

New protector system for reliable stock preparation

Centrifugal force does the job at Langerbrugge

Every year, Stora Enso produces 400,000 tons of newsprint from 100% recovered paper at its mill in Langerbrugge in the Belgian port of Ghent. Since December 2008, Voith Paper's two-stage centrifugal separator protector system, HiPRO, has operated at the Ghent stock preparation facility.

PM 4 in Langerbrugge has been in operation since 2003, when it debuted as the largest known newsprint machine in the world. After some years of operation it was decided to upgrade the coarse screening. Heavy contaminants and staples caused plugging and excessive wear to baskets, rotors and stators. "On average we had to open up one screen a week to remove mostly staples," says Patrick De Wilde, DIP Process Engineer at Stora Enso Langerbrugge. As a consequence, a very strict maintenance schedule had to be applied and also the production capacity was limited.

Reducing the workload on the coarse screening system

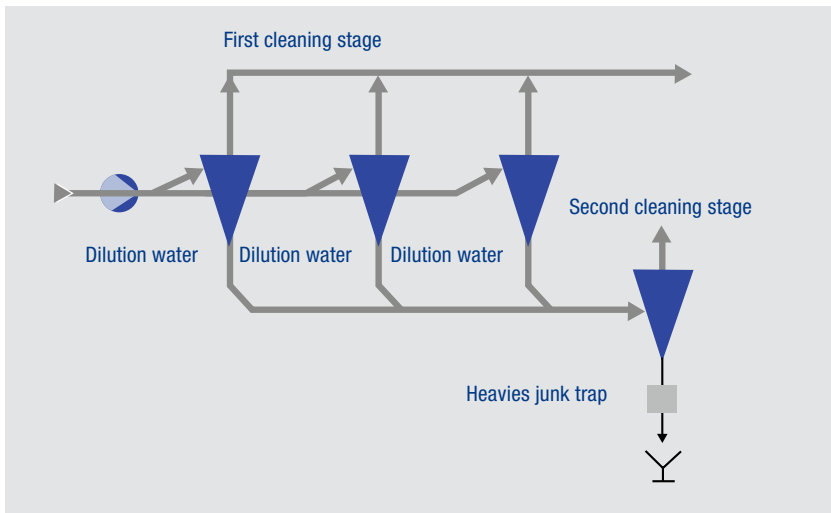
Voith Paper's solution to the problem is its HiPRO 600-3.1 centrifugal separator protector system, which is already proven effective in many deinking units. Installed upstream of the coarse screening system, these machines remove many of the specifically heavy components from the fiber suspension — easing the load on the downstream coarse screening system. In Langerbrugge, a two-stage protector system is installed in each of two parallel lines. Every day these two systems process

a flow rate currently standing at 1,570 t/day (oven-dry).

Centrifugal force removes the rejects from the fiber suspension in the primary HiPRO Protector system stage. The rejects then move in diluted form to the secondary cleaning stage. There the centrifugal cleaner again separates contaminants and fibers. "This configuration keeps fiber losses to a minimum," explains Rolf Hartmann, product manager for cleaning systems at Voith Paper. Compared with one-stage systems, this centrifugal separator halves the contamination

Stora Enso produces 400,000 t/year newsprint paper from 100% recovered paper.

Schematic principle of operation of a HiPRO Protector System.





“If you can filter out heavy contaminants early in the stock preparation process, you prevent problems further down the process chain.”

Rolf Hartmann, product manager for cleaning systems at Voith Paper

3D view of a HiPRO 600-1 Protector System.

in the accepts and the fiber losses. The cleaned suspension goes directly to the coarse screening system, while a junk trap for heavy rejects removes the heavy contaminants.

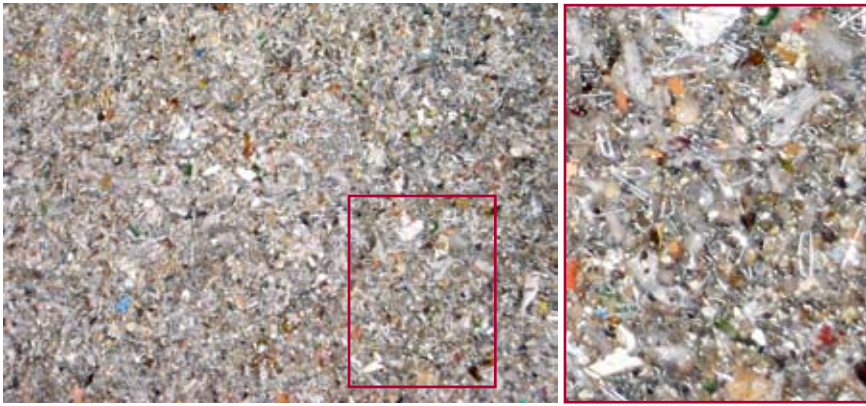
To achieve overall constant separation efficiency between the inlet and outlet of the protector system, a differential pressure regulator for variable-speed pumps was

installed. This helps to substantially reduce the power consumption.

Stora Enso experts were able to install the necessary additional piping and pumps for the new protector system while the existing system was still running. This enabled the new HiPRO system to be rapidly connected and commissioned.

No more production disturbances

The system not only ensures excellent coarse screening, but its hydraulically optimized components – make it highly reliable. With no rotor or intermediate pump, and just one junk trap, the HiPRO protector system needs minimal maintenance and control requirements.



Left: Typical reject material from the heavy junk trap of a protector system.

Right: This detail shows the highly efficient collection of removed staples.

The second cleaning stage is ideally protected against wear by a ceramic liner in the conical section of the separator.

The new system has already proven effective in Langerbrugge, the coarse screens do not clog up and result in production interruptions, and also there has been a substantial reduction in the wear and tear on the screen baskets. “There have been no more production interruptions because of clogged coarse screens since the system was commissioned in December 2008,” says De Wilde.

This proves that modern deinking plants need a two-stage, high-density cleaning system as a relevant process stage upstream of a hole screen.

Small machine – big effect

What seems like a minor project has a huge impact on the availability of the entire plant and on maintenance costs. The HiPRO protector system is well worth using in all stock-preparation units that work

with recovered fibers, because the system ensures a stable production process and prevents unnecessary disruptions in the downstream processing machines.

“If you can filter out heavy contaminants early in the stock-preparation process, you prevent problems further down the process chain,” says Rolf Hartmann.

Thanks to its compact, modular structure, the system is also suitable for use even where space is tight.

On Focus: Protector System HiPRO

ProSafety	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ProRunnability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ProQuality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ProSpace	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Section: total paper machine
Width: all
Paper grade: all

Contact



Armin Volk
armin.volk@voith.com

“There have been no more production interruptions because of clogged coarse screens since the system was commissioned in December 2008.”

Patrick De Wilde, DIP Process Engineer, Stora Enso Langerbrugge