

Hengan dreams of tissue

Local entrepreneurs from Fujian Province have achieved a 20% market share of premium tissue for the Chinese market since launching the company in 1985. Aiming for two million tonnes per year production by 2020, the Hengan Group China remains passionate about brand leadership. From its first machine and into the future, ANDRITZ is their leading machine supplier.

The dream to produce quality tissue grades in China started very simply, but with boldness for Hengan. The basic idea was to produce higher quality tissue and hygiene products for Chinese consumers than they were getting from local producers.

Xu Lian Jie, CEO, and his management team, decided to build a state-of-the-art mill at Changde, Hunan Province, starting with 30,000 t/a production. In addition to proving the “quality” concept, the new company needed to establish distribution channels for new brands.

“Our aim was that the first time anyone tried a Hengan tissue product – a mother, a hotel purchasing agent, or a supermarket manager—they would feel and sense the quality,” Xu says. The company knew that loyalty would be built upon a very personal connection.

According to Xu, Hengan has over 15,000 account managers and sales people working in about 800,000 stores across the country. As he puts it, “Our people believe in our products, and express their confidence to consumers.” Supported by extensive in-store marketing, creative packaging, and media advertising, Hengan is a force in the marketplace. In only 15 years, it has become widely recognized, and is strategically focused to maintain that position.

Says Xu, “We are adding a lot of capacity to secure our place as the number one tissue producer for the long term.”

Pioneering Hengan

The Hengan way of running a tissue company also required a wise selection of business partners: ranging from procurement of pulp and consumables to the production and converting technology. Of great importance to Hengan management was the selection of the tissue machine itself.





▲ ANDRITZ Double Disc TwinFlo Refiner for optimum fiber development.



▲ ANDRITZ process pumps and agitators.



▲ PrimeLine™ tissue machine. In 2012 alone, four 50,000 t/a ANDRITZ machines started up at Hengan's Chongqing and Jinjiang mills. Four additional machines are on order.



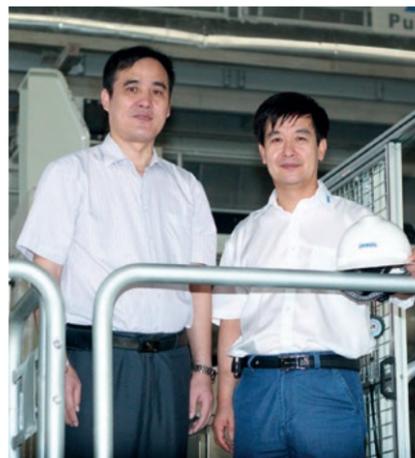
▲ PrimeDry ReEvaporation system for energy savings.



▲ Parent rolls are converted to premium tissue products on-site.



▲ Hengan has achieved a 20% market share of premium tissue for the Chinese market since launching the company in 1985.



◀ Li Xinjiu, Hengan General Manager for Papermaking (left), and Bai Bingchen, ANDRITZ China's Vice General Manager for Tissue, at the new machine in Jinjiang.

“Making the best tissue starts with the best equipment.”

Zhang Qun Fu, General Manager, Hengan

“ANDRITZ has been critical to our tissue strategy,” says Zhang Qun Fu, Hengan General Manager. Zhang oversees the company's technical design, layout, and construction. “Making the best tissue starts with the best equipment. “When we first talked with ANDRITZ, they were like us in the Chinese tissue business. They had something to offer, but were not yet established.”

Zhang likens Hengan's progress to that of moving from infancy to adulthood. “From our birth to becoming an adult, continuous advances in technology have kept pace with our goal of delivering products that our customers desire. From our first project together with ANDRITZ in 1998, we have succeeded as partners and have grown dramatically.”

ANDRITZ is the preferred supplier of the stock prep and tissue machine technology, having built a strong reputation since the start-up of the first PrimeLine machine in 1998. In 2012 alone, four 60,000 t/a ANDRITZ machines started up at Chongqing and Jinjiang. Four more machines are on order for start-up in 2014.

From zero to two million

Before 1998, Hengan produced no tissue. By 2012, it led the Chinese market with a

20% share – producing 1.2 million t/a of high quality products. The forecast is for two million tonnes capacity by 2020. The pioneers who started Hengan boldly bet on their ability to meet the needs of China's growing increasingly urbanized society. And they exceeded expectations for growth and profitability.

Hengan has won loyalty for its brands, and respect throughout the industry for its distribution networks and quality of manufacturing. “I am proud to see China's rising quality with paper grades, and Hengan is leading the way,” says Li Xinjiu, General Manager for Papermaking. “Hengan's first PrimeLine machine set a new standard. World class quality, speed, and efficiency were the highlights. As the years have passed, our quality has gotten even better, and our operating costs are lower.”

Steel outperforms

One of the advances in technology has been the PrimeDry Steel Yankee, which is now preferred on the Hengan machines.

It has become well-known that the PrimeDry Steel outperforms equally sized cast iron Yankees, especially when it comes to energy efficiency. The thermal conductivity of steel is similar to cast iron, but the wall thickness is thinner due to the high strength of



▲ Hengan's PrimeLine™ machines are equipped with the latest resource-saving technologies: the PrimeDry Steel Yankee and the ReEvaporation system.

the steel. This increases the amount of the heat transferred, up to about 20%.

Hengan's PMs 15 & 16 have, in fact, the world's largest PrimeDry Steel Yankees operating in tissue today. Sitting side-by-side at the Jinjiang mill, they produce tissue in about 1.4 seconds from headbox to the finished roll. The “twins” have Yankees of the same diameter (16 ft.) with shell lengths of 6.15 m. Two similar machines at Chongqing

(PMs 11 & 12) as well as the four news orders (PMs 17, 18, 23, and 24) also have Steel Yankees.

Says Bai Bingchen, ANDRITZ China's Vice General Manager for Tissue, “The world's largest PrimeDry Steel Yankees for tissue are not about size just for the sake of size. They are a means to produce high volumes of quality grades at lower energy costs. Hengan is able to former a better sheet



▲ Zhang Qun Fu, Hengan General Manager (left) and Klaus Gissing, ANDRITZ Vice President for Tissue and Air Engineering, discuss the new machine's performance.

and increase production at the same energy input. Or, the mills have the option to reduce energy consumption for a given production.”

The right start for premium tissue

An area of ANDRITZ focus is the upstream processes to the machine itself. For every Hengan machine installation, ANDRITZ also delivered the complete stock preparation and machine approach systems.

The stock preparation system is designed for bleached virgin pulp with a conveying line, pulpers, protection screens, deflakers, refiners, S-series stock pumps, headbox screens, and FP-series fan pumps – all from ANDRITZ. In addition to stock preparation, ANDRITZ also delivered equipment for the broke line and the systems for water recirculation and fiber recovery.

Says Zhang, “Even though we use high-quality virgin pulp, which is much cleaner than recycled, we want our furnish to be extra clean. From the pulper to the machine chest, ANDRITZ helps us maintain a very high standard of furnish quality.”

Heads above

All new Hengan tissue machines use *PrimeFlow* headboxes, which use an eccentric shaft for slice adjustment to avoid what is known as slice deflection. In addition, the step diffusor turbulence generator, in combination with the nozzle geometry, deliver superior paper quality. An important feature of the *PrimeFlow* headbox is a pentagonal/hexagonal outflow pattern of the turbulence generator. This creates a more perfect sheet.

Comments Bai, “The *PrimeFlow* achieves a high level of consistency, or what we refer to as layer purity. When you make tissue at speeds close to 2,000 m/min, precision is a must.”

Lower energy through heat recovery

According to Klaus Gissing, ANDRITZ’s Vice President for Tissue and Air Engineering, “Hengan has proven to be an ideal partner for new technological developments. They are always ready to innovate and are not afraid to take calculated risks to improve quality and reduce costs. We should credit them for pushing us to set new records for

steel Yankee performance, as well as the development of our ReEvaporation system, which saves a lot of energy.”

Recovering waste heat and using it in the tissue making process (for example to evaporate condensate from machine) is highly desirable. That is exactly what happens with the world’s first *PrimeDry* ReEvaporation systems which were installed at Hengan.

“The ReEvaporation system delivers a large part of the energy that used to go into the atmosphere back into the tissue machine by using waste heat to evaporate condensate,” Gissing explains. “This condensate goes back as steam to the Yankee. Up to 30% of the steam demand for the drying process can be generated out of waste heat, depending on the location of the technology in the hood exhaust air flow.”

The impetus for the development was that Hengan wanted greater energy efficiency, according to Gissing. “We had an idea for a product to achieve this,” he says.

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Klaus Gissing,
Vice President of Tissue and
Air Engineering, ANDRITZ

◀ Connected with customers. Bai Bingchen (left) and Klaus Gissing (center) of ANDRITZ meet at a local supermarket with Zhang Qun Fu of Hengan to see Hengan’s products on the shelves.



▲ The heart of the Hengan machine: an 18 ft. diameter *PrimeDry* Steel Yankee.

“ReEvaporation is now installed on the new machines at Jinjiang and Chongqing. The benefits from machine to machine range from very good to great.”

According to Zhang, “ReEvaporation helps reduce our consumption of gas, so it saves us money.”

The next step: revved up ReEvaporation

Says Gissing, “Our first ReEvaporation systems proved to be valuable in capturing and re-using energy. Now we are thinking broader and bigger, using the tissue machine as a power generator itself. The next step is still on the drawing board, but we are close. Hengan’s openness to pioneering is valuable for our own development. Innovation is in their blood.”

True partners: Hengan and ANDRITZ

Zhang is quick to point out that not everything is about technology. “The engineers and technicians from ANDRITZ provide our team a lot of help,” he says. “Faster start-ups and better optimization are achieved with our mutual cooperation and hard work. Every day we learn from their valuable observations, comments, and experience.”

According to Bai, “Every start-up has small issues and challenges to overcome. For ex-

ample, with PM16, there were some small problems with the steam and condensate system. As partners, Hengan and ANDRITZ found the root cause and solved the problems in very short order.”

Future wrapped in tissue

Zhang states, “In the future, tissue making in China will be much more energy efficient. It is a must to be competitive, and to be a leading contributor for sustainable development. Chinese consumers are more aware of issues concerning factories, and they expect more. Our close ties to consumers demand a high level of commitment.”

It can be assured that Hengan will always push for new solutions and new technologies. “Our first focus is on enhancing the consumer experience through advances in softness and strength,” Zhang says. “Secondly, it means energy efficiency and environmental protection. We are considered a leader in China for sustainability. This is reflected in the way we run our mills and the high functionality of our machines – including less water and energy consumption.”

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◀ (From left to right) Xu Shuishen, Hengan Chief Operating Officer, Xu Lian Jie, Hengan Chief Executive Officer, Klaus Gissing of ANDRITZ, and Bai Bingchen of ANDRITZ.