Bohui BM 1 –
A benchmark in China for the paper industry worldwide

This new board machine for the Bohui Paper Group in China was smoothly commissioned on July 18, 2003, some weeks earlier than planned. With a capacity of 300,000 t.p.a. it is one of the world’s biggest production lines for white coated carton. This was of course the focus of great expectations in the paper industry – which after more than one and a half years of outstandingly successful operation have been fully justified.

Bohui Paper Group

Bohui is about one hour’s flight south of Beijing, right in the center of Shandong Province with its rapidly expanding industries. The Bohui Paper Group production portfolio includes linerboard, folding boxboard and graphic grades as main products. Apart from paper and board, Bohui also makes various chemical products such as PVC and common salt (NaCl, sodium chloride). The group’s very considerable energy requirements are covered by its own thermal power plant, soon to be joined by a second one to keep pace with demand.

With about 4000 employees and an output of around 450,000 t.p.a. of board and 120,000 t.p.a. of graphic paper grades, the Bohui Paper Group is already one of China’s ten largest paper producers. And
it plans to expand overall paper and board production to about 1 million t.p.a. by the year 2008.

At the end of March 2002 the Bohui Paper Group entrusted Voith Paper with the delivery, erection and commissioning of a complete new board machine.

One of the most decisive reasons for booking this order was our excellent references in this area – over the last few years Voith Paper has successfully delivered and commissioned no fewer than eleven board production lines in China.

**State-of-the-art technology**

The new machine produces high-grade carton, coated on both sides, from 100% chemical pulp, and folding boxboard with white coated cover layer from recovered paper furnish. Voith Paper delivered the entire process technology on a single-source basis.

In the stock preparation system, apart from cleaning, hole and slot screening as well as fractionation, the mill has also installed EcoCell deinking and two complete disperger systems, each with preceding disc filter. A further disc filter is used to recover fibers.

The new paper machine comprises the following components:
- 4 fourdriniers and a DuoFormer D
- 4 MasterJet F/B headboxes, with the liner headbox being equipped with a ModuleJet dilution water control system

<table>
<thead>
<tr>
<th>Technical data of the new board machine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Product</td>
</tr>
<tr>
<td>Basis weight</td>
</tr>
<tr>
<td>Wire width</td>
</tr>
<tr>
<td>Untrimmed width at reel</td>
</tr>
<tr>
<td>Operating speed</td>
</tr>
<tr>
<td>Design speed</td>
</tr>
<tr>
<td>Production capacity</td>
</tr>
</tbody>
</table>

**Fig. 1:** Bohui board machine 1.  
**Fig. 2:** Bohui Paper Group in Bohui, Shandong Province, China.
The special features of this coating machine include modular arrangement of the coater stations, and the Airturn dryers. These innovative dryers ensure contactless turning of the board web during the simultaneous drying process.

This modern coating line is particularly distinguished by its short and uniform web runs before and after the coaters, each with its own web tensioning group, as well as fast web transfer and the low overall machine height.

The coaters are suitable both for rod and blade operation modes.

Extremely operator-friendly, this coating line with its compact dimensions ensures the highest coating quality and excellent runnability.

The new coating line

The on-line coating machine with four GL coaters was built according to the Voith “One Platform Concept“ and fitted with a Krieger IR-drying system.

Voith Paper Automation. The automation system also includes Profilmatic M cross-profile control, Aquapac moisturizing spray nozzle system and IR coating dryer. Voith also took responsibility for the erection and commissioning of this board machine. All machine clothing was supplied and installed by Voith Fabrics. Major components such as the dryer section and coating machine frames, the dryer cylinders and rolls were made in China by Voith Paper Liaoyang Ltd.

The entire machine control, operation and visualization systems were installed by Voith Paper Automation.

Fig. 3: SpeedFlow.

Fig. 4: Overall layout of the paper machine and coating line.

Fig. 5: Bohui coating machine.

Fig. 6: Reel.

- NipcoFlex shoe press
- Suction press
- Offset press
- 2-tier dryer section with a predryer section, afterdryer section and a correction group
- On-line coating machine with 4 GL coaters for double coating on both sides
- Krieger InfraElectric infrared dryer, with integral InfraMatic moisture cross-profiling for the coat
- SpeedFlow coating unit
- 1 hardnip calender and 2 softnip calenders
- TR 125 reel
- VariFlex two-drum winder.
Erection, commissioning and optimization

The notably short erection and commissioning time of only six months in total was only possible thanks to first class coordination and cooperation between the Bohui Paper Group and Voith Paper. One month after commissioning, the new board machine was already producing saleable board at full production capacity. A decisive reason for the uncommonly short completion time of only 16 months for a project of this size – from contract signing to commissioning – was that Voith effectively took over responsibility for the entire machine and thus reduced interfaces to a minimum.

Hardly a year after commissioning this new board machine, all the specified requirements for folding boxboard as well as for cardboard production were complied with at full production capacity.

The highly successful commissioning took place in July 2003.