



# HENAN TIANBANG

TAKING CONTROL



A STORY FROM  
SPECTRUM ISSUE NR. 38

**ANDRITZ**

ENGINEERED SUCCESS



# TAKING CONTROL

Henan Tianbang Group Paper Company takes enormous pride in the quality of its fine paper products that are known and used all over China, as well as being exported around the world. When the company decided to end its dependence on market pulp and produce its own mechanical pulp, ANDRITZ was the first to be called.

Being a renowned specialist producer of fine paper products demands the strictest controls over the quality of raw materials. It also demands that costs be managed in the most effective way possible to ensure market position is advanced and maintained. China's Henan Tianbang Paper Company is one of those specialist producers that has carved something of a niche for itself in supplying paper for printing, note books, and superior quality

writing paper across China and beyond. Even in an environment where the iPad and other electronic devices seem to be the fashion, Henan Tianbang is growing and gaining more market share with its dedicated products.

Since the company's formation outside the town of Huixian, Henan province, in 2008, it has been expanding and updating all areas of the mill, including installing

a recycled fiber plant (DIP), supplied by ANDRITZ in 2011. The mill has also seen a new power boiler and effluent treatment plant installed in recent times to keep up with China's increasingly stringent environmental regulations.

Fan Naiwang, Henan Tianbang's owner, says of its move into producing its own mechanical pulp, "We operate two paper machines at the mill with a capacity of

150,000 tonnes a year in total and we were totally dependent on outside suppliers for our mechanical pulp, which came from some 70 kilometers away.

"This meant that we didn't have any control over the quality of the pulp we were receiving, and crucially it also meant that we had to pay the market price, which became unmanageable as prices became so volatile. We had to make a move into producing our own pulp so we could have better control."

Fortunately, the area around Huixian is home to a number of northern Chinese poplar plantations so the availability of wood was not a problem. However, there was no history of expertise at the mill when it came to mechanical pulp production, so Henan Tianbang had to start right at the beginning and dig deeply into what the requirements were.

**FAN NAIWANG**  
Owner, Henan Tianbang  
Group Paper Company

**"We did our own in-depth research on pulp making, and it soon became clear to us that ANDRITZ was the No. 1 expert in the area of mechanical pulping."**





(Left to right): Zhang Xiuli, Sales Manager, ANDRITZ China; Gong Qunfei, Project Director/General Engineer, Henan Tianbang; Guo Quanming, Automation Manager, Henan Tianbang; Wang Yucai, Project Manager, ANDRITZ China



Mechanical pulp from the ANDRITZ P-RC APMP system



The P-RC APMP system using the very latest TwinFlo TF refiner from ANDRITZ

"We did our own in-depth research on pulp making, and it soon became clear to us that ANDRITZ was the No.1 expert in the area of mechanical pulping," says Fan.

### THE MOST COST-EFFECTIVE ROUTE

Henan Tianbang decided the best, most cost-effective route to take would be to look at quality second-hand equipment that could be installed to satisfy its needs. During the usual ongoing communication that took place between ANDRITZ and the Henan Tianbang

mill, discussions began on what sort of solution could be provided to allow the mill to become self-sufficient in pulp. Zhang Xiuli, Regional Director, Pulping, Fiber and Recycling Division, ANDRITZ China, says, "We always keep our ear to the ground when it comes to customer requirements, and we began consulting with Henan Tianbang about a mechanical pulping solution that could suit the mill's needs. We have a vast network and history when it comes to second-hand equipment so we put some enquiries into place on a global scale."

It wasn't long before a solution was found in the shape of some previously owned Hymac equipment at a site in the USA. An added advantage is the fact that ANDRITZ had acquired Hymac in 1997, and therefore had extensive experience of the technology involved, as well as blending it in with its own, latest technology in pulping.

### THE BEST OF BOTH WORLDS

In July 2016, a decision was made to install a variety of previously owned Hymac equipment that would go along with

some of the very latest ANDRITZ pulping technology. The line would be designed based on ANDRITZ's own P-RC APMP technology, a proven and vastly successful mechanical pulping technology with more than 34 installations globally, 30 of those in China.

Zhang says, "This was the perfect solution for Henan Tianbang as it got the best of both worlds; the cost efficiency of using previously owned equipment and the very latest from ANDRITZ in technology and process design."

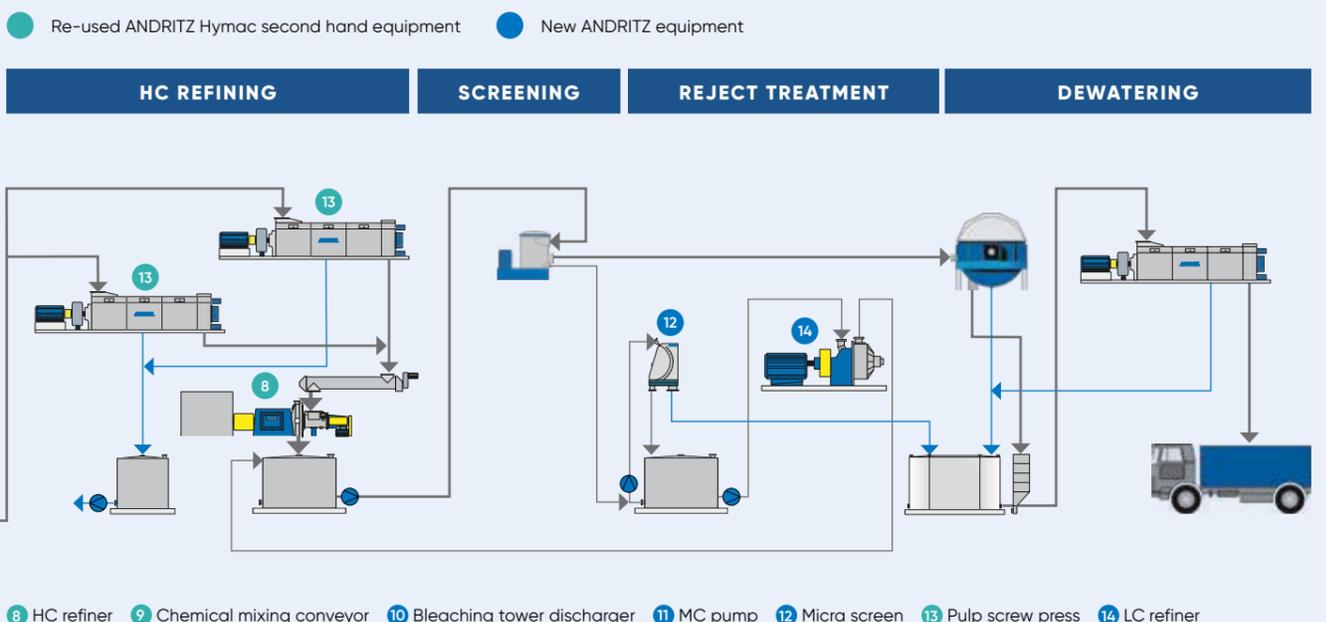
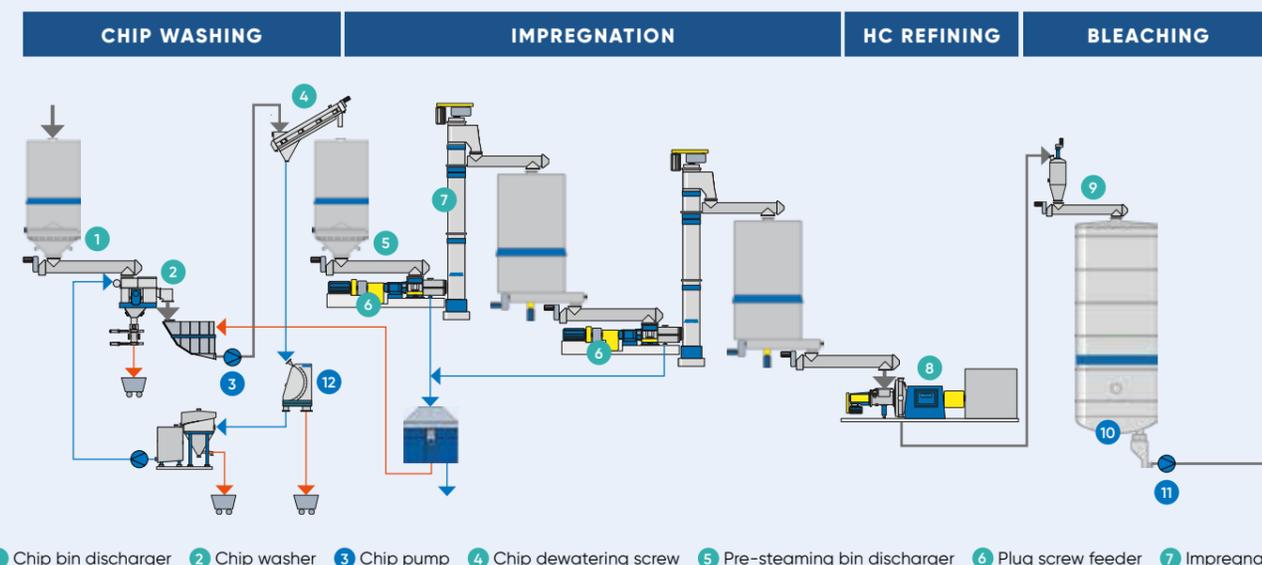
### THE ANDRITZ P-RC APMP SYSTEM

The advanced and patented P-RC APMP (Pre-conditioning Refiner Chemical Alkaline Peroxide Mechanical Pulping) technology applies chemicals – Sodium hydroxide (NaOH), and hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>) – in impregnation and after the primary refiner. The HC bleaching tower is located right after the primary refiner, but before secondary refining and screening. A dewatering and washing stage is added after the HC bleaching tower to provide high consistency for the 2<sup>nd</sup> stage

refiner and to remove detrimental substances. The rejects from the screens are treated in a new low-consistency refiner to remove shives to a minimum and improve fiber quality. At the end of the process, a pulp screw press dewater the pulp to high consistency and reduces COD to a minimum before the pulp is loaded to trucks.

Commissioning and start-up of the line took place between the middle of September and the end of October 2017, with very few reported challenges.

## THE P-RC APMP SYSTEM AT HENAN TIANBANG



**GONG QUNFEI**  
Project Director/General  
Engineer, Henan Tianbang

**“Start-up went with virtually no hitches at all as there was a lot of pre-planning carried out by ANDRITZ before the installation to make sure all the various components fitted perfectly well together.”**



Gong Qunfei, Project Director and General Engineer, Henan Tianbang says, “We were very impressed with the knowledge that ANDRITZ had, particularly when it came to installing and commissioning the 20-year-old Hymac equipment. A lot of the information ANDRITZ engineers were using came from the original manuals that came with the equipment. It was amazing how they used their knowledge and expertise to make the old and new work together.

“Start-up went with virtually no hitches at all as there was a lot of pre-planning carried out by ANDRITZ before the installation to make sure all the various components fitted perfectly well together.”

**FREEDOM AND PROFIT**

The mill is now totally self-sufficient for its mechanical pulp needs, and crucially the quality of the pulp for the paper machines reached the required standards virtually at the start-up. Wang Yucai, Project

Manager, ANDRITZ China says, “The pulp quality parameters such as freeness, brightness, shive content, and fiber length are all comparable to, if not better than, the previous mechanical pulp being used from the market.

“But what this P-RC APMP system has given the Henan Tianbang mill is freedom when it comes to adjusting the pulp quality as as need for the differing types of products they are producing on their paper machines.”

Hymac 20-year-old technology was implemented into the latest ANDRITZ P-RC APMP system for the Henan Tianbang mill



**THE TECHNOLOGY MIX**

**ANDRITZ HYMAC SECOND-HAND EQUIPMENT LIST**

- Chip bin discharger
- Chip washer
- Chip dewatering screw
- Pre-steaming bin discharger
- Plug screw feeders
- Impregnator
- High-consistency refiners
- Chemical mixing conveyor
- Pulp screw presses

**ANDRITZ NEW EQUIPMENT (ALL MANUFACTURED IN CHINA)**

- Chip pump
- Bleaching tower discharger
- Medium-consistency pump
- Micra screens
- Low-consistency refiner
- Basic engineering of whole system
- Commissioning and start-up service

Zhang comments, “Although the Hymac equipment is 20 years old, ANDRITZ designed the system using the latest P-RC APMP technology, which is very 21st century. It’s making a huge difference now to the bottom line at the mill as it is no longer dependent on market pulp and on the high price that comes with it.”

The owner of the mill, Fan Naiwang, concludes, “This project was extremely important to the Henan Tianbang Group Paper Company, and we were really impressed with the local ANDRITZ Chinese engineers and service people working on the project. I made daily checks on the progress of the project, and whatever time of day or night I called in, there was always diligent work taking place.

“And we are really pleased with the outcome. We are running at a capacity of 50,000 tonnes per year, but we are confident that we can raise that to 60,000 tonnes, or perhaps beyond that in the future.”

**CONTACT**

Zhang Xiuli  
zhang.xiuli@andritz.com



#### **AUSTRIA**

ANDRITZ AG, Graz  
p.: +43 316 6902 0

ANDRITZ AG, Vienna  
p.: +43 508 055

ANDRITZ AG, St.Pölten  
p.: +43 508 052 1754

#### **GERMANY**

ANDRITZ Küsters GmbH  
p: +49 2151 340

#### **ITALY**

ANDRITZ Como S.r.L.  
p: +39 031 396332

ANDRITZ Novimpianti S.r.L.  
p: +39 0583 30219

#### **FINLAND**

ANDRITZ OY  
p:+358 0 20 450 5555

#### **RUSSIA**

LCC ANDRITZ  
p: +7 812 315 0863

#### **CHINA**

ANDRITZ (CHINA) Ltd., Foshan  
p: +86 757 8250 2636

ANDRITZ (CHINA) Ltd., Beijing  
p: +86 10 8526 2720

#### **JAPAN**

ANDRITZ K.K.  
p: +81 3 3536 9700

#### **INDIA**

ANDRITZ Technologies PVT Ltd.  
p: +91 11 4937 2900

#### **BRAZIL**

ANDRITZ Brasil Ltda.  
p: +55 41 2103 7601

#### **CANADA**

ANDRITZ Ltd.  
p: +1 514 833 5079

ANDRITZ Paper Machinery Ltd.  
p: +1 514 631 7900

#### **USA**

ANDRITZ Inc., Glens Falls  
p: +1 518 683 5793

ANDRITZ Inc., Springfield  
p: +1 413 733 6603

ANDRITZ Paper Machinery Ltd.  
p: +1 815 389 8200

[mech.pulp@andritz.com](mailto:mech.pulp@andritz.com)

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