

World record for efficient stock preparation set at Rhein Papier in Hürth

Combiscreening helps exceed targets

The PM 1 paper machine from Voith Paper runs at full speed at Rhein Papier, where, in March 2009, it set a world record of 2,010 m/min. To achieve this production level, Voith Paper set up an effective new Combiscreening arrangement for stock preparation, at little expense.

Since 2002, the Myllykoski Group has produced newsprint made of 100% recycled paper on the PM 1 at their Rhein Papier plant in Hürth. Although only in its first years of operation, the paper machine had already tapped its full speed potential by 2005, and the stock preparation system could no longer keep pace with the machine. As the machine's production capacity increased and stock preparation lagged, more impurities accumulated. The result was operational malfunctions and increased maintenance work.

An analysis by Voith Paper and Rhein Papier found a bottleneck in the three-stage hole screening arrangement. Up to that time, the screens had perforated cylinders with a 1.0 mm hole diameter. In addition, reject lines, valves, and screens were overloaded.

However, the arrangement, in concert with the fine screening at Rhein Papier, experienced very good removal efficiency, including effective stickies removal.

"Our challenge was to maintain the quality of the stock at a higher production quantity," reports Guido Clemens, Director of Technology at Rhein Papier.

Combiscreening instead of hole screening

Voith Paper found the solution in combiscreening. It combines robust, two-stage hole screening with effective slot screening, and it no longer requires two slot-screening arrangements in full stream.

The Combisorter, coupled with a cleaner, was installed as the only

new machine in pre-screening. It forms the intelligent link between hole screening and slot screening, removes all coarse impurities, and calibrates the stock for treatment with fine slots. The two first-stage screens remain unchanged, while the screens of the second and third stage now form the slot-screening arrangement, coupled in partial stream. They are equipped with the FiberLoop, which decreases rejects thickening and reduces fiber loss, in the new third and fourth stages.

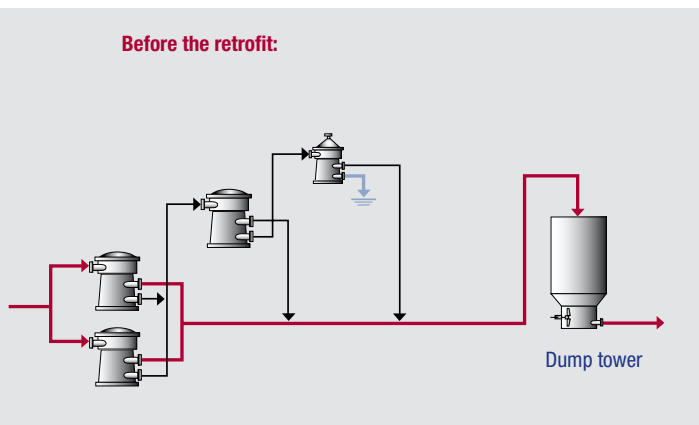
The Combisorter has already proven itself several times in graphic paper and packaging systems. Its application to stock prep in Hürth was quickly successful as well: Since the autumn 2007 retrofit, production capacity of pre-screening is up to 20% higher than before. In addition, flotation was optimized. Stock

Richard Thalhofer (left) and Guido Clemens (right) in front of the new Combisorter.

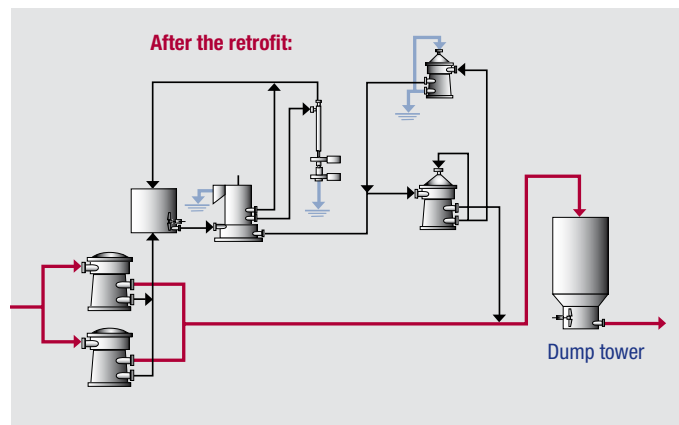


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Richard Thalhofer, Process Engineer in stock preparation, Rhein Papier



Before the retrofit: hole screening as pre-screening.



After the retrofit: Combiscreening as pre-screening.

preparation now exceeds the 1,000 tons per day that Rhein Papier had aimed to achieve. By comparison, the previous best result was 880 tons per day.

Records celebrated

“We have not only maintained the quality of the stock, but even improved it: Sticky removal in pre-screening improved by about 30%,” sums up Guido Clemens.

Even critical impurities, such as Styrofoam™, are effectively removed. The two end stages of hole screening, the Combisorter and the Multi-Sorter, can be set to handle whatever impurity range comes up. Stock

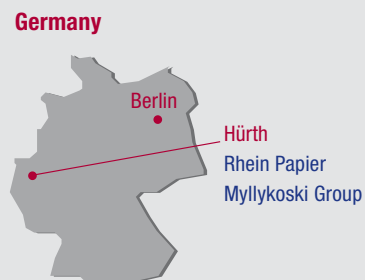
consistencies and overflow rates can drop by approximately 20% overall.

“What impresses me is that Voith Paper very effectively implemented the changes in stock preparation with little expense,” says Richard Thalhofer, Process Engineer in stock preparation at Rhein Papier. “We had low investment costs and low retrofitting expenses. At the same time, the specific energy costs have not risen.”

Along with the stock preparation retrofit, Voith implemented additional upgrades to optimize the PM 1. It did not take long to set records: In 2008, Rhein Papier surpassed its production target with a record annual

tonnage of 302,000 tons. In April 2008, the PM 1 reached world-record speed with 1,980 m/min over 24 hours. At the beginning of March 2009, the bar was raised even higher with 2,010 m/min.

Location



The city of Hürth is in North Rhine-Westphalia, just 9 km from Cologne. It owes its origin to the development of the Rhenish brown coal district at the end of the 19th century. Today, along with large-scale industry, the media are among the significant economic factors in this city of 60,000 residents.

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“We have thus not only reached our targets, but exceeded them.”

Guido Clemens, Director of Technology at Rhein Papier