



Adolf Jass paper mill – Fulda PM 3 fit for 2000



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The paper mill Adolf Jass GmbH & Co KG, Fulda, Germany, is among the 10 largest producers of corrugated board base papers in Europe today. In 1998, together with Voith Sulzer Paper Technology, a major rebuild of the PM 3 production line was accomplished. After having placed large-scale orders for PM 4 in 1988 and 1991 and for PM 3 in 1991 and 1996, the mill has taken a further step toward strengthening its position in the corrugated board base paper market with the investment made in 1998.

PM 3 of Adolf Jass Paper Mill in Fulda, produces corrugated medium from 100% recycled furnish. The mill's most recent rebuild of this production line follows a trend towards thinner flute profiles in corrugated board production. As a result, the producer of corrugated board base papers is demanded to produce lower basis weights.

At the same time, it can be noticed that the quality of the recycled fiber grades used for paper production deteriorates. Nevertheless, advanced machine concepts and the correlating technological know-how counteract the declining recycled fiber quality and allow superior final products. The rebuild concept of PM 3 has also taken this development into account.

The goal of the recent rebuild of PM 3 was, therefore, to increase the output and improve quality and at the same time to reduce the corrugated medium basis weights from 115 to 100 and to 80 g/m². An important task was to increase the strength values. In addition, the susceptibility to faults was to be reduced and the runability was to be enhanced.

After the rebuild, the operating speed increased from approximately 630 m/min to 900 m/min. On a wire width of

5,550 mm, 700-800 tons/day of paper are produced depending on the basis weight, which corresponds to an annual output of 220,000 tons. Together with the testliner machine PM 4, Adolf Jass Paper Mill produces approximately 450,000 tons/year of packaging paper.

The most recent rebuild project on PM 3 involved both the stock preparation system and the paper machine. High importance was placed on jointly realizing a comprehensive and well-adapted overall concept for the production line.

Stock Preparation

For enhanced paper quality and runability with lower basis weights, an especially high and uniform finished stock quality is needed, in particular the amount of contaminants such as stickies was to be reduced. To this end, the stock preparation system was equipped with new components and up-to-date automation equipment.

The two existing pulpers, feeding the PM 3 and PM 4, were upgraded into two separate slushing systems. The new stock screening concept, with new machines, permits discharging the rejects from the individual stages of the cleaning process as early as possible. The MC hole prescreening stage was equipped with fiber sorter, drum screen and Combisorter for final stage screening.

The existing cleaner system of the old approach flow system was integrated with the new stock preparation system, with the accepts fed directly into the multi-



stage LC slotted fine screening system comprising vertical screens, Combisorters and Minisorters. Thickening of the finished stock is effected by a new disk filter system supplied by Andritz.

The existing rejects systems were extended by several components from the MERI product range. The rejects handling equipment also accounts for the more stringent environmental regulations announced for the years to come, demanding a separation of the rejects depending on specific properties.

Fig. 1: DuoFormer CFD.

Fig. 2: Slotted fine screening system.

To reduce stickies and to separate the water circuits of PM 3 and PM 4, a new microflotation equipment was installed in PM 3.

Paper Machine (PM 3)

To upgrade PM 3, the most important modifications had to be done in the wire section: PM 3 was equipped with a new two-layer StepDiffusor™ headbox with ModuleJet, SD for CD basis weight profile control by dilution water injection.

Fig. 3: Mill owner Adolf Jass and mill manager Friedrich Specht in front of the DuoFormer CFD.



A DuoFormer CFD has replaced the four-drier wire. The combination of a two-layer headbox and gap former essentially contributes to improving the paper quality. Above all, the strength values and CD profiles could be positively influenced. Two new approach flow systems were also installed in PM 3.

The press section had already been revamped during an earlier rebuild, so only the existing three-roll combined press with Nipco-Intensa press had to be integrated with the new rebuild.

The existing dryer section was extended by two new UnoRun dryer groups. To extend the dryer section, it was necessary to relocate the size press, and in the end, the entire dryer section was fitted with a ropeless transfer system. On the one hand, the new transfer system improves the machine runability; on the other, it increases the safety of the operating personnel.

At the final section, a new horizontal reel with roll density control and automatic reel spool changing device as well as

transport equipment for transporting the parent rolls to the winder, was installed.

Finally, the broke pulping system of PM 3 had to be upgraded: Some of the pulpers were relocated and equipped with new slushing equipment and pulper vats.

Apart from the upgrades/extension of ancillary systems for the PM, the rebuild project of the entire line involved extensive services, such as plant engineering, engineering for buildings, logic diagrams for process control system and engineering for electrical equipment and instrumentation. In the last phase of the rebuild project, the complete machine was disassembled and the installation work was done in the stock preparation system and on PM 3, as well as the operational and technological start-up and optimization of the production line.

Project Execution

The production line was put back into operation in early September 1998 just 12 months after placing the order.

For the rebuild work, Adolf Jass Paper Mill set a goal to manage with as few downtimes as possible during the entire project. Thus, the new stock preparation equipment was installed step-by-step in the first six months of 1998 and went on-line while PM 3 and PM 4 were continuously producing. A large number of interim solutions were necessary to integrate the new processes with the existing line.

With production stops of not more than one week required to connect the new



equipment, the new stock preparation system finally supplied the old PM 3 with stock.

The rebuild of the paper machine and of the ancillary systems took 42 days to complete, including checking work for the new process control system. Up to 520 fitters and construction workers, as well as 50 start-up engineers worked around the clock, and paper was on the reel again on the scheduled start-up date of September 6, 1998.

To comprehensively control and supervise the progress of the project, Voith Sulzer Paper Technology appointed a site project manager who was responsible for all Voith Sulzer and customer activities from order placement to contract fulfillment. The primary tasks of this project manager were the scheduling and follow-up of dates as well as the coordination of interfaces between the suppliers. In addition, the project manager was the first contact partner for the customer and assured that an active flow of information between the customer's project team, the

Voith Sulzer company and the sub-suppliers, was ensured.

In the course of the sophisticated rebuild project and during the start-up, Voith Sulzer engineers were also present on site for extended shifts. Short information channels were thus achieved, and the highly motivated team succeeded in fulfilling the customer's expectations, despite the enormous pressure of time.

Within a short period of operation of the new PM 3 production line, the innovative overall concept of stock preparation system and paper machine proved a suc-