

Successful restart of the earlier Maxau PM 6 in Dongying, China

## German newsprint PM becomes SC-B paper machine in China

Is a paper machine that has been dismantled to make way for a faster new machine no longer of use? With a little innovative thinking, the answer is no! Here is the proof:

### How it all started

In 2003, Stora Enso commissioned Voith to convert the 8,100 mm wide PM 6 in their mill in Maxau, Germany. The term “conversion” is something of an understatement. Looking at it more closely, it was the installation of an almost completely new production line. The 35 year old PM with an annual capacity of 140,000 tons was replaced by a state-of-the-art PM with an output of 260,000 tons per year. The old PM 6 was dismantled and initially placed in interim storage. Thus, Stora Enso gained some time to consider other possible uses. It was clear from the beginning that “continued use”

could not mean “continue as before”, that is to produce newsprint paper.

Today, machines of this type are almost 11 m wide and operate at a speed of up to 2,200 m/min. Therefore, reactivation of the PM would only be a good idea if high-quality products, for example SC-B offset paper, could be produced on it in future. China appeared to have a longterm need for such quality. However, taking into account the production line efficiency, the PM should also be able to produce high quality newsprint. While Stora Enso and Huatai Paper considered a joint venture, Voith was to examine the conversion options and, if applicable, develop a modernization offer.

### What had to be done?

What had to be done to make the old PM 6 “fit” for SC-B and newsprint was clear: On the engineering side, the existing 2-roll soft calender had to be replaced by a modern multiroll calender. A Janus calender particularly lends itself to this. Its roll stack angled at 45 degrees works especially well with the sheet run.

But one particular challenge still had to be overcome: Stora Enso and Huatai Paper wanted a cost-optimized concept. Within the overall concept and taking into account the quality and safety requirements, Voith then examined the degree to which it was possible to continue using the existing equipment of the soft calender, to modify it and still meet the technological objectives. After a thorough examination of the old PM and its parts, the result was that both the deflection compensating rolls, including their hydraulics, and the thermo roll and two steam moisteners could be used again. Furthermore, Voith advised that the entire PM be equipped with a completely new web transfer system. Besides the machine components, the existing automation was also put to the test. The previous machine-orient-

*Opening ceremony of the PM 6 in Dongying, China.*



ted controls should be replaced by the modern OnControl system. Particular attention had to be paid to ensure the reused hardware and the new, Siemens PCS 7-based controls were optimally coordinated. In addition, it was decided to renew all pneumatic and hydraulic control components and the field devices relevant to the machine controls as part of the rebuild. As a result of the modernization, it also made sense to create entirely new documentation for the machine-oriented controls, the pneumatics, and the hydraulics. The installation of an OnQ ModuleTherm actuator was recommended for reliable control of the CD caliper profile on the Janus calender – as usual, controlled by the Profilmatic software.

The developed concept convinced the partners Stora Enso and Huatai Paper, so that Voith received approval for the realization.

### How the job was done

First, the paper machine had to be unpacked at the mill site in Huatai, the components checked for completeness and condition and, in some instances, refitted. When stored in 2004, the PM was maintained but not restored. A trouble-free installation within the given tight timeframe would not have been conceivable without fastidious inspection using decadesold documentation and the specialist support of various Voith construction engineers and technicians. Voith took on the basic engineering tasks, which made a fundamental contribution to the problem-free and quick rebuild time. The close collaboration with Stora Enso Huatai and Haisum Engineering

also contributed to the success. After the automation engineering was finished, the reconstruction of the modernized PM 6 began in May 2007.

Thanks to the good preparation, the installation was trouble-free. The fact that the new Janus calender could be completely assembled in the Krefeld workshops in advance and all of its essential functions tested made a significant contribution to the smooth installation. The OnControl controls were similarly subjected to several tests before delivery and adapted to meet customer requirements. Thus, the PM 6 was able to be started ahead of schedule on 25 November 2007 in Dongying and was accepted by the operators just two months later – a result of the cooperation by the Stora Enso and Voith teams.

Today, the PM 6 in Dongying is the first and only paper machine in China on which SC-B is produced on line. And the establishment of this paper quality has also been successful, because the production line is operating at 100% capacity with the production of a high-quality SC-B product. The “old lady” is once again gleaming in her youthful splendor and the concept for the joint venture between Stora Enso and Huatai Paper has been a complete success. Thanks to their know-how and the competent and committed staff, Voith mastered this difficult assignment with flying colors and was even able to exceed the customer’s expectations. The PM 6 is the fifth Voith PM to be successfully put into operation on Huatai premises within seven years – a fantastic result.

### Customer Comment



**Carsten Wenk**  
Operational Director  
Stora Enso Huatai  
(Shandong)  
Paper Co. Ltd.

“The early commissioning, under-shooting of the project costs, customer acceptance of the product and production clearly above the plan since commissioning make this project a success. All those involved in the project have accomplished outstanding things and Voith clearly contributed to it.”

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