



The first paper machine in India with the online coating method – Bhigwan PM 2.

Bhigwan PM 2 with online coaters sets new standards

Unique in India

The new PM 2 of Ballarpur Industries Limited (BILT) in Bhigwan, in the state of Maharashtra in India, is setting new standards for graphic coated paper. Bhigwan PM 2 is the first and so far the only paper machine in India featuring the online coating method. Ultimately, BILT decided in favor of the online method because, along with lower investment costs, it also has lower operating costs.

BILT operates the Voith PM 1 offline machine at the same location very successfully and can, therefore, directly compare the two methods daily.

BILT, as part of the approximately US \$3 billion Indian group Avantha, is India's largest paper manufacturer and one of the most efficient producers of printing and writing paper. At

the five production locations throughout the country, BILT produces more than 50% of the wood-free coated paper needed in India. In doing so, an annual output of over 500,000 tons of pulp and paper is achieved. BILT is thus among the top 100 of the largest paper manufacturers worldwide. After discussing an offline coating method initially, and a wider machine, BILT

and Voith ultimately agreed on a narrower Perfect Fit online variant. It met the market requirements in India. The extensive technical discussions and negotiations with BILT's technical team stretched out for over a year altogether. On March 22, 2007, the negotiations ended with the signing of the contract for supply of the Bhigwan PM 2 production line.

Large delivery

Voith Paper's delivery includes the entire line, starting with stock preparation, the approach flow system including broke preparation, the complete paper machine with auxiliary equipment and the online coating machine all the way to finishing with the offline Janus calender and VariFlex winder.

Stock preparation includes both preparation lines for short and long fibers that are equipped with TwinFlo double disc refiners. Mixed tropical hardwood from sustainable timber stands and pine are primarily used as the raw materials. The raw material is supplied on the one hand via market pulp and on the other from their own pulp production. Sabah Forest Industries (SFI) in Malaysia, which was recently acquired by BILT, also ensures a more independent and sustainable supply of raw material. It operates a pulp mill on Borneo in the Sipitang Province in Malaysia and, at the

same location, two older paper machines, manufactured in 1988.

The entire wet end process, i.e. the approach flow system including TurbAir vacuum system, broke preparation, fiber recovery, headbox pump and also process pumps and the complete instrumentation are also included in Voith's delivery. Together with the basic engineering originating from Voith and the excellent teamwork with BILT, this allowed optimal coordination and integration of all process components. The result was a speedy and successful start-up in December 2008.

The structure and design of the PM 2 is modeled heavily on the world's largest wood-free coated paper machine, the Dagang PM 3 in China. There are differences though, especially in the area of width and machine speed and also in the former. The Bhigwan PM 2 is equipped in the front wet end with a ModuleJet headbox and DuoFormer D for the best formation.



Stock preparation includes both preparation lines for short and long fibers.

The press concept was also convincing

The Tandem NipcoFlex press was selected for low two-sidedness of the paper, high dry content after the press with the lowest possible volume loss and the highest runnability. Like the online coating method, this press concept is a novelty for India and first had to win over the technical team at BILT.

In addition, the single-tier TopDuoRun pre-dryer section, the 1x2 EcoSoft calender and the SpeedSizer used for precoat and sizing are included

Technical specifications

Bhigwan PM 2

Paper grades:	online wood-free coated (single and double), wood-free uncoated
Production capacity (gross):	655 tons / 24 hours (based on 100 g/m ²)
Wire width:	5,400 mm
Max. paper web width at the reel:	4,810 mm
Design speed:	1,100 m/min
Max. operating speed:	1,100 m/min
Raw material: bl. short-fiber pulp	70 - 85%
bl. long-fiber pulp	15 - 30%
filling	10 - 15%



The DuoFormer D provides for the best formation.



A 10-roll Janus MK2 calender provides for optimum surface treatment.

The successful start-up team in Bhigwan.

in the delivery. Finally, the online dual top coat coating machine followed the flotation dryer and the two-tier CombiDuoRun after-dryer section. Here DynaCoat AT coaters with JetFlow technology for optimum coat application are used.

In addition to the main components, auxiliary equipment such as hood technology, steam and condensate systems, central oil lubrication, paper web run, edge trimming preparation and splash water system are also part of Voith's delivery. A 10-roll Janus

MK2 calender provides for optimum surface treatment after coating. The sophisticated and stable 45° design allows the quickest roll changing times and partial deadweight relief in the nip. The VariFex winder with its two specially rubberized reel drums is responsible for optimum reeling conditions during winding of the secondary rolls.

Speedy start-up possible

In addition to the proven machine units, there was also the entire control

system (MCS/ DCS) and quality control system (QCS) of the machine, including five scanners from Voith. That was advantageous for the smooth and speedy start-up, since there were hardly any interfaces with an external system. Initial general coordination problems with optimizing the drives of the customer's motor supplier, especially in setting the "pulls" in the various areas, were eliminated through the cooperation of all parties.

The machine operators who were originally accustomed to various



Customers visit Voith Paper in Heidenheim, Germany (from left to right):

- Joachim Huber, Regional Account Manager Asia;*
- Dirk Thomas, Start-Up Engineer;*
- R.R. Vederah, Managing Director BILT;*
- Kurt Brandauer, CEO of the Division of Paper Machines;*
- SK Khurana, Senior Vice President Projects & Engineering;*
- Carl-Heinz Becker, Project Manager;*
- and Manfred Wagner, Project Manager.*



The DynaCoat AT with JetFlow technology provides for optimum coat application.

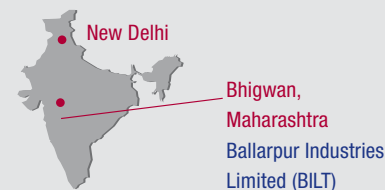
external units were won over by the easy operability of the Voith Automation solution. The customer's personnel were all intensively trained for the start-up and to maintain lasting success for the project. An extensive training program was carried out for the future operating and maintenance personnel by start-up supervisor, Peter Spreng, and other Voith experts. About 13 months after the contract came into effect, installation of the PM started in May 2008 and successfully concluded after seven months on November 28,

2008. Twenty days after installation was completed, the start-up was authorized and at the beginning of April 2009 the operation test run requirements for wood-free coated paper were already met. Along with the extremely professional and cooperative collaboration between BILT and Voith, Voith's Indian joint venture partner of several years, Larsen & Toubro Limited (L&T), also contributed to the successful installation of the new Bhigwan PM 2. From the Kansbahal plant in the state of Orissa in India, L&T supplied essential parts of the dryer section, especially the machine frame and also dryer cylinder and various other rolls and parts of stock preparation, all the way to the calender machine frame.

Now, due to the Bhigwan PM 2, BILT can further expand its market leadership in India and together with Voith has created a showpiece for online coated wood-free paper production in India. Production capacity for wood-free coated paper at the Bhigwan location can now be increased from the previous 125,000 to 315,000 tons per year.

Location

India



The city of Bhigwan in the state of Maharashtra in India has about 9,000 residents. The BILT paper mill is 5 km outside the city. Baramati, a gold and silver city with a large industrial area and about 100,000 residents, is 40 km from Bhigwan.

Contact



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"We look to the future with confidence and are sure that this successful project will advance our economic success."

R.R. Vederah, Managing Director

"Since start-up, the performance of the PM 2 has completely met the high aims that we set when selecting Voith as our machine supplier. Along with their partnership during the design phase and prompt completion, Voith also supported us in the further development of paper qualities. We look to the future with confidence and are sure that this successful project will advance our economic success."