The success story of Shandong Huatai Paper and Voith Paper keeps on rolling

The business relationship between Huatai Paper and Voith Paper started nine years ago when Huatai began to negotiate and purchase their High Tech components for the new PM 1 of their new paper mill complex.

This relationship was extended into a partnership, when the former Haindl Schongau paper mill decided to replace their PM 9 with a new modern One Platform Concept machine from Voith.

As PM 9 had always been in good condition and was producing top quality newsprint paper at very high efficiency, the decision was made to sell this machine.

PM 9 was completely dismantled, boxed and shipped to China to be reinstalled for its revival at Shandong Huatai Paper mill site in Dawang.

A new building was erected to give home to this machine and in short time it was possible to start it back up again.

With a face lift, as far as the optical appearance is concerned, and minor new units, the machine was completed. The dismantling as well as the erection, commissioning and start up was performed by Huatai Paper together with Voith Paper.

After a picture-book push button start up good quality newsprint paper could be produced from the first day.

With an impressive efficiency of up to 97% including an average of 1.5 sheet
breaks a day and an average operating speed of 1,180 m/min, newsprint paper based on DIP is produced now for the Chinese market at a rate of 150,000 tons per year.

Within very short time, the paper from PM 9 was established in the market as a superior quality brand.

This success as well as the fast ROI put Huatai Paper Group in the position to proceed with yet another project. The Huatai PM 10.

**Huatai PM 10**

As the newsprint project in China with the most modern technology, it was completed, producing the first consecutive jumbo rolls without a break on 28th July 2003, 20 months after signing of the contract. Only with the philosophy of their close partnership Shandong Huatai Paper and Voith Paper made this green field mill project a success. To date production has proceeded well and the development of a superior quality product has been confirmed.

On a site covering more than six square kilometres, this turnkey project grew in an amazingly short time. The impressive scale of this plant indicates the foresight and ambition of the mill to establish an operation comprising leading edge technology to manufacture a high quality product.

A well equipped Voith Paper Service Center have been established in the neighbourhood to support the total operation.

"Voith Paper offers the most modern technology as well as a first class service to their customers. Since our long and close co-operation we developed a deep friendship between both partners Voith and Huatai. The very successful commissioning of the 200,000 tons per year newsprint line from Voith elevated Huatai Paper into the position of the number one newsprint producer in China with a very good reputation."

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**Li Jian Hua**

President and speaker of the board of the Shandong Huatai group states
Technical data PM 10

<table>
<thead>
<tr>
<th>Specification</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max. operation (layout) speed</td>
<td>1,600 m/min</td>
</tr>
<tr>
<td>Mechanical design speed</td>
<td>1,800 m/min</td>
</tr>
<tr>
<td>Wire width</td>
<td>7,100 mm</td>
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<tr>
<td>Trim width max. on reel</td>
<td>6,420 mm</td>
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<tr>
<td>Jumbo roll diameter</td>
<td>3,500 mm</td>
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<tr>
<td>Output</td>
<td>807 t/d</td>
</tr>
<tr>
<td>Winder speed up to</td>
<td>2,500 m/min</td>
</tr>
<tr>
<td>Roll diameter at winder up to</td>
<td>3,500 mm</td>
</tr>
</tbody>
</table>

A trouble free fabrication and supply of all components was assured by comprehensive control measures based on the approved Voith’s Quality Management according to DIN ISO 9001 and also following Huatai Mill’s standards. All quality controls, therefore, were based on predetermined criteria and certification plans, both with respect to sub suppliers and own fabrication.

In order to achieve effective project progress, several liaison and coordination meetings were held on a mutual determined basis. The time available from receipt of order to operation of the paper machine was extremely limited and, therefore, required big efforts from all parties involved.

Professional organisation and excellent cooperation between Huatai and Voith Paper during the entire period were the basis for the final success.

Huatai Paper and Voith Paper were put to the test by an extremely tight manufacturing and pre-assembly schedule for the paper machine including all components and the civil work. A large-scale logistic coordination of all suppliers had to be mastered within a short time. Site erection was done by Chinese contractors, supported by Voith Paper supervisors. The entire erection time of the equipment was only 5 month, which is exemplary and unique and is the result of good co-ordination and co-operation between Huatai and Voith Paper.
Huatai Paper’s stock preparation operators were trained on their new equipment in Huatai. All the training in Germany as well as the project management, erection and commissioning period were marked by the common goal of Huatai Paper group and Voith Paper:

“Paper on the reel as fast as possible and ramping up the production as fast as possible, making a good quality paper – quality tons on reel.”

This common goal was achieved since signing the contract to “quality tons on reel” in only 20 month. Voith Paper’s “One Platform Concept” is a proven guarantee for fast start ups, short times to reach the maximum operating speed and guaranteed paper quality and thus a quick return on investment.

The efficiency figures are remarkably high and are close to its neighbouring paper machine No. 9.

**Huatai Paper manufacturing plant machine components**

- Complete DIP plant from drum pulper to the finished stock storage tower
- ModuleJet headbox
- DuoFormer TQv
- Tandem NipcoFlex press
The recovered fiber system

Fiber Systems was responsible for the complete recovered fiber system for 500 t/24 h deinked finished stock, from the drum pulper charging system, right through to thickening, storage, waste water handling, chemicals treatment and broke handling.

The drum pulper charging system was supplied by group member B+G and is designed to handle a mixture of 70% AONP and 30% AOMG comprising up to 100% loose paper and bales. The equipment included the complete conveyor plant with bale storage.

The TwinDrum drum pulper consists of two separately rotating drum bodies (drum pulper with integrated displacement core and drum screen) (Fig. 8). TwinDrum’s pulping and screening results are clearly superior to other pulping systems so far on the market as regards deflaking, gentle fiber treatment and avoidance of contaminant size reduction.

The pulped stock passes from the TwinDrum system to two-stage high consistency cleaning (HiPro system) for efficient removal of sand and heavy particles. A two-stage forward-flow MC hole screening system then follows, using a MultiSorter (1.4 mm holes) in the first and a CombiSorter in the second stage.

MC hole screening is followed by three-stage IC cleaning with EcoMizer technology. The cleaned stock is then fed to EcoCell flotation (Fig. 7, right) consisting of five primary and two secondary cells for pre-flotation and four primary and one secondary cell for post-flotation.

High performance 4-stage LC slot screening with 0.15 mm C-bar screen baskets follows the pre-flotation cells. This is succeeded by thickening I and disperging using a Thune disc filter (Fig. 7 left), Thune screw press and a disc-type disperger. Next comes HC oxidative peroxyde bleaching, post-flotation, thickening II, reductive hydrosulfite bleaching and, finally, storage of the finished stock.

Apart from the above mentioned process equipment, Fiber Systems was additionally responsible for the complete chemicals preparation of the DIP plant, basic process and control engineering as well as for erection supervision. Plant commissioning was undertaken in close teamwork between Voith and Huatai.