamination of sealing water in the event of a failure; third, the system is fitted with a regulating valve which maintains water pressure and flow rate without further settings or adjustments after installation.

### SW2 Operating Principle





Sakkie de Villiers, managing director of Easy Coat, emphasised that the AESSEAL® mechanical seals at Mondi Richards Bay have always been fitted with the SW2/SW3 system.

“The 167 new systems are being fitted to non-AESSEAL mechanical seals, where we are replacing the quench-to-drain, double flow meter systems,”

de Villiers explained.

“This competitor is unable to offer a water management system that can meet Mondi’s water savings target.”

It was water scarcity in the Richards Bay region that gave Easy Coat the opportunity to present Mondi with a water saving strategy. Mondi’s own environmental department at the Richards Bay mill provided support for this proposal because of a proven mechanical seal, a mean time between failure (MTBF) of over six years, and potential water savings of just under 4 000 000 kilolitres.

Further, the installation some ten years ago of mechanical seals and water management systems at Mondi’s Merebank mill, just outside Durban, had resulted in multi-million Rand water savings and substantially reduced downtime on rotating equipment

Environmental performance, particularly with regard to the saving and correct utilisation of water resources, has always been a strong driving force behind AESSEAL’s success in South Africa. The mechanical seals company has a mandate to continuously drive down sealing costs and increase the MTBF, in line with Mondi’s identification of the need to carefully and aggressively manage water resources as a component of the group’s environmental policy.



**Before: Pump and mechanical seal at Mondi Richards Bay, fitted with quench-to-drain flushing system.**



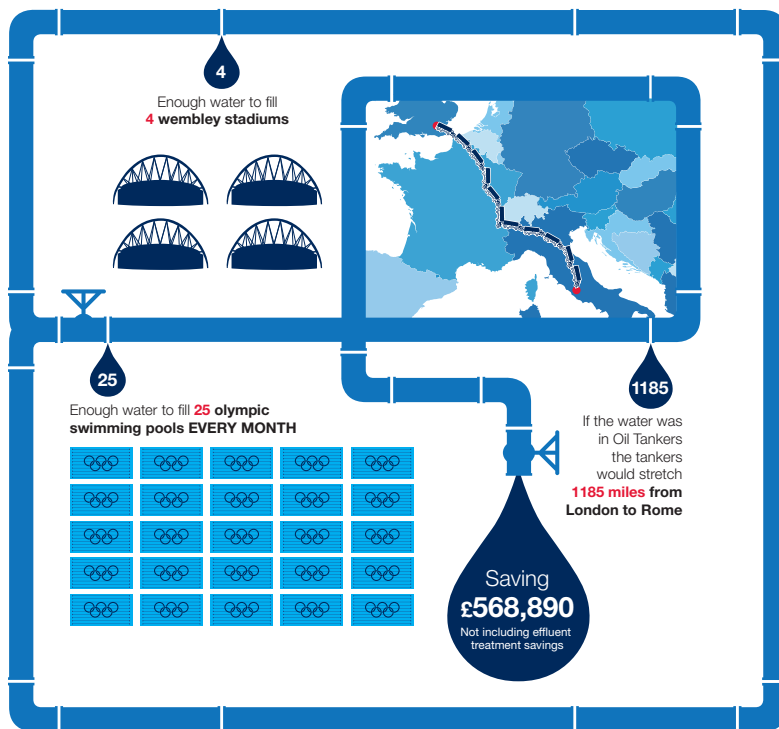
**After: Pump and mechanical seal at Mondi Richards Bay, fitted with AESSEAL® continuous loop flushing and lubricating system.**



**Continuous loop flushing and lubricating systems supplied by AESSEAL®, fitted to pumps at Mondi Richards Bay.**



In the case of the Richards Bay contract just awarded to Easy Coat, the 167 competitor cooling and lubrication systems to be replaced are consuming an average of 63 210 kilolitres of water every month. The new AESSEAL® systems will help save Mondi over 4.5 Billion litres of water in the next 6 years.



With the cost of water calculated at R 2,50 per kilolitre, excluding the effluent treatment costs, water savings of R 158 025 per month will deliver a return on investment in the new AESSEAL® systems in under a year. Easy Coat received Mondi's order in February. Installation of the first 64 systems took place during the planned shutdown that took place over a two week period in March. The remaining 102 systems are expected to be installed in the coming months.

## Reducing Water Usage and increasing MTBF

Industry: Pulp and Paper  
 Product: SW2 and SW3  
 Payback period: < 1 Year  
 Savings: £568,890  
 Reference N.O: AW 1677 MONDI

