

twogether

Paper Technology Journal

Integrated solutions ensure growth | Yueyang Paper: Start-up double feature | MasterJet Pro: New energy-efficient headbox



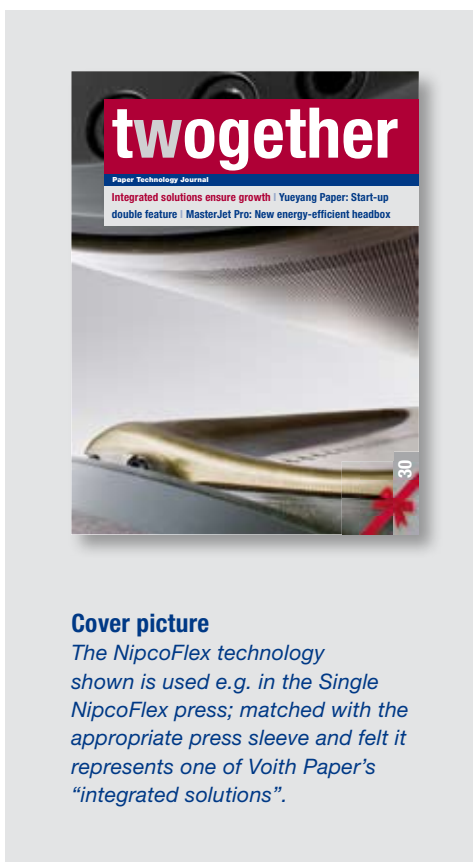
10 Commissioning world record double feature at Yueyang Paper.



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Cover picture

The NipcoFlex technology shown is used e.g. in the Single NipcoFlex press; matched with the appropriate press sleeve and felt it represents one of Voith Paper's "integrated solutions".

Cover story

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Dr. Hans-Peter Sollinger, Member of the Management Board Voith AG and President Voith Paper.

Dear customer, dear reader,

You hold in your hands the 30th issue of twogether magazine. In this 15th year of the magazine's existence Voith Paper will continue to report on issues of importance and relevance to the paper industry. On the occasion of this anniversary we have once again carried out a readership survey. The results from the more than 500 interviews are gratifying, as the majority of our readers are very satisfied with our customer magazine (see p. 74). We will certainly consider the suggestions you have made and incorporate them into the magazine.

In the current issue we look at the exciting topic of "Integrated Solutions". However, it's not just the lead article (see p. 4) that illustrates how the integrated solutions offered by Voith Paper are a response to the key issues affecting our industry. SolarMax, an ingenious combination of roll cover and press felt (see p. 45) or the automation package for SCA's tissue mill in Barton, USA (see p. 48) are also prime examples of integrated solution approaches put into practice.

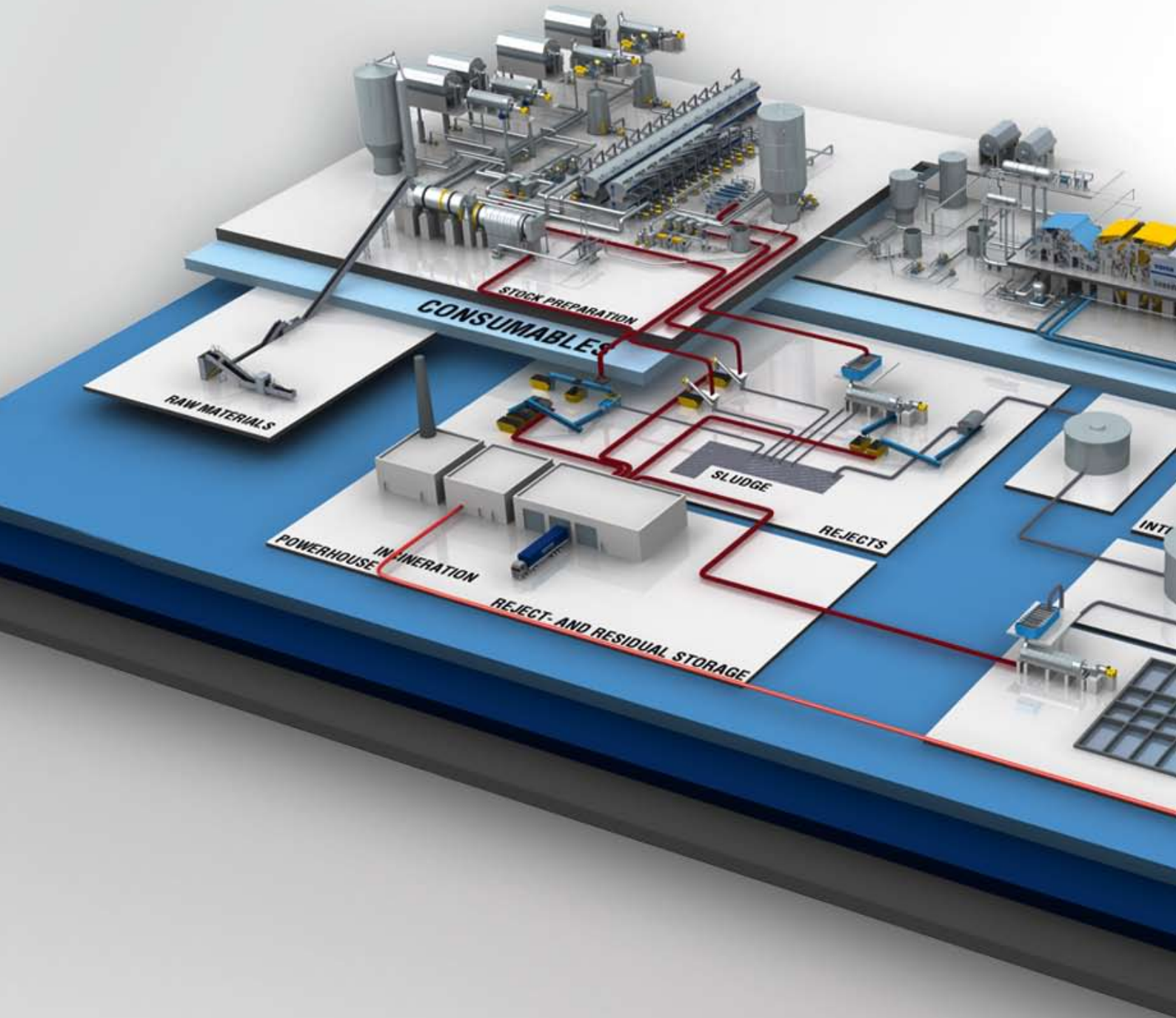
The goals we are pursuing for the paper industry are clearly defined: to improve paper quality, increase productivity and at the same time save energy, virgin fibers and fresh water. All our development deliberations, innovations and projects are designed to further these objectives. It takes this kind of mindset to achieve the start-up record set on the PM 9 and PM 10 at Yueyang Paper (see p. 10); and it also takes this kind of know-how to increase the dry content in the press by 6% through a rebuild at Alberta Newsprint (see p. 14).

The 30th issue of our twogether magazine is therefore a special edition highlighting further examples of how Voith Paper is actively pursuing the above goals. For more information I'd like to recommend that you read the articles about our CycloMech deaeration system (see p. 21) or the new MasterJet Pro headbox (see p. 24).

Happy reading!

H. P. Sollinger

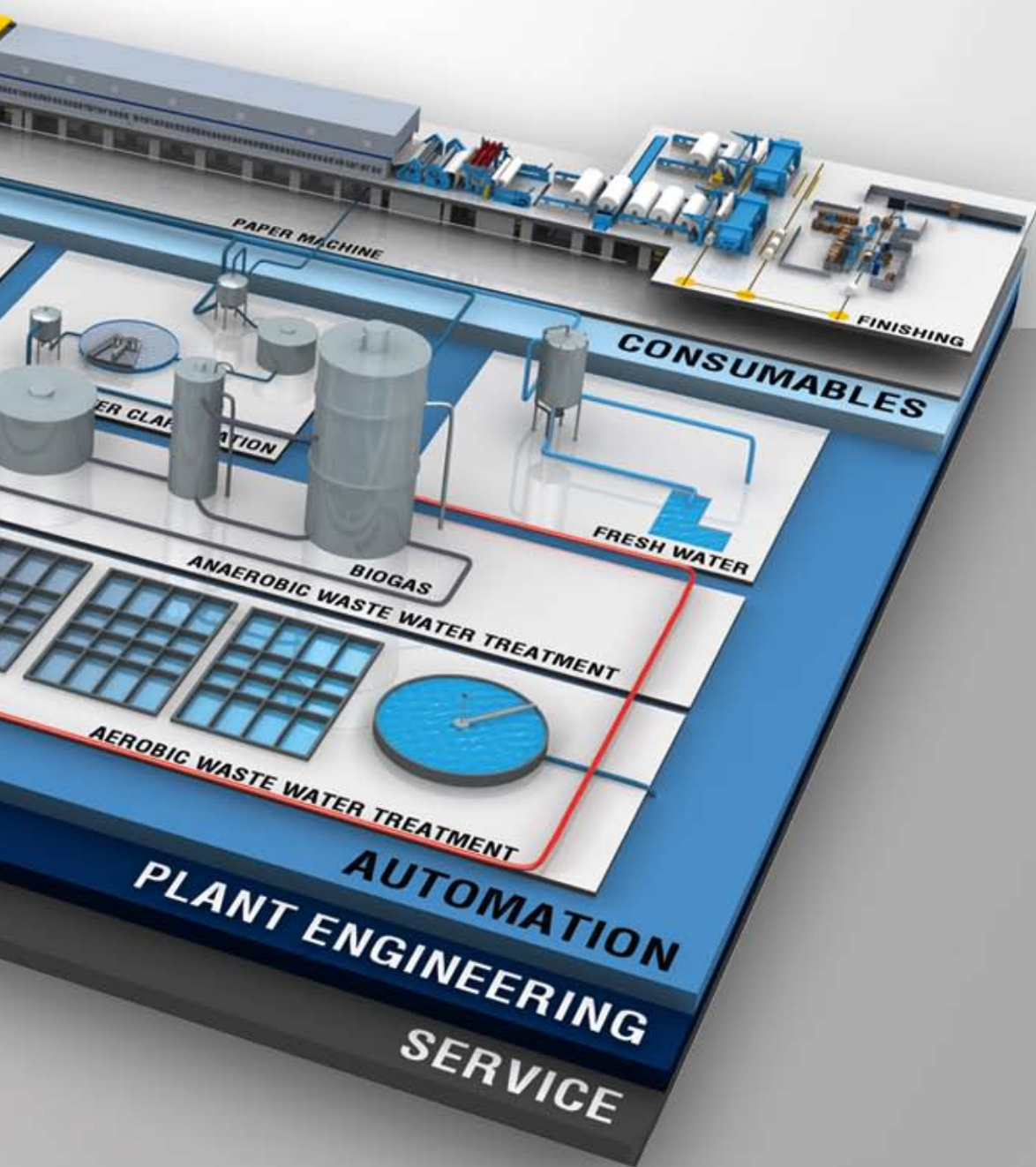
On behalf of the Voith Paper Team

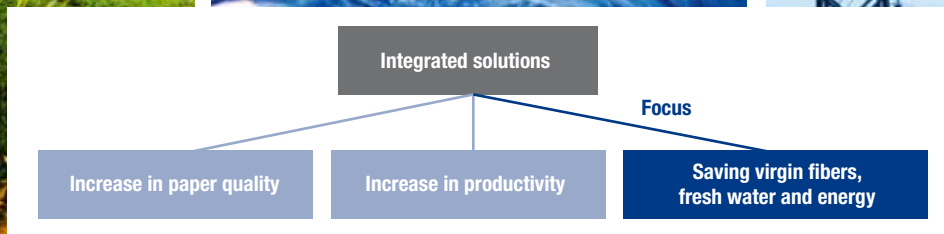
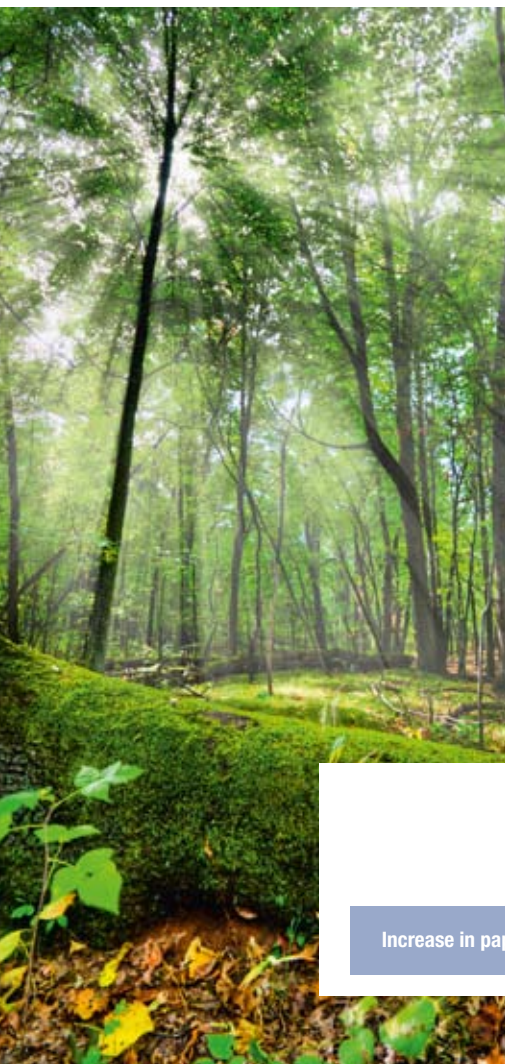


Ideas for resource-saving production:

Integrated solutions ensure growth

Industries worldwide are occupied with the question of how growth can be ensured while at the same time saving resources. Voith Paper, for decades at the cutting edge in the development of modern technologies, offers real answers for paper manufacturing that can be summarized by the term “integrated solutions.”





Consumption of virgin fibers, fresh water and energy can be significantly lowered by means of integrated solutions.

“By integrated solutions, we mean products and processes coordinated with one another that make it possible for our customers to produce high-quality paper while optimizing their >>> resource use,” explains Dr. Thomas Wurster, who is responsible for New Technologies. As he oversees all innovation projects within Voith Paper he can ensure that the various competences in the company are used to develop integrated solutions in the best way possible and new projects can get off the ground.

Integrated solutions can lead to increases in machine productivity and paper quality. “In addition, today we are turning our attention to integrated solutions that are oriented to our green technology concept,” explains Dr. Wurster. “Our customers can thus save virgin fibers and energy and at the same time get by with minimal consumption of fresh water. Consumption of natural raw materials and energy ultimately accounts for on average 70% of production costs in paper manufacturing. For that reason, we see very good saving

potential in this area for our customers. At the same time, of course, we can protect the environment, which nowadays is a must. The investment costs of our integrated solutions are impressive as well, since we also have an eye on them.”

>>> Info: Resources

While the term “resource” is usually associated almost exclusively with raw materials and energy, the originally French word is in equal measure synonymous with funds and, in economic terms, with personnel.

Three levels of activity for integrated solutions

There are three levels which are relevant in considering integrated solutions. The first and superordinate level considers the entire value creation chain, starting with the removal of raw materials from the environment, creation, distribution and use of the products, all the way to returning them back to our ecosystem. “As a renewable raw material that decomposes naturally but can also be technically recycled, paper – invented more than 2,000 years ago – is an ideal material for mass products. And because it is a mass product, even more consistent paths have to be taken so papermaking can be resource-saving and at the same time cost-effective,” says Dr. Wurster.

The second level refers to the paper mill and the third refers to the actual production line, from stock preparation to the reel. Voith Paper comes into play on both of these levels and already today offers various solutions. Dr. Wurster explains: “With our green technology focus, we are also pursuing three specific aims for our integrated

solutions: 1st, cutting the use of primary energy in half; 2nd, reduction of fresh water consumption to at most 1 l/kg of paper; and 3rd, maximization of the recycling rate.”

Over the last few years, Voith Paper has demonstrated with numerous developments that energy savings are possible in all areas of the production line through the use of new and integrated solutions. Up to 25% savings with modern pulpers, up to 30% with new heated roll coatings and likewise up to 30% by using a Single NipcoFlex press or 10% through using the EcoProcess concept in stock preparation – the list could go on. “Despite all these contributions, our long-term goal remains the cutting of paper manufacturing energy consumption in half – a big challenge for Voith Paper,” says Dr. Wurster.

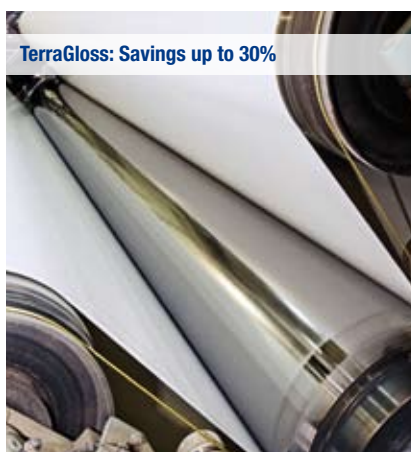
“Reduction of fresh water consumption will be implemented more quickly,” believes the engineer, however. Given the internationally distinguished fundamental developments so far from Voith Paper Environmental Solutions regarding water preparation, he seems confident: “In my opinion, it

Three levels of activity for integrated solutions

Level I	<p>The entire value creation chain Starting with removal of raw materials from the environment, creation, distribution and use of the products, all the way to returning them back to our ecosystem.</p>
Level II	<p>The paper mill Coordination of all processes on site opens up considerable potential for cost reduction and protection of the environment.</p>
Level III	<p>The production line When products and processes are perfectly coordinated with one another, resources such as primary energy and raw materials can be saved.</p>

was completely appropriate that the coordinated combination of bioreactor and lime trap received the Green Apple Award for sustainable developments and it is incidentally a very good example of an integrated solution at the paper mill level.”

He sees bigger difficulties in the case of recycling. “In the paper manufacturing cycle, we have material components that are not yet sufficiently capable of being recycled. Here I’m thinking primarily of additives, printing inks and adhesives. Thus there is still a need for action within the value creation chain level.”



By the use of new and integrated solutions from Voith Paper, energy savings in all areas of the production line are possible.

Level I – the entire value creation chain

An ideal recycling process, of course, doesn't just begin with flotation. If the problematic materials can be identified, they should not be brought into the process at all. Today, adhesives and colors can be used that don't pose any problems during the recycling process. Voith Paper offers effective separation technologies. But how can recovered paper be made into a harmless raw material?

It is clear that recovered paper is becoming more and more important for the paper industry as a resource: Currently around 400 million tons of paper are needed annually worldwide. By 2025 this number is predicted to increase to 500 million. It is caused above all by the growth markets of China and India. But even if they don't grow as much as is legitimately forecast, the raw material market for wood is limited. One main reason for this is the rising interest in renewable energy sources, the use of which is still heavily subsidized, especially in the western world. Alongside that, wood as a renewable raw material is also ideally suitable for alternative production of fuels and basis chemicals. In the foreseeable future, afforestation programs will not be sufficient to cover this growth. A shortage of virgin fibers is thus to be reckoned with. Just one reason why the paper industry has to increase its portion of recycling from around 50% so far in the direction of 70% if it wants to meet the rising demand for paper.

In addition, the use of energy for extracting virgin fibers is still clearly higher than for extracting fibers from recovered paper. Rising energy costs and simultaneously growing competition for wood as a resource thus make recovered paper all the more important as a raw material. "In view of these findings, processes have to be developed which ensure that the highest-quality recovered paper possible is available to us as a raw material," Dr. Wurster believes.

This presupposes an awareness of the problem on a global scale, since the entire value creation chain is involved. To ensure good quality recovered paper is available, collection has to be intensified in some countries, the separation technologies further improved and some impurities have to be kept out of the paper cycle altogether.

Level II – the paper mill

Just as for the value creation chain, an integrated perspective also

makes sense at the level of the paper mill. "There is considerable potential here for saving investment costs, energy costs, chemical and water costs if all processes are coordinated as needed with one another and with the local conditions at the location. The future belongs to mills that in all aspects are a unified whole," Dr. Wurster says. Combined heat and power generation with heat recovery via energy cascades or perhaps water purification with energy generation from the organic load and targeted recirculation of purified water in the paper process are just two examples of highly efficient and cost-effective solutions that at the same time go easy on the environment. With technologies from Voith Paper, modern paper mills are now in a position to manufacture not just the classic packaging paper from recovered paper. Even graphic and tissue paper can be produced at a quality that was previously achievable only with virgin fibers. For the paper mill, this means not just an environmental advantage but

Due to rising energy costs, and growing competition for wood as a resource, increasing the use of recovered paper is all the more important in the paper industry.





Voith Paper conceived of the “urban mill concept” specifically for paper mills near big cities like Shanghai. It takes into account the conditions there so that the paper mill is optimally embedded in the region.

also an enormous cost advantage. Recovered paper as a raw material is a good choice, especially for paper mills that are near cities. Voith Paper developed the so-called “urban mill concept” specifically for these mills. Mills that are geared to this concept not only use the source of recovered paper that comes from the big cities as a raw material. They work with the most modern and energy-efficient systems and have low consumption of fresh water, because the industrial water is completely prepared using the latest technology from Voith Paper and fed back into the production process. They also form symbiotic relationships with the respective region and obtain the required virgin fibers from the densely wooded areas there.

Level III – the production line

It is not just completely new systems that have to be discussed for implementing integrated solutions. Above all, for existing production lines there are also many improvement possibilities. As a system provider, Voith Paper is in a position to analyze not just a detail but also its effect on the entire manufacturing process. With these integrated perspectives, products and processes can be perfectly coordinated with one another and thus energy and raw material consumption can be lowered. A current example of this is the new MasterJet Pro headbox, for instance. Through the close linkage of mechanics, process engineering and automation during development,

a mechatronic unit was developed, consisting of a dosing element, valve, linear drive and control. Development of the headbox can thus be revolutionized. The highest paper quality and maximum energy efficiency are united in this system (p. 24-27).

Or the SolarMax product combination, a unique combination of roll cover and press felt. Not only is dewatering in the press section thereby improved, but energy is also reduced due to the higher dry content (p. 45-47).


Voith Paper is also explicitly concerned with the effect of chemicals in the paper process and is searching for mechanical alternatives. One of them is CycloMech, a new deaeration unit with which the process can be stabilized and efficient use of chemicals can be ensured (p. 21-23).

Encouraged by such successes, Dr. Wurster is optimistic: “By consistently taking cycles and overall interrelationships into account, in the future Voith Paper will create more integrated solutions that offer our customers significant added value. Cost-efficiency and environmental protection go hand in hand here.”

Contact



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PM 9 and PM 10 – Successful start-ups at Yueyang Paper

Commissioning world record double feature

To commission two paper machines just two months apart is impressive. To do the whole thing in the same building within 16 months and in a record time of just three hours from “stock on wire” to “paper on reel”, is a world-record breaking achievement. By opting for two paper machines, papermaker Yueyang Paper, from Hunan province in China, achieved its goal of environmentally compatible production of writing and printing paper using as much recovered paper as possible.

Big challenge: Assembly and start-up of two paper machines in the same hall, within the time frame of two months.

In February 2008, Voith Paper won the order to supply two identical paper machines, each capable of producing 200,000 t/year. This raised the question of why not just build a wider, faster machine that could produce the same volume of paper with lower specific production costs? Moreover, the order came from China, a country with the widest, fastest and most powerful paper machines in the world. However, current developments in China provide the answer to these questions: In recent years there has been an increasing environmental awareness developing in China. Because the country is comparatively lacking in raw supplies of wood, the

majority of pulp for its paper industry has to be imported. Projects that can demonstrate a sparing use of resources are therefore being promoted and also receive the necessary authorizations for realization more quickly. The aim is to significantly reduce the use of virgin fibers in papermaking and to become less dependent on pulp imports. This is why even at the tendering stage the >>> **Tiger Forest & Paper Group**,

parent company of Yueyang Paper, had divided up the planned capacity increase of 400,000 t/year of writing, printing and copy paper between two paper machines with 200,000 t capacity each: The premium grades requiring imported, bleached long and short fiber pulp as their raw material are to be produced on the PM 9. On the other hand the second machine, the PM 10, will produce offset and

>>> **Info: Tiger Forest & Paper Group**

The Tiger Forest & Paper Group is one of the top ten companies in the Chinese paper industry. The production capacity of the Yueyang Paper Mill in Hunan province, in particular, has been expanded enormously in recent years. The paper mill on the banks of Dongting Lake – linked to Shanghai via the Yangtze River – had a production capacity of around 650,000 t in 2008, mostly newsprint and LWC paper. In the same year, the decision was taken to expand the capacity of the mill by another 400,000 t per year in writing, printing and copy paper.

copy papers from up to 85% deinked pulp (DIP) and will be labeled “Environmentally friendly”. The invitation to tender for the DIP system was worded accordingly: Production of 500 t/day furnished from “Sorted Office Paper” with a whiteness of 78-82%. “We collect recovered paper here in China and overseas. Three years ago we established subsidiaries that focus on collecting recovered office paper. Our objective is to use as much recovered office paper in China as possible, in order to save costs,” explains Peng Zhinbin, deputy chief engineer and project manager at the Hunan Tiger Forest & Paper Group.

Project roadmap

The kick-off meeting in Yueyang had already finished before the contract was signed in early March 2008. Since that time the project teams from Yueyang Paper and Voith Paper have been working closely together. An important factor at the start of the project was the pre-engineering. The PM layout and the dynamic calculation and structural analysis of the building were concluded in a very short period of time. This meant that Yueyang Paper could start on the foundations and sub-structures on the scheduled date.

Voith Paper started the fabrication of the machine components at a very early stage of the project and Yueyang Paper was able to track the excellent progress being made at various Voith sites worldwide. More than a quarter of the total investment in the paper machine was pre-assembled at Voith's Chinese works in Kunshan, particularly the wire and press sections, the reel, parts of the web guide, and the dryer.

Ahead-of-schedule deliveries in more than 20 shipments and unproblematic customs clearance were the result of a comprehensive coordination process. Voith Paper undertook the planning of the installation and found a way of starting the erection even 14 days before schedule.

The great challenge in this project was the installation and start-up of two paper machines in an interval of just two months apart and with a clearance of less than 10 m between them in the same paper machine production hall. The prompt and cooperative response to problems during the installation and start-up phase was the result of the partnership of mutual trust between Voith Paper and Yueyang Paper.

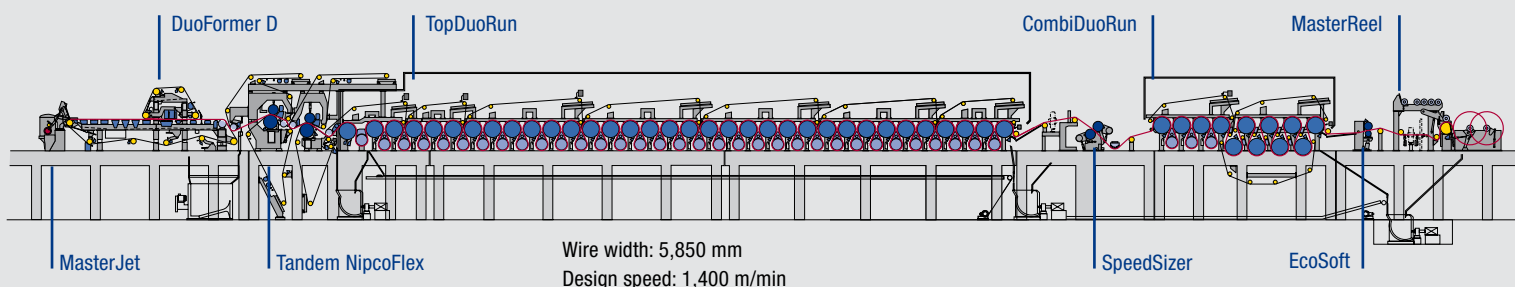


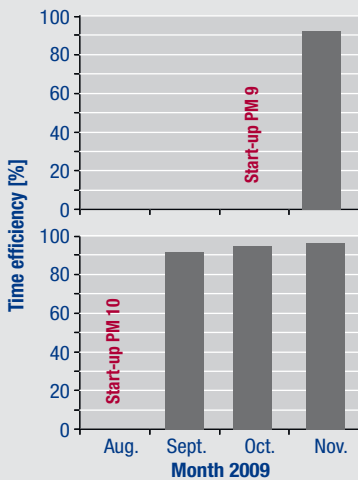
Contract signing (from left to right): Ming Ming Liu, Voith Paper Asia; Dr. Annette Schavan, Federal Minister of Education and Research in Germany; Dequan Chen, representative of the Chinese Government; Wu Jialin, Tiger Forest & Paper Group; Zhongquan Zhang, China National Technical Imp. & Exp. Corp.

Project background:

According to information from the China Paper Association, in 2008, 14 million tons of uncoated writing and printing paper were produced in China and 13.8 million tons were consumed. Imports and exports amounted to 390,000 tons and 540,000 tons, according to the Chinese General Customs Authority. “The market for uncoated writing and printing paper appears to have found a certain balance. Although there is tough competition, the market lacks a high-quality and at the same time inexpensive range of products. Most products are sold at high prices but do not offer reliable product quality,” stated Wu Jialin, Chairman of the Tiger Forest & Paper Group, the parent company of Yueyang Paper, as the reason for deciding to invest in this segment.

Included in the delivery of the PM 9 & PM 10: complete paper machine along with basic and detail engineering, automation package with machine control system and quality control system, clothing and QualiFlex press sleeves.





Just a few weeks after start-up, both machines attained outstanding time efficiency.



Wu Jialin congratulates start-up supervisor Dr. Martin Zimmermann on the successful commissioning.

“We took only 16 months until the commissioning of the PM 10 – possibly the shortest time ever for the completion of such an extensive project in China.”

Wu Jialin, Chairman of the Tiger Forest & Paper Group

Wu Jialin, Chairman of the Tiger Forest & Paper Group, the parent company of Yueyang Paper, is equally proud of the way the project was executed: “We took only 16 months until the commissioning of the PM 10 – possibly the shortest time ever for the completion of such an extensive project in China.” All measures taken and adjustments necessary during start-up of the PM 10 could then be adopted for the PM 9. The start-up of the PM 9 went off even more smoothly than that of the identical PM 10. There were just three hours between “stock on wire” and “paper on reel” – a record-breaking commissioning time!

Project outcomes

Both paper machines achieved their maximum operating speeds of 1,300 m/min within a few weeks of start-up.

The availability and runability of the machines are also pretty impressive: In November, the PM 9 achieved a time efficiency (without downtimes) of 92.7%, while the PM 10 even reached a level of 96.3%. On average the PM 10 experienced just 0.9 web breaks per day. The project was completed successfully with the final acceptance in May 2010.

Quality and sustainability

So what is the current situation with the paper quality produced by the two machines, and to what extent are the customer’s objectives being achieved, particularly for DIP-based paper? The PM 9 produces offset and copy papers from 25% long fiber and 75% short fiber pulp. The quality meets the expectations demanded of a premium product in every respect: first-rate formation, very low roughness values

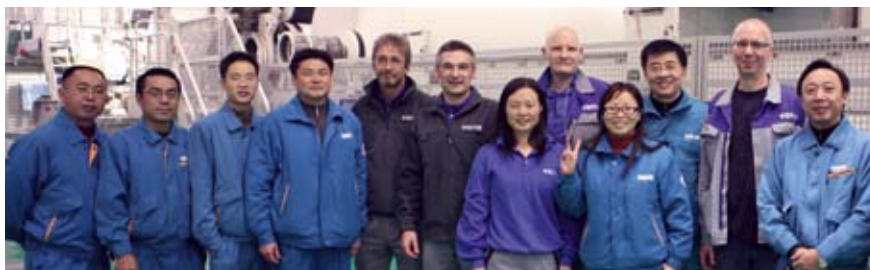
and a good specific volume. As a result, the PM 9 will predominantly process premium quality copy paper (for photocopiers and laser printers) and high-quality, uncoated writing, printing and offset papers. “We hope that our production can replace some of the imports and that in the near future we will even be able to export,” says Wu Jialin with some pride.

On the other hand the paper produced by the PM 10, almost exclusively offset papers for the Chinese market, fully meets the demands for a product fabricated from recovered fibers. Due to the high recovered paper content the finished paper will bear the label “Environmentally friendly”. The DIP facility supplies a furnish with a whiteness of around 80% and is deliberately distancing itself from the use of virgin fiber pulp. The DIP content in the raw material mix is

around 75-80% and is limited by the admissible number of dirt specks. Over the long term, Yueyang Paper wants to completely dispense with virgin fiber pulp for the PM 10. “Our long-term perspective is to use only deinked paper. We hope to achieve this goal within the next two years,” explains Wu Jialin.

Compared with the PM 9, the paper produced by the PM 10 has a whiteness level that is around 15% less, and a somewhat lower specific volume at the same roughness. However, Yueyang Paper does not want its recycled paper to compete with the virgin fiber paper. The paper from both machines is deliberately targeted at different customer groups and applications.

The somewhat lower selling price for the “environmentally friendly” paper from the PM 10 – compared with the premium grades produced by the PM 9 – is also offset by lower raw material costs. What is more important with a view to sustainable



Project Manager Peng Zhibin, Yueyang Paper (2nd from left), and Gerhard Buhmann, Voith Paper (6th from left), with the successful management and project team of the two companies.

and environmentally compatible papermaking are the savings of 160,000 t/y virgin fibers and the efficient use of paper fibers as a resource.

It may well be that these endeavors are not yet appreciated by all consumers and that paper that is slightly less white will have to struggle for acceptance on the market.

But in the medium and long term, the courageous and pioneering stance taken by Yueyang Paper will bear fruit. Virgin fibers and recycled papers need one another – so there is no reason why they cannot co-exist.

Location

China



The city of Yueyang is located at the mouth of the Yangtze River at Dongting Lake in southern China and is connected to Shanghai via the Yangtze River. The area around Dongting Lake is rich in raw materials for the paper industry.

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“We trust each other and enjoyed our cooperation during the project...”

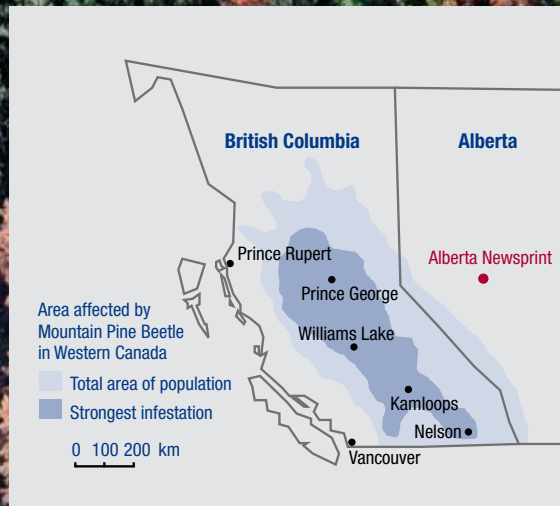
Shao Qichao, Vice General Manager & Vice Chief Engineer of Yueyang Paper Co., Ltd.

“The project staff of both parties, regardless of whether they are senior executives, project managers, or experts in design, logistics, installation and start-up, have a wealth of experience. We trust each other and enjoyed our cooperation during the project. Within one week of start-up, both machines went into normal production and produced salable paper. And after two months, both machines reached the design operation speed, and paper quality meets contractually agreed specifications. This is one of the most successful projects of the Tiger Forest & Paper Group.”

New shoe press solves raw material problems at Alberta Newsprint

“Wild Rose” defies the Mountain Pine Beetle

Thanks to the new NipcoFlex shoe press installed at the Alberta Newsprint Company (ANC) in Whitecourt, Canada, the company is now able to increasingly use pulp from trees infested with the Mountain Pine Beetle. The shoe press was successfully started up in 2009 on PM 1, the so-called “Wild Rose”. The rebuild has also led to increases in productivity and enhanced paper quality.



Infested forest areas.

Population area of Mountain Pine Beetle in Western Canada.

A tiny organism causes massive damage.

In the early 2000's, an outbreak of the Mountain Pine Beetle occurred in British Columbia. Its impact on the eco-system, as well as the economic impact has already been felt throughout the region. A more recent meteorological event coincided with the beetle's short migration period and carried the beetle over the Rocky Mountains and into ANC's wood basket. In the past, cold winters caused beetle winter kill rates in the order of 97% and kept the infestation in check. Recent mild winters have increased the survival numbers and the insect population has thus exploded.

Papermaking implications

ANC expects the fiber supply to contain greater amounts of Mountain Pine Beetle affected trees either those killed recently, with excessive pitch content or those left standing dead and dry producing a weaker pulp with poor brightness and optical properties. Additionally, the beetle leaves a fungus behind which causes a blue stain on the inside perimeter of the tree, which also happens to be the main portion of the log that is converted by the lumber mill to wood chips and subsequently supplied to paper mills.

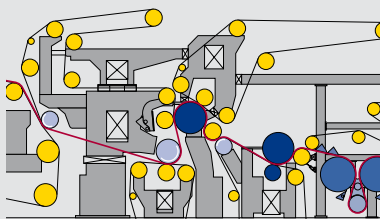
To ensure continued efficient performance of the paper machine and maintain paper quality, ANC entered into a research program with a number of partners committed to help determine the best path forward.

Besides ANC, contributors included, Alberta Forestry Research Institute (AFRI), Alberta Research Council (ARC), FP Innovations, Innoventures Canada, National Research Council Canada (NCR) and Voith Paper. All looked for innovative methods to manage the inferior wood supply.

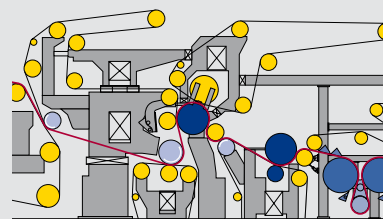
Property	Rebuild improvements	Comments
Press solids	40-46%	6% gain (absolut)
Reel speed	9% increase	non affected wood by the Mountain Pine Beetle
Steam usage	up to 20% reduction	
Web breaks	12-60% reduction	dependent on location
Tensile	5% increase	normalized to 1,400 m/min
TEA*	8% increase	normalized to 1,400 m/min

* TEA = Tensile Energy Absorption

“Wild Rose” before rebuild ...



... after rebuild.



The installation of a NipcoFlex shoe press has considerably increased productivity and paper quality.

Successful with new shoe press

In order to compensate for the expected loss of sheet strength on the paper machine, especially at the weakest point, the first open draw, a decision was made to install a NipcoFlex shoe press at the 3rd nip. The improved press solids and reduced draw would ensure highest paper machine operating efficiencies and compensate for the weaker furnish. It also makes certain that the sheet’s dry strength properties such as tensile and TEA are maximized for superior press room runability. Special consideration of all design

details of the press were evaluated early during the engineering phase in anticipation of this critical application.

ANC’s high quality newsprint sheet has long been well regarded in the industry. Significant additional improvements to the paper machine operation and paper quality have been achieved and documented with the installation of the NipcoFlex shoe press. The operating window has been expanded, allowing increased use of Mountain Pine Beetle affected fibers, as well, future growth potential assured to lower basis

weight value added grades. Machine speed has increased since the installation of the NipcoFlex shoe press and “Wild Rose” PM 1 recently achieved its mill speed record of 1,600 m/min.

Location

Canada

Whitecourt, Alberta
Alberta Newsprint Company

Edmonton Ottawa

Whitecourt is located along the Yellowhead Trail, Western Canada’s most famous settler trail from the 19th century. The town has approx. 10,000 inhabitants and is situated in the western part of the province of Alberta, about 200 km north-west of Edmonton. Forestry, oil and gas industries as well as tourism are the cornerstones of Whitecourt’s economy.

Contact

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“Voith Paper was a tremendous partner...”

Mike Putzke, Mill Manager,
Alberta Newsprint Co.

“Voith Paper was a tremendous partner to ANC in helping us utilize Mountain Pine Beetle attacked trees. The shoe press installation and start-up was flawless.”

For the first time, Voith Drives for packaging paper machine

Nettingsdorfer relies on energy efficiency

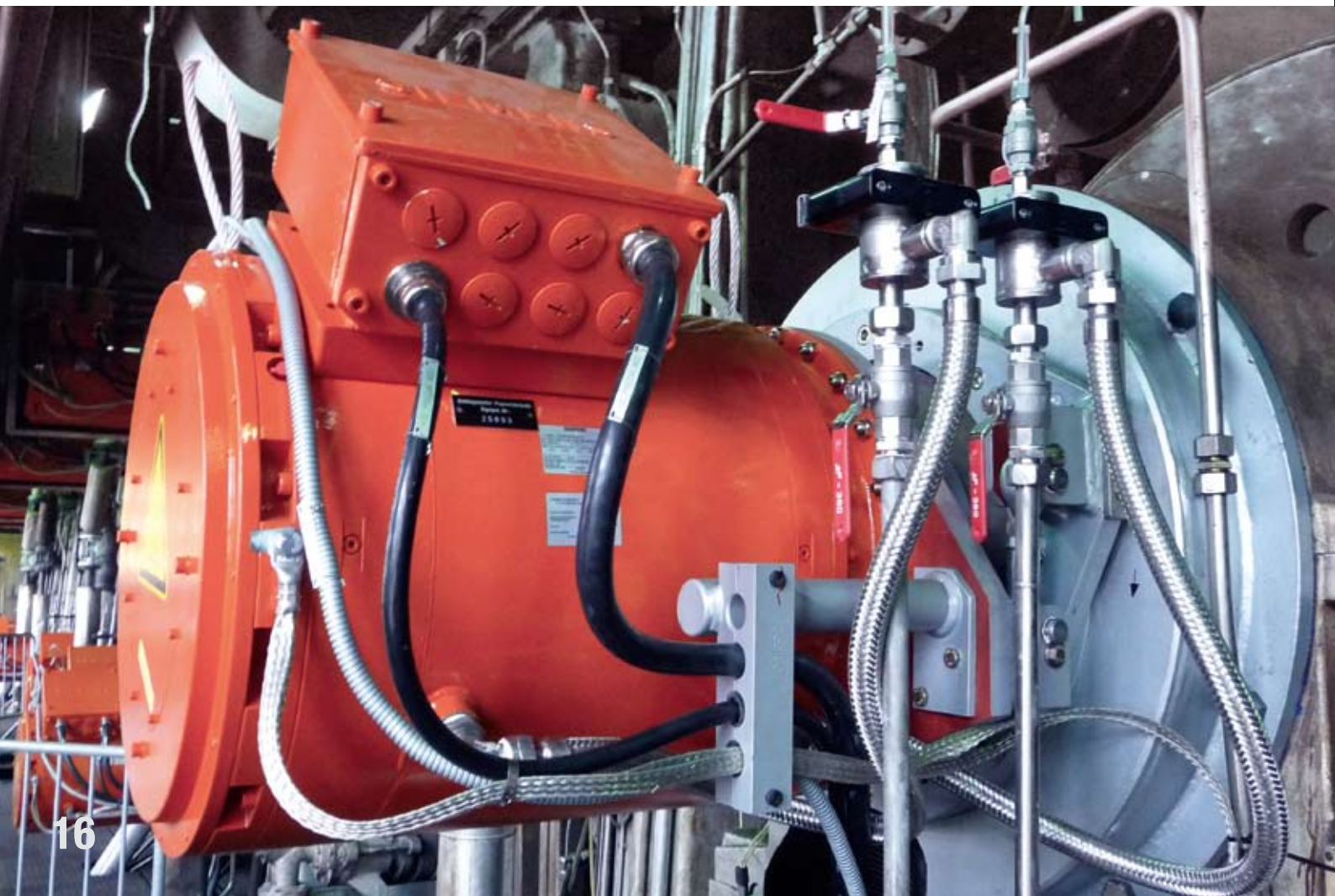
Drive units, steam units and vacuum units are the systems which require the most energy in a paper machine. The biggest consumer is the dryer section. Approximately half of the total energy is expended there: a good reason for Smurfit Kappa Nettingsdorfer to decide in favor of energy-efficient drives in this area.

Fall 2009 saw for the first time the entire dryer section of a packaging paper machine equipped with Voith Drives. The pioneering site is >>> [Smurfit Kappa's Nettingsdorfer mill](#) located in Austria. All 35 drives of the dryer section in the PM 6 were rebuilt.

Nettingsdorfer decided in favor of the new drives as its previous equipment was technically outdated. Thus the availability of spare parts, for example, could no longer be ensured. Furthermore, the old drives were being operated far beyond their design capacity. The aim of the rebuild was a

lasting increase in respectively safeguarding of drive availability. Moreover, the new solution was to meet the current technical state of the art, which means being gearless. A speed reserve, high energy efficiency and low maintenance costs were further key arguments for Nettingsdorfer.

The Voith Drive is an integrated drive that replaces the traditional arrangement of cardan shaft, gears, coupling and motor.





Paper mill Nettingsdorfer is a company with long-standing tradition.

A special feature in the use of Voith Drives on the PM 6 was the very high temperature range at the installation position. It can climb to around 100 °C at the upper cylinders. For that reason, the motors are protected with an insulation hood made of glass fiber reinforced plastic.

>>> Info: Paper mill Nettingsdorfer

The Nettingsdorfer paper mill, which is part of the Irish company Smurfit Kappa, has a long tradition. Nowadays it is one of the leading producers of corrugating base papers in Europe. Annually, Nettingsdorfer releases about 400,000 tons of high-quality kraftliner and 20,000 tons of test liner onto the market, with 85% of production being exported. The main markets are in Central and Eastern Europe.

Nettingsdorfer is an integrated paper mill – Austrian conifer, log wood and sawmill leftovers are used as the main raw materials.

The PM 6 was built by Voith in 1984. The fourdrinier machine has a working width of 7.4 m and the maximum production speed is 1,100 m/min. The basis weight range is 115-300 g/m².

The customer is fully satisfied with the Voith Drive concept selected – regardless of whether it's a question of accessibility, availability or controllability of the equipment. Voith Paper also got good grades as a partner. "Highly competent during the entire project," is the summary of Siegfried Hochrathner, Project Manager and Manager of Electrical Maintenance at Nettingsdorfer.

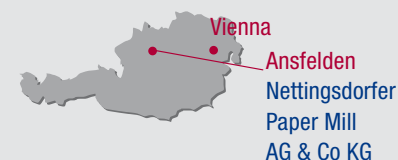
The Voith Paper drive concept is especially suitable for rebuilds of paper machines. The direct drives do not require a foundation and their installation therefore saves space. In addition, the use of Voith Drives reduces energy consumption, due to the drive system's higher efficiency. This is facilitated by doing without mechanical components, such as wheel housings in the dryer section and additional external gears, cardan shafts, couplings and lubrication units. At the same time, the noise level in the machine hall is also reduced. The costs and the maintenance outlay are therefore lowered. In addition, fewer components also mean fewer spare parts that have to be stored.

How much energy can be saved depends on the respective drive position. On average it is 5% with the installation, as compared to a wheel housing, but noticeably larger savings are also possible. Voith Drives are also better for the environment. As there is no central oil lubrication, there is no risk of oil leaks. Tempering of the motors is done with water.

Assembly of the drives is possible on the drive or tender side. However, installation on the tender side has advantages for the entire system: expensive rebuild of the steam and condensate system is no longer needed and the total rebuild time is shorter than that of conventional drives. Downtime costs are thus reduced.

Location

Austria



Nettingsdorfer is a district in the town of Ansfelden, which is 180 km west of Vienna in the northern part of Austria. Industrialization of the agrarian area around Ansfelden began with the founding of the paper mill in 1851. Even today it is one of the town's biggest employers.

Contact



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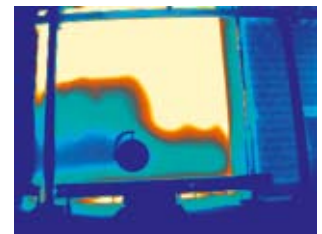
Proven R2S technology eliminates sediments and increases performance

Easy conversion of high-performance anaerobic reactors

The purification rate of anaerobic reactors can drop significantly over time. The reason for this are usually deposits of heavy, inactive granular sludge. They are found especially when waste water with a high calcium content is purified. The new Up2S conversion kit allows the rebuild of conventional high-performance anaerobic reactors with the proven R2S technology. Sediments can thus be quickly and easily removed during ongoing operation and low-performance reactors can be put back on course.



By means of a tangential flow guide, the sediment that develops gathers in the center of the cone and can be removed easily during ongoing operation.



By using thermography, the heat profile can be visualized:

*blue: cold zones
= deposits of sediments*

*white/orange: warm zones
= active reactor volume*

Anaerobic reactors in the paper industry are frequently used as high-performance reactors. Among other reasons and due to restricted space areas, they are usually between 20 m and 30 m high. Reactors usually have a flat bottom tank. Depending on the manufacturer, reactors may have internals for improvement of fluidization. The risk of deposits is especially high with this type of reactor. Calcareous waste water may quickly lead to a reduction in treatment efficiency, since the lime precipitates accumulate in the form of sediments on the bottom of the reactor. Thus the amount of available active biomass in the reactor needed for COD (chemical oxygen demand) degradation decreases; the active reactor volume decreases and the COD removal efficiency of the anaerobic reactor drops.

In addition, often channels form in the accumulations of sediment. At these channels areas of high

turbulence occur which can lead to biomass washing out of the reactor with the treated water. Furthermore, an uneven supply of the biomass with substrate, triggered by a lack of mixing and partly plugged distribution system, lowers the COD degradation capacity.

Areas in which sediments have settled will not be flushed and consequently cool down. The skilled operator assesses the condition of the anaerobic reactor by observing the temperature drop (cold spots) on the tank shell. By using thermography, the heat profile can be visualized. After emptying the reactor, it becomes clear that sediment deposits can block the distribution system of an anaerobic reactor to a large extent. In such a case, the COD load to the anaerobic reactor needs to be reduced so that the remaining active biomass will not be damaged irreversibly. The COD load to the activated sludge

stage downstream increases and can lead to an overload. As a consequence COD values in the effluent deteriorated or formation of bulking sludge might be observed.

Up2S conversion kit – the easy and efficient solution

At this point, the patented concept of the R2S anaerobic reactor for the discharge of sediment offers a reliable solution. In order to make the advantages of the R2S technology available for existing high-performance anaerobic reactors, Voith Paper has successfully launched the Up2S conversion kit.

Components of the Up2S conversion kit:

- Segmented, cone-shaped reactor bottom
- Cone flushing line
- Heavy sludge drain line
- Innovative inlet distribution system

Segmented cone-shaped reactor bottom.





The converted reactor at SCA Aschaffenburg, Germany (center).

The conversion is carried out by an experienced team under consideration of the operational needs of the paper mill.

Technological concept

By means of a tangential flow, the sediments that develop gather in the center of the cone. A special process concept allows to separate pellets with active biomass in a better way from sediments. Thus sediments with a very high portion of ash can be discharged. Draining of the sediment takes place during ongoing operation.

Another special feature is the rugged and reliable intake distribution

system. For example the distribution lines may be cleaned easily during ongoing operation.

Successful in operation

Due to heavy lime precipitates and, as a consequence, reduced treatment efficiency of the existing anaerobic reactors, the SCA Aschaffenburg paper mill in Germany decided to convert one of its three anaerobic reactors to R2S technology. The positive experience with the R2S anaerobic reactor that has been successfully operated for more than two years at the sister plant in Lucca, Italy, also had a positive influence on this decision.

The reactor to be converted was completely emptied and the installed distribution system was removed through an opening in the tank. Then the cone-shaped reactor bottom and the new distribution system were installed in the tank. After successful rebuild, the anaerobic reactor was refilled with sludge and started up. Immediately thereafter, the reactor readily attained high treatment efficiency

while reusing the temporarily stored granulated anaerobic sludge that had a high portion of lime.

Meanwhile, the converted anaerobic reactor has been in operation for more than half a year. The new inlet distribution system works very evenly and the periodic removal of sediment has become part of the normal operation. Inspection with an infrared camera shows that the converted reactor is in good condition. The area beneath the cone is not flowed through and thus cold. Above the cone, the light coloring shows optimal mixing of the sludge bed.

The entire anaerobic process stage profits from the stable operation of the reactor converted to R2S technology, since it ensures reliable operation with high degradation efficiency.

Location

Germany



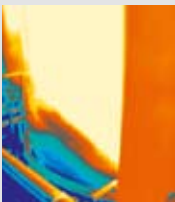
The university town of Aschaffenburg, with approximately 70,000 inhabitants, is well-known as the gateway to the Spessart region. King Ludwig I. of Bavaria (1786-1868) nicknamed the town the “Bavarian Nice”, because of its mild climate.

Contact

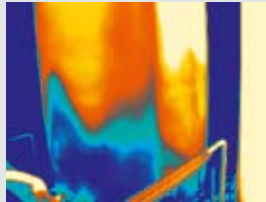


Axel Gommel
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Rebuilt



Not rebuilt



Inspection with an infrared camera shows that the rebuilt reactor is in good condition. The area beneath the cone is not flushed and thus cold. Above the cone, the light coloring shows optimal mixing of the sludge bed.

CycloMech: an attractive retrofitting solution for the approach flow system

Mechanical white water deaeration requires little space

Air in the white water of a paper machine can have many negative consequences – beginning with formation errors in the finished product all the way to deposits on the rolls and a break in the paper web. Without a deaeration machine, controlling these consequences has traditionally required costly chemicals. But the new CycloMech from Voith Paper offers an efficient, space-saving alternative.



Model of the CycloMech.

Smurfit Kappa's paper mill in Zülpich, Germany, which manufactures corrugated cardboard base paper, has operated the CycloMech on a trial basis for the last year and a half. Workers at the paper mill are more than satisfied with the results: "With the same quality of our end product, we were able to save almost 20% of the retention agents and over 25% of the anti-foaming chemicals," reports Holger Scheben, process engineer for PM 6 at Smurfit Kappa Zülpich.

Also, because the CycloMech improves system cleanliness, much less maintenance and cleaning are necessary. This has enabled production increases between 1% and 1.5%.

The way the CycloMech functions is the key to achieving such a consistently good balance. White water is channeled into the mechanical deaeration system,

which is based on the centrifugal principle, and rotated. By means of the centrifugal forces, the lighter air gathers in the center of the housing. From there, it is pumped out with the aid of a vacuum – a quick, reliable method of deaeration.

Quick retrofitting

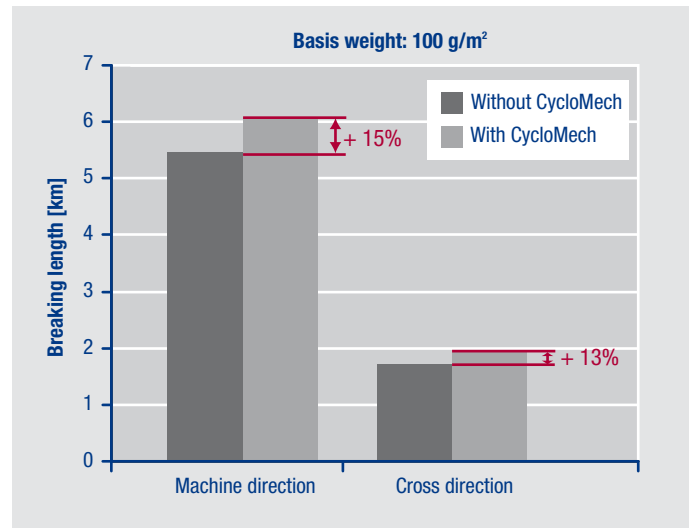
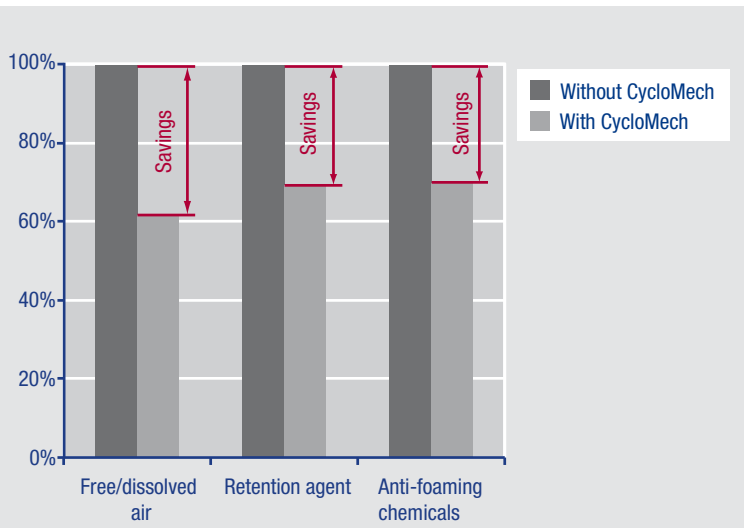
However, the decisive argument for the CycloMech is its space advantage: with its compact dimensions, it can even be retrofitted, without a problem, while a paper machine remains in production. With conventional mechanical deaeration machines, based on the deculator principle, retrofits are possible only at great expense: for physical reasons, the vessel must be placed on the mill roof. Associated retrofit costs can also be enormous – especially given the structural precondition that the roof must be designed to withstand a weight of more than 10 tons.

The Zülpich mill uses only recovered paper for paper manufacturing. It is, therefore, especially susceptible to microorganisms whose growth is accelerated by air in the white water. Slime and agglomerates form that contaminate the paper machine and clothing. Although the doctor blades in the dryer section ensure that a large part of the contamination is removed, they, too, must be regularly cleaned or replaced. Before installation of the CycloMech, doctor maintenance was part of the daily work cycle in Zülpich.

Since installing the small mechanical deaeration system, the interval between doctor cleaning cycles has tripled. Specifically, this means a production increase of about 4,500 tons of paper per year. "Lessening the need for cleaning also improves work safety, since maintenance on the blades is work that is not completely without danger," explains Holger Scheben.

With the installation of CycloMech retention agents and deaeration chemicals can be saved.

Clear improvement of mechanical characteristics through partial flow deaeration with the CycloMech.



Clear advantage compared to chemical deaeration

Thorough deaeration of the white water in the approach flow system of a paper machine has a decisive influence on operating costs. Contaminants such as micro-stickies, can attach to free air bubbles and lead to deposits on rolls and clothing. If this contamination is not eliminated, a break in the paper web generally results. Moreover, reducing air content supports optimal dewatering and minimizes formation errors – and improved sheet formation means improved paper quality.

As a mechanical deaeration system, the CycloMech is a cleaner, more user-friendly alternative to chemical systems. Such systems add expensive chemicals to dissolve air bubbles in the white water. The chemical agents are still measurably present in the finished paper, and they do not interact

well with other process chemicals. A variety of problems can ensue. The residual deaeration chemicals, for example, can impair the effectiveness of retention agents.

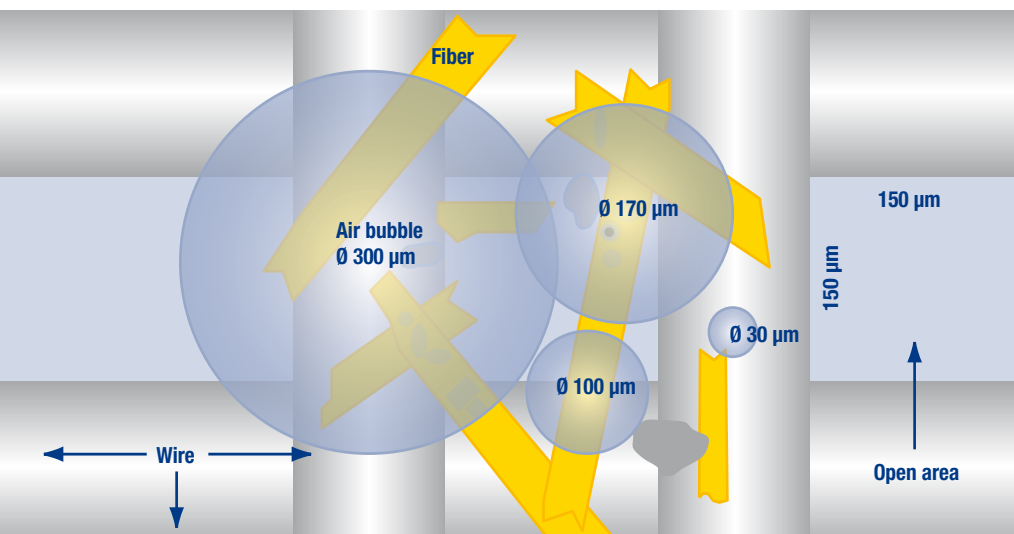
Last, but not least, the CycloMech is independent of the paper production cycle. This means that production can continue during maintenance work on the deaerator. No stoppage costs arise. Size, efficiency, and easy integration into the existing production chain make CycloMech an attractive component of any paper machine.

Holger Scheben agrees: “In my opinion, the CycloMech is a must for every paper machine that produces light packaging paper up to 120 g/m².”



The CycloMech at Smurfit Kappa Zülpich Papier, Germany.

Air bubbles in the headbox flows displace fibers: CycloMech reduces these air bubbles, in turn enhancing sheet formation and strength properties.



On focus: CycloMech

ProSafety	+			
ProEnvironment	+	+	+	
ProRunability	+	+	+	+
ProQuality	+	+	+	+
ProSpace	+	+	+	

Section: approach flow system
Paper grade: board & packaging

Contact



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MasterJet Pro combines optimum paper quality with maximum energy efficiency

A new milestone in headbox development

It has been 99 years since Voith filed a patent for the first “high-pressure” headbox. At that time it was a major step in being able to develop faster paper machines. Now, in 2010, we see the advent of the latest generation of MasterJet headboxes featuring a whole new innovation: the MasterJet Pro. It combines, for the first time, optimum paper quality with maximum energy efficiency.





MasterJet Pro

First references

First installations of the new MasterJet Pro are already operating successfully, while others are on the order books.

Graphical paper grades

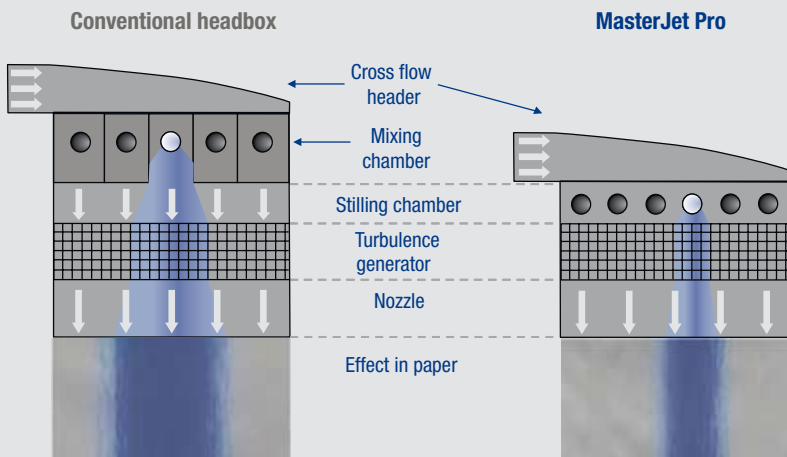
The first three MasterJet Pro headboxes for graphical papers will start up in 2011. The MasterJet Pro will be installed on hybrid and gap formers.

Board and packaging papers

The first installation for packaging papers has been operating successfully since the end of 2009. Another five MasterJet Pro headboxes will follow in 2011.

Tissue

One MasterJet Pro is already in operation for tissue grades. Another headbox will be installed in 2010 followed by a further seven in 2011. The MasterJet Pro will be used for single and two-ply applications.



With the MasterJet Pro, the dilution water is fed directly into the stilling chamber (no mixing chamber). The ink dispensing effect in the paper is thus improved.

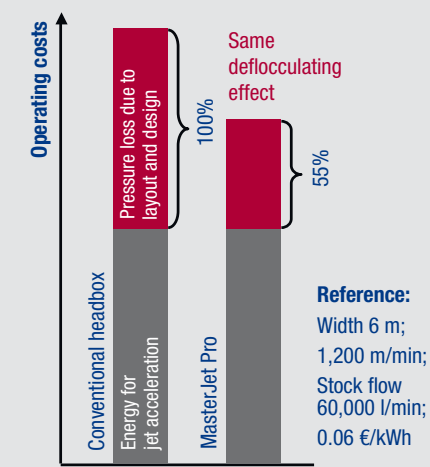
The core innovation of the new MasterJet Pro generation is the completely redesigned ModuleJet dilution technology. The most important improvement is that the dilution water is fed directly to the stilling chamber using injectors, with the dilution water distributed evenly over the entire height of the channel. This dosing method improves the accuracy of the control response in the web by over 50% compared with conventional systems, while maintaining the balancing function of the stilling chamber. This means that an injector spacing of 50 mm allows optimum CD basis weight profiles and fiber orientation to be achieved. In particular, local basis weight

fluctuations with steep gradients, such as those that occur in edge zones due to reflexions and edge waves, can be corrected far more effectively.

The new dosing principle allows for larger ModuleJet spacing where quality requirements are less important. This means for example that the profile quality of a conventional system today can be achieved even with 100 mm spacing. The reduced number of valves and actuators also results in lower investment costs. In addition, optimization of the new ModuleJet system's hydraulics means that the pressure losses that occur are substantially reduced.

Integrated solution

The new ModuleJet dilution system is controlled by the OnQ ModuleJet CD actuator. Close cooperation between the development disciplines of mechanical and process engineering and automation has produced a mechatronic module

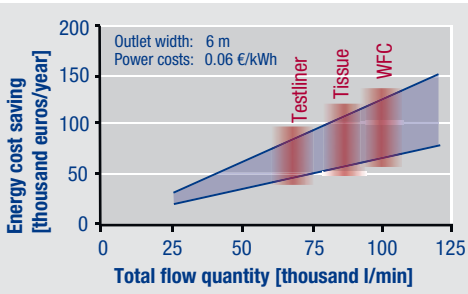


Less operating costs thanks to MasterJet Pro.

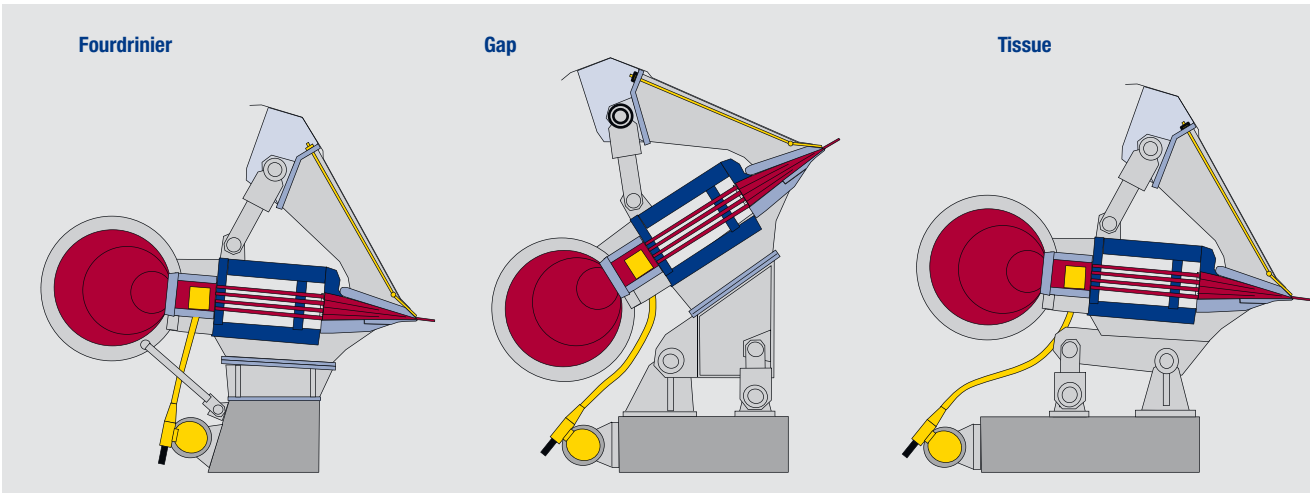
consisting of metering element, valve, linear drive unit and control. The unit's hydraulic system concept is tailored perfectly to the new dilution principle and thus ensures maximum control capability with high accuracy. The fast, state-of-the-art actuation of the linear drives via an ethernet interface and components designed to the superior IP 67 protection class guarantee reliable operation even in challenging environments.

Turbulence generator and jet quality

The MasterJet Pro's turbulence generator adopts the proven basic design of its predecessor. However, there is now an even more systematic adaptation to paper grades, to take account of the increasing variation in raw material composition and customer-specific quality requirements. The design of the turbulence elements and tube geometry therefore allows for grade-specific and energy-efficient dimensioning in each case, ensuring a broad-ranging and stable operating window.



Energy cost savings with MasterJet Pro.



MasterJet Pro headbox family.

The degree of turbulence is further adjusted in the nozzle area using lamellas. Patented lamella geometries and materials guarantee quality and reliability. To meet special requirements for sheet symmetry and flatness the new ParaSlice nozzle geometry is used. Numerous installations on copy paper machines bear impressive testimony to the positive effect of the ParaSlice design. (A detailed description appeared in *twogether Magazine* issue no. 29).

Less operating costs

Many of the pioneering innovations give a substantial reduction in operating costs, mainly reflected in reduced power consumption by the headbox pump. For example, by optimizing the hydraulics of the headbox system, including LC and HC flow routing, pressure loss could be reduced by up to 30%. A further innovation, facilitated by the design of the MasterJet Pro's flow system, is the complete absence of recirculation

flows at the cross distributors. The result is that the entire volumetric flow to the headbox is reduced by up to 10% – without impairing the quality or stability of the process. This has already been confirmed with extensive testing on production and pilot plants. In combination these measures lead to headbox pump power consumption being reduced by between 15 to 25%, depending on the respective headbox configuration and machine speed.

A further systematic step towards simplifying operation and maintenance is the absence of a heating chamber system, and consequently the entire heating loop, in all headbox models. This design principle has already been implemented in more than 200 headboxes to date. Compared with the complicated system of deflection compensation using heating chambers and loops, the patented design principle ensures that deflection due to temperature drops do not occur at all.

Cutting-edge concept


The MasterJet Pro is a modular headbox concept combining optimum paper quality with maximum energy efficiency. This is made possible through a range of innovations complemented by proven components. This unique combination of experience and innovation marks the new MasterJet Pro out as a cutting-edge headbox design.

On focus: MasterJet Pro

ProSafety	++	□	□
ProEnvironment	+++	+	+
ProRunability	+++	□	□
ProQuality	+++	+	+
ProSpeed	+	□	□
ProSpace	++	□	□

Section: wire section
Paper grade: all

Contact



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Northern Tissue Group as pioneer for new developed shoe press

First NipcoFlex T successfully started up

Ten years after the first shoe press worldwide was installed at the Northern Tissue Group (NTG) mill, the group has decided once again to be the first tissue producer to install the new Voith NipcoFlex T shoe press. The NipcoFlex T is the latest development of shoe press technology for tissue and improves product quality and plant efficiency.

The first Voith TissueFlex shoe press was launched on the market approx. ten years ago. At that time the main focus was on the product features of bulk and softness in order to differ in quality from the standard Dry Crepe machines.

During the last few years competition has become distinctly tougher even in the tissue sector so that in addition to quality characteristics, questions of energy saving and increase in efficiency have gained in importance. Due to very strong competition and the need to reduce costs, many production managers are confronted on a daily basis with the following questions:

- How can the fiber input be reduced?

- How can the efficiency of the plant be increased?
- Where can energy be saved?

These questions were the focus for the product development of the new NipcoFlex T shoe press.

Technological challenge

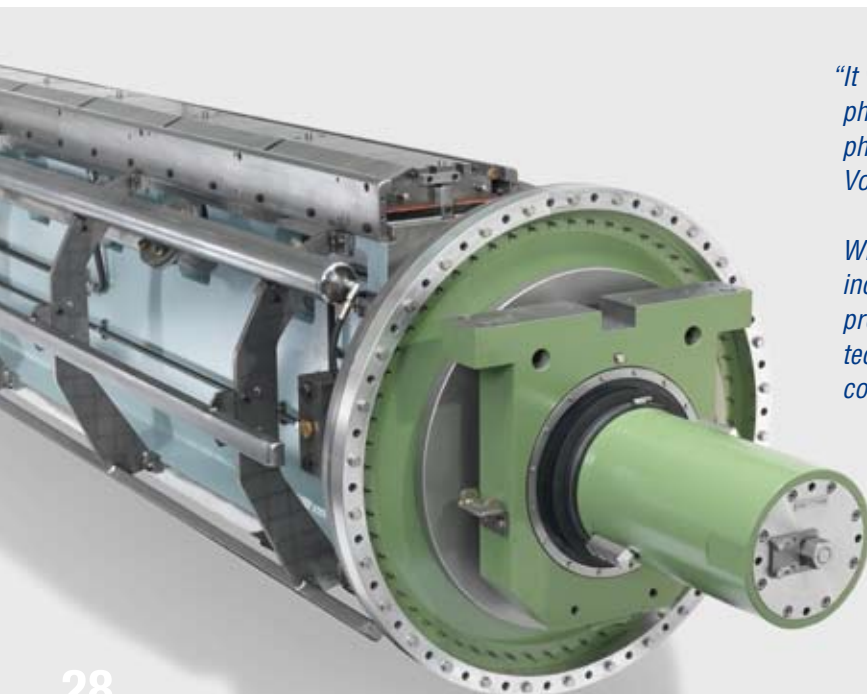
The press nip of a tissue machine differs fundamentally from the press nip of a paper machine. The reason for that is the Yankee dryer which is not like the conventional mating roll of a press.

Besides the known parameters such as linear load, the Yankee dryer is subject to additional varying factors of influence

such as steam pressure, which in turn changes the operating temperature and thus the deformation of the Yankee heads and shell. A shoe press for a tissue machine must therefore be designed to be very flexible across the full width of the nip. This is a prerequisite for generating a uniform linear load in the press nip so that a homogeneous CD moisture profile can be achieved. However, a rigid pressure shoe in machine direction is essential so that we achieve the desired high dryness.

NipcoFlex T for maximum productivity

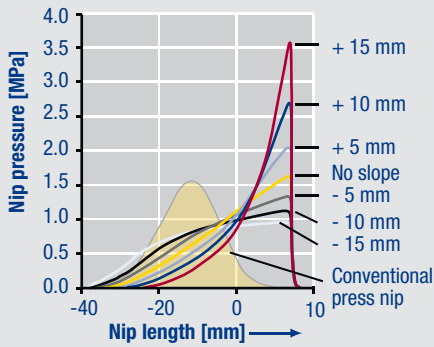
The mentioned technological challenges were successfully implemented into



“It was a pleasure to work with Voith during the project phase and especially during the start-up and optimization phases. After this close cooperation we consider the Voith Paper team as a partner.”

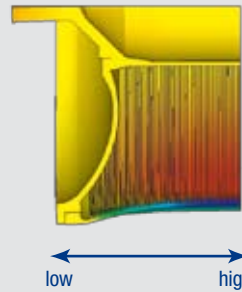
“With the NipcoFlex T shoe press we are able to dramatically increase the energy efficiency and runability of tissue production at NTG, even more so than expected. This technology is setting the bench mark for minimum energy consumption and highest quality.”

Steve Mulcahy, Mill Manager NTG



Line load = 90 kN/m
Slope = -15 to +15 mm

With the NipcoFlex T, various pressure profiles can be created and changed during production via the process control system for maximum dry content and no rewetting.



The challenge

- The uneven Yankee deformation is influenced by:
- line load
 - temperature profile
 - steam pressure
 - centrifugal force
 - stiffness of the cylinder covers

The flexibility of the NipcoFlex T allows setting of various pressure profiles.

Deformation of the Yankee by the line load sets high requirements for the NipcoFlex T.

the design of the new NipcoFlex T shoe press. In order to ensure maximum operational reliability with the first installation, Voith Paper has subjected the new NipcoFlex T to a thorough test plan. The innovation was tested technically not only in the shoe press test rig but was also tested technologically for quality characteristics such as bulk and dryness at Voith's tissue pilot plant in Sao Paulo, Brazil.

All the results gained from these rigorous tests confirmed that the NipcoFlex T has substantial advantages for the manufacture of tissue:

- With the NipcoFlex T, maximum drynesses of up to 48% can be achieved. This means that when compared to a conventional suction roll press, approximately 20-25% drying energy can be saved.
- The NipcoFlex T stands out due to its extremely uniform nip, which results in a high operating efficiency. Disturbing phenomena such as edge lifting are now a thing of the past.
- The effective shoe position can be adjusted during production from

the control room so there are no production downtimes for adjusting the shoe position. Maximum flexibility for the optimum setting with regard to dryness, bulk and softness is achieved at the same time.

The first installation was started up successfully

The first NipcoFlex T was successfully started up at the Northern Tissue Group in Lancaster, UK in April 2010. As was already the case on the Voith pilot plant, the start-up was without any problems. The after press dryness was immediately increased by more than 5% directly after the start-up with unchanged bulk. The objectives of the new NipcoFlex T have already been exceeded during this first installation:

- The drying energy was reduced by more than 20%.
- The flexible shoe ensures a very good CD moisture profile and optimum runability.
- The flexible shoe adjusting device permits optimization of bulk and dryness during production.

NipcoFlex T succeeds

In addition to the first installation for the Northern Tissue Group, the NipcoFlex T will be installed in two new tissue machines. These machines will have a paper width of 5,550 mm and will be installed in China.

In 1999, Voith Paper established shoe press technology for tissue as the first supplier worldwide. Since then it has been the market leader in the sector of tissue shoe presses with twelve installations in operation.

On focus: NipcoFlex T

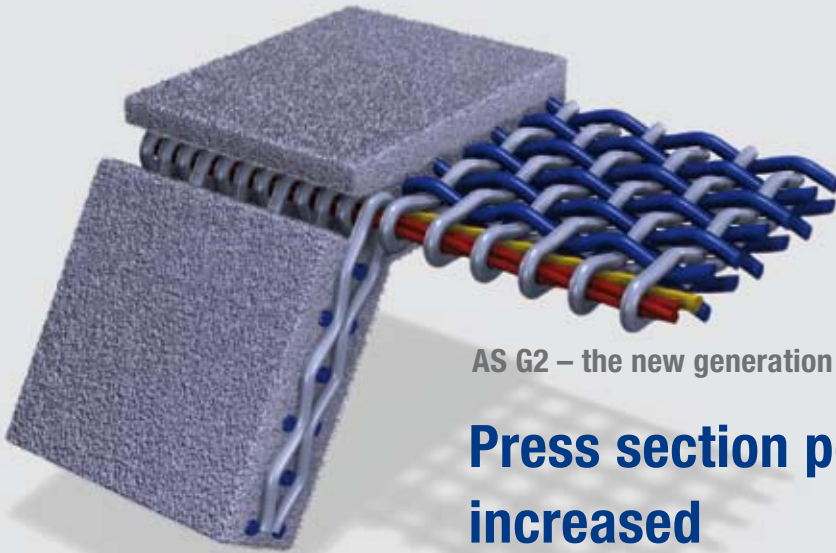
ProEnvironment	++++
ProRunability	++++
ProQuality	+++
ProSpeed	+++

Section: press section
Paper grade: tissue

Contact



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AS G2 – the new generation of seamed press fabrics

Press section performance increased

To meet the demands of machines worldwide, seamed press fabric improvements are an ongoing effort. The fabric has to guarantee safe and fast installation, high dewatering capability and no negative effect on sheet properties. The AS G2 line of press fabrics builds upon new and existing components and meets these demands.

The aim of the improvements is to have a >>> seamed product line, capable of producing paper over a broad range of pulp to tissue machines, regardless of press section type. AS G2 fabrics provide:

- Safest and easiest installation
- Increased durability and stability
- Improved batt fiber entanglement
- Reduced seam marking
- Better and more controlled water handling
- Steady state performance
- Energy efficiency tailored to the application

The roundness and straightness of the seam loops, coupled with installation assists tailored to the position, make AS G2 fast and consistent to seam on the paper machine. The increased durability and reduced seam marking

are due in large part to the new Enhanced Needling System (ENS), which is a global standard. The improved needling combined with seam zone components and reinforcement agents improve flap wear resulting in transparency of the seam, allowing AS G2 fabrics to be utilized on such a variety of applications.

With varied batt fiber selections, base structures, and technology components, dewatering can be controlled based on the application. For slower speeds and grades not conducive to nip dewatering, or where pans and doctor blades are insufficient, an AS G2 fabric can be designed appropriately. Results on VPM 6 pilot machine in the Paper Technology Center (PTC) in Heidenheim, as well as in the field, show this dewatering versatility.

Further benefits with components

AS G2 fabrics can be designed to incorporate the latest technologies Voith Paper has to offer to meet the requirements of most press applications. Components proven to provide benefits to the papermaker in terms of energy savings, sheet property improvement, reduced fiber usage, faster start-up, vibration elimination and improved fabric life can be part of the package.

Vector technology

Vector technology is a proven cornerstone of many Voith Paper press fabric designs, endless, non-woven and seamed. In conjunction with AS G2 seam zone enhancements, flap integrity is unparalleled in the industry

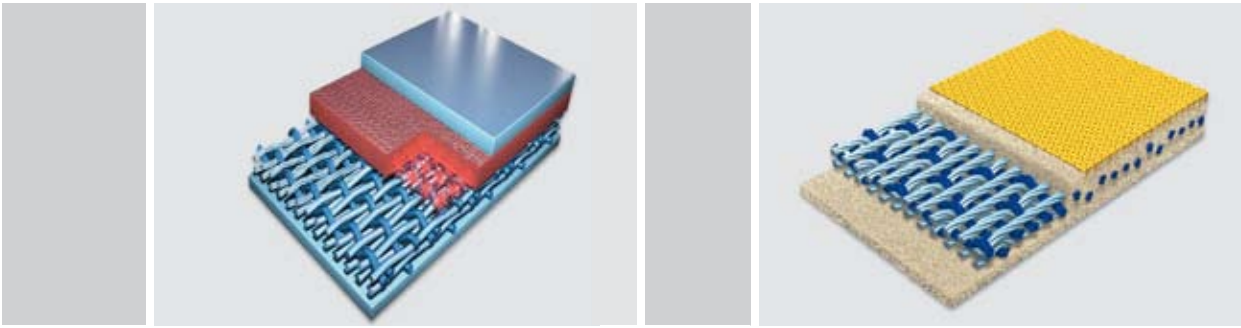


Illustration of the Vector technology (left) and the E-Flex technology (right).

and provides excellent seam mark reduction potential. The non-woven, machine direction orientation of Vector provides excellent cleanability, compaction resistance and high dewatering rates over the lifetime of the fabric. The versatility of Vector as a component allows the use of AS G2 fabrics in a very wide range of board and graphics applications, both coated and uncoated.

E-Flex

The special polymer matrix known as E-Flex, which uses a combination of polymer particles to optimize the fabric structure, along with G2 technology, yields a fabric with many benefits to the customer.

>>> Info: Seam felts

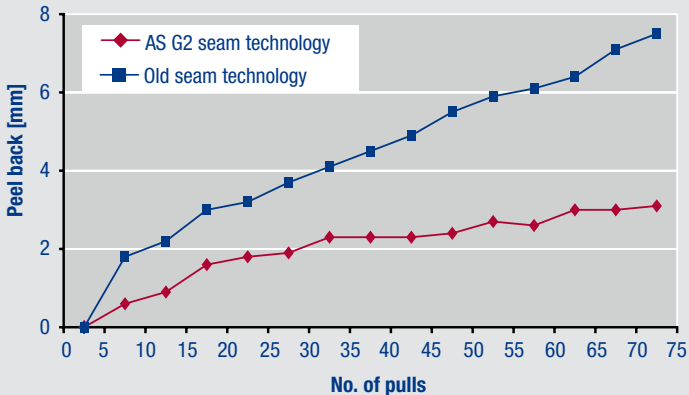
Seamed press fabrics had their beginning in the 1980's as an answer to difficult press fabric installations. For many years, papermakers were accepting some of the growing pains. They were content with the ability to install a seam felt faster on a machine than an endless version. As technology improved and the applications broadened, fabric suppliers began expanding efforts to supply seamed products for most all paper grades and press configurations.

As years passed, it was realized that seamed fabrics offered more than just speed in installation. Papermakers soon realized other key benefits:

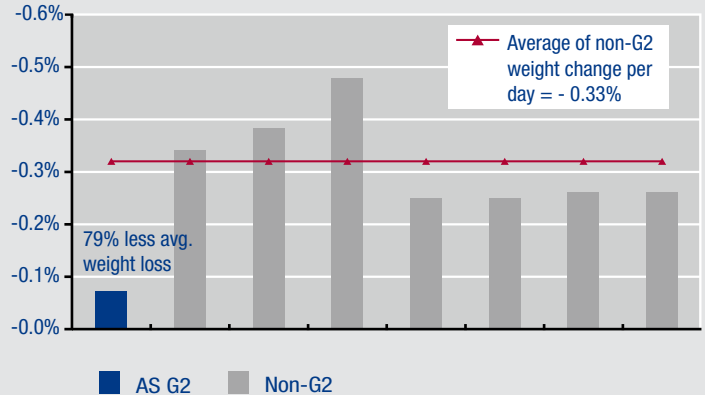
- Safety (less fatigue/strain, less man hours, less downtime)
- Versatility in applications (weave patterns, yarn types and fibers)
- Steady state performance (less compaction, less filling, better durability)

These factors lead to a rapid increase in seam growth in North America, and introduction in other regions globally, where seams perhaps had not been considered before.

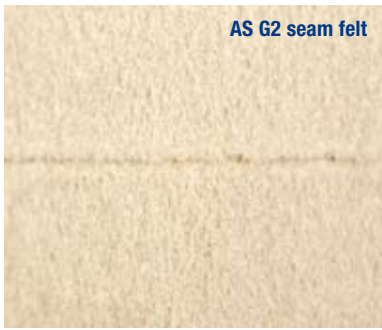
In 2005, Voith Paper first introduced AST (Advanced Seam Technology) in North America, and the "Tool Box" approach to making a better seamed fabric. The key to AST was Vector technology, coupled with varying weave patterns and fabric treatments to enhance an already proven product line. With continued growth in the seam market overall and further expansion into shoe presses, lighter weight graphical grades and tissue/toweling, the need for further improvement kept its rapid pace. In 2009, AS G2 was introduced in North America as the second generation of Advanced Seam Technology, now it is available worldwide.



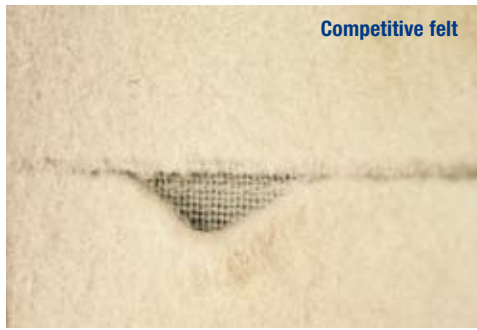
AS G2 residual seam durability compared to old seam technology.



Comparison of AS G2 versus Non-G2 seam felt on a linerboard machine.



AS G2 seam felt



Competitive felt

Comparison of two used press felts. Both were 47 days on a B&P machine (2000 pli, LNP press).

Functional needs based on the demands of the position can easily be met:

- Pore size distribution (for enhanced start-up and dewatering)
- Z-direction flow resistance (for nip dewatering)
- Surface optimization (for improved printability and potential energy savings)
- Fabric resilience (paper and roll side to reduce abrasion)

Elastomer technology

Being the pioneer in elastomer technology for press fabrics,

Voith Paper is equipped with two polyurethane offerings that are both available in AS G2 designs. The polyurethane Spectra layer is proven to dampen vibration on a variety of applications worldwide, most notably high speed graphic, latter press positions.

HT (Hybrid Technology) is Voith Paper's latest elastomer component, and is a special yarn, encapsulated in polyurethane, applied to the roll side of the press fabric. First introduced for vibration improvement, much like Spectra, HT has shown excellent results in both graphic and board applications based upon machine direction

flow channels created by the roll side structure.

- Low MD flow resistance
- High, steady state dewatering rates
- Increased press solids
- Improvements in bulk
- Lower vacuum levels
- Vibration dampening/elimination

On focus: AS G2 seamed fabrics

ProSafety	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ProRunability	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ProQuality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>
ProSpeed	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Section: press section
Paper grade: all

Contact



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“Press performance while running Voith Paper AS G2 seam felts is very good ...”

Jeff McKee, Paper Machine Process Owner, Domtar Columbus mill, Mississippi, USA

“Voith Paper AS G2 seam felts are definitely a plus for our machine here at Domtar Columbus. Delivery, packaging, seaming, and start-up are all non-issues. Press performance while running Voith Paper AS G2 seam felts is very good, which is a must-have attribute for making a top quality product as well as producing budget tons.”

Innovative measuring technology for the former

OnQ FormingSens opens up new perspectives

Changes in the forming section have a far-reaching impact on paper moisture and consequently on the entire paper manufacturing process. Now, for the first time ever, it has been possible to develop an online sensor that determines the water weight in the former in a reliable, reproducible and consistent manner.



OnQ FormingSens: small tool, big impact.

An important parameter in the former is the volume of water, which can be modified using foils, vacuum or wet suction devices. Until now, determining the water weight or dry content in the former was almost exclusively the domain of hand-held measuring instruments. These provide data sporadically and therefore constitute merely a snapshot of the processes taking place in the former. However, process conditions such as vacuum settings or the condition of the forming fabrics change constantly and affect the entire downstream paper manufacturing process. This is why the water weight has to be measured continuously to ensure consistently favorable former settings.

The OnQ FormingSens now provides additional leverage for determining water weight online and for optimizing the former. When developing the OnQ FormingSens there was close

cooperation from the very start between Voith Paper's process technologists, fabric specialists and automation engineers. This meant, for example, that initial tests of working models (pre-prototypes) and prototypes could be carried out beforehand on the former test rig and pilot facilities VPM 5 and VPM 6 at the Paper Technology Center in Heidenheim under realistic machine conditions. This not only substantially reduced development time but also played a key role in enabling a reliable and fully functioning product without 'teething troubles' to be installed prior to the first trial run at the customer's premises. In addition, endurance tests on the pilot machines and in the field have demonstrated that the low-wear, low-abrasion ceramic sensor surface does not affect either the forming fabric or the paper.

Simple process in a complex environment

The OnQ FormingSens is a sensor that enables accurate measurement of water weight in the former by means of high-frequency microwave technology. In the process, the natural frequency of a resonator specially fabricated for this application is measured. The natural frequency of a system capable of oscillating, and that includes water molecules, is the frequency with which the system can vibrate once set in motion. This complex process can be compared with playing the guitar. The vibration of the string produces a sound in the resonance chamber (soundbox) of the guitar. Depending on its thickness, each string has a different natural frequency. The thicker the string, the deeper the sound, at the same string tension.

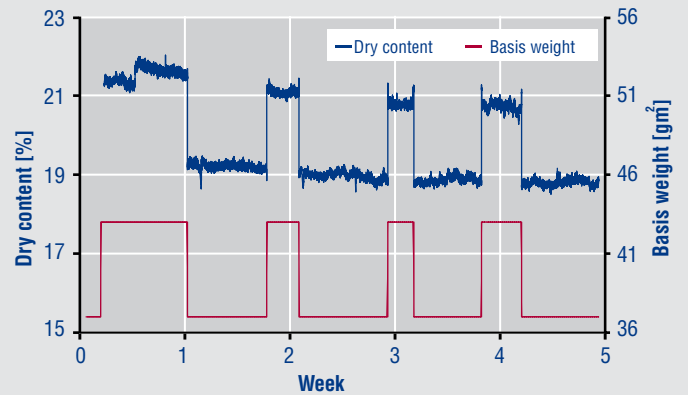
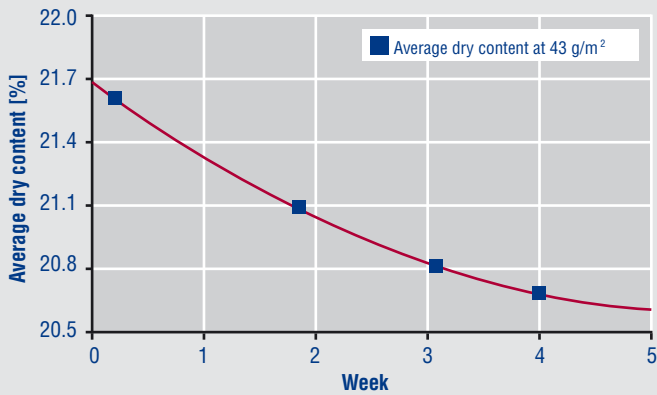
The measuring process in the former works in a similar way. The greater the volume of water above the sensor, the lower the resonance frequency. Therefore, the natural frequency clearly depends on the volume of water above the resonator. The electronic evaluation unit used allows this value to be measured accurately and reliably. Automatic temperature compensation in the sensor itself ensures that secondary influences are also minimized.

Numerous applications with great benefits

The readings supplied by the OnQ FormingSens are the basis for numerous optimizations in the former. The sensor's technical



The sensor does not leave any marks on the forming fabric or paper.



In future papermakers will be able to monitor dry content over the entire lifetime of the forming fabric.

The mean dry content allows the ideal fabric to be selected.

features allow it to be used for all types of former and paper grades. For the first time, for example, the dewatering behavior of forming fabrics can be analyzed in depth over their entire service life. The measurements from the OnQ FormingSens can therefore assist in analyzing the performance of the forming fabrics used. Using the data provided, Voith Paper specialists can analyze the performance of the fabrics over their entire service life and determine the best choice of fabric in consultation with the customer.

The OnQ FormingSens enables the papermaker to take suitable measures to adapt the runability of the paper machine to the operating characteristics of the fabric. It is no longer necessary to rely on 'gut feeling' or indirectly measured variables. If the sensor is installed at the appropriate location in machine cross direction, the threading process from former to press section following shutdowns or web breaks can also be shortened. As the tear strength of the paper depends on the moisture content and largely determines the

threading process, an accurate measurement of water weight is the crucial key to success here too. A further distinctive feature is the sensor's measuring accuracy. Hand-held measuring devices are designed to determine the greatest possible volumes of water. Although this allows for an extremely large measuring range, this is always at the expense of accuracy. If, in the case of graphical paper machines, the dry content at the end of formers is to be determined to the nearest 0.1%, the measurement has to be able to detect differences of less than 1 g/m² water weight. The OnQ FormingSens is capable of doing this and also offers a sufficiently large measuring range of 100 to 5,000 g/m². This means, for example, that the dewatering of graphical paper machines can be controlled continuously to determine the optimum dry content. This enhances runability and helps to save vacuum or drive energy.

Last but not least, online measuring techniques improve occupational safety. The completely safe microwave

technology can replace the radiation used in many hand-held measuring devices. In addition, operators using hand-held devices on a working paper machine are exposed to quite considerable risks, which are completely avoided when using the no-maintenance OnQ FormingSens for continuous measurement.

On focus: OnQ FormingSens

- ProSafety + + +
- ProRunability + + +
- ProQuality + + +
- ProSpeed + +
- ProSpace + +

Section: former
Paper grade: all

Contact



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How an IntensaPulper works

The rotor is eccentrically positioned in the vat. A double-coned arrangement provides for a flow-optimized transition from the tub-bottom, up its (vertical) cylindrical walls. Thus the IntensaPulper achieves the most intensive level of mixing in the shortest time – with low energy input.

The IntensaPulper has already been awarded several prizes.

Intensa principle – the right choice also for recovered paper

20% energy savings due to IntensaPulper IP-R

The slushing of pulp and recovered paper through the Intensa principle has become an increasingly popular choice among paper mills. A current example is the Hamburger Hungaria paper mill in Dunaújváros, Hungary. The new IntensaPulper IP-R (R = recovered paper) is used there on the PM 7. It processes 100% recovered paper in its stock preparation and has a more effective operation, thanks to its new flow guide.

More than 25 IntensaPulpers from Voith Paper are already in use worldwide, with more installations in progress for 2011. To date 16 customers have had existing pulpers rebuilt to the “IntensaTechnology” from Voith Paper. With all new systems and rebuilds to-date, two advantages

stand out: Energy savings and improved stock preparation quality.

In >>> [Dunaújváros](#) 100% recovered paper from the local surroundings are used as the raw material. Additionally, this helps improve the carbon footprint of the end product, as only short

transport routes are required. The recovered paper infeed system for the PM 7 can process both bales and loose paper. A de-wiring system is also integrated. After the infeed comes one of the core components of the stock preparation: the new IntensaPulper IP120-R.

Its pulping energy requirements have been reduced by 20% in comparison to conventional technology, through an optimized design based on hydrodynamic principles. The IP120-R in Dunaújváros consumes only 770 kWh of power at nominal production, while conventional pulpers require 910 kWh. Additional savings were achieved through a variable frequency drive which adjusts the pulper speeds according to its mode of operation. On average another 150 kWh savings.



Fig. 1: Flow-pattern in the IntensaPulper IP-R: heavy contaminant removal (black arrows), intensive turbulence (red arrows) and low-level turbulence zone (yellow arrows).

Precisely guided flows

In Dunaújváros, the pulper detaching system is equipped with a Junkomat, Contaminex and a drum screen allowing the typical coarse rejects contained in recovered paper to be removed early in the stock preparation area. Larger impurities can be disposed of before they are ground down, thus minimizing wear in the downstream process stages.

But how do those particularly large and heavy impurities get drawn so quickly into the Junkomat, instead of extended periods rotating around in the pulper? The answer lies in the new flow guide in the IntensaPulper IP120-R, which takes into account the typical behavior of heavy particles in a slurry. The combination of a double-cone bottom and flow guide

forms a chicane that serves to more effectively direct these heavier items (see fig. 1a).

And how is energy efficiency achieved during the pulping process? The configuration of the entire pulper is optimized for minimal flow losses. The upper flow guide design acts increasingly as a breaker to create an area of more intensive surface turbulence, so that bales are quickly drawn under and fed to the rotor (see fig. 1b). Flow-turbulences are eased in the remaining pulper areas. Paper, and sheets separated from bales by the initial rotor contacts stay submerged below the surface, soaking and swelling. In the process losing their fiber-to-fiber bond and thus allowing them to become more easily pulped (see fig. 1c). Subsequent rotor contact dissolves the pre-swollen paper flakes

more easily and gently. Therefore, less energy is consumed through flow partitioning than would be required for a more uniform circulation of the entire stock volume (see fig. 1d).

>>> Info: Dunaújváros

The PM 7 at Dunaújváros is a superlative packaging paper machine. It has been in successful operation since 2009. During commissioning it produced its initial 90 g/m² sheet at a record speed of 1,225 m/min. The entire production system – from stock preparation to reel – is built according to the Voith Paper One Platform Concept.

Wire width: 8,600 mm
 Design speed: 1,500 m/min
 Production capacity: 400,000 tons/year

On focus: IntensaPulper IP-R

ProEnvironment	+++
ProRunability	+++
ProQuality	+++
ProSpace	++

Section: stock preparation
 Paper grade: all recovered paper

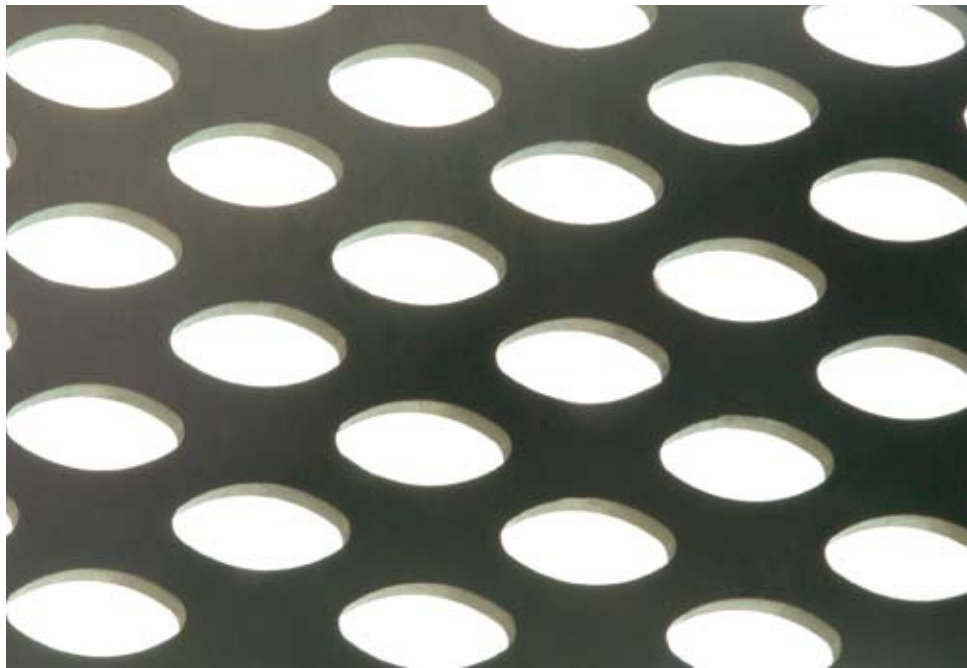
Contact



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Fig. 2: IntensaPulper IP-R installed in Dunaújváros.



NDuraPlate ES convinces with its new eye-shaped perforation.

Energy savings through sophisticated screen plate designs

EyeShaped – unique perforation accelerates the pulping process

Screen plates play a significant role in the accept quality of stock suspensions. They ensure pulp cleanliness by filtering out impurities. The nature and design of their screen openings influences both the duration and quality of the pulping process. With the NDuraPlate ES screen plate, a completely new design of screen plate is now available, providing significant improvements in the areas of stock cleanliness and energy efficiency.

Screen plates are essential to pulping operations and play a substantial role. They ultimately influence the operation of the paper machine by reducing downstream impacts on stock processing equipments and thus improve the cost-effectiveness of the entire paper manufacturing process.

Heavy demands are made on screen plates during the screening and

reject separation process. They must be capable of long term resistance to extreme dynamic loads, often accompanied by high levels of abrasive wear. In order to withstand such harsh conditions NDuraPlate screen plates are manufactured from NDura material, an extremely wear-resistant stainless steel. The service life of the screen plate is thus significantly extended.

New perforation improves efficiency

Since the quality of the accept is determined by the condition of the screen plate, its hole design plays an important role. Until now, round perforations were the standard, even with NDuraPlate screen plates. A large selection of hole geometries have recently been made possible through a novel manufacturing process. Voith

Paper has embarked on a new path with the NDuraPlate ES. This defining change comes through a completely new eye-shaped perforation – hence the designation ES. The results ensure both improved product, and energy efficiencies during the stock preparation process.

The eye-shaped perforation in the screen plate provides a working-edge increase of up to 10%, thereby achieving an overall reduction in pulping time requirements. This in turn enables a pulping efficiency increase of up to 20%, compared to other hole designs on the market.

Compared to standard screen plates the new perforation also achieves a screening open-area increase of up to 10%. This enables up to 20% in increased production, or up to 15% improvements in stock quality levels.

Such improvements in the accept stream stock quality (reduced levels of flake and rejects) has a noticeably positive impact on the downstream processing stages and equipments.

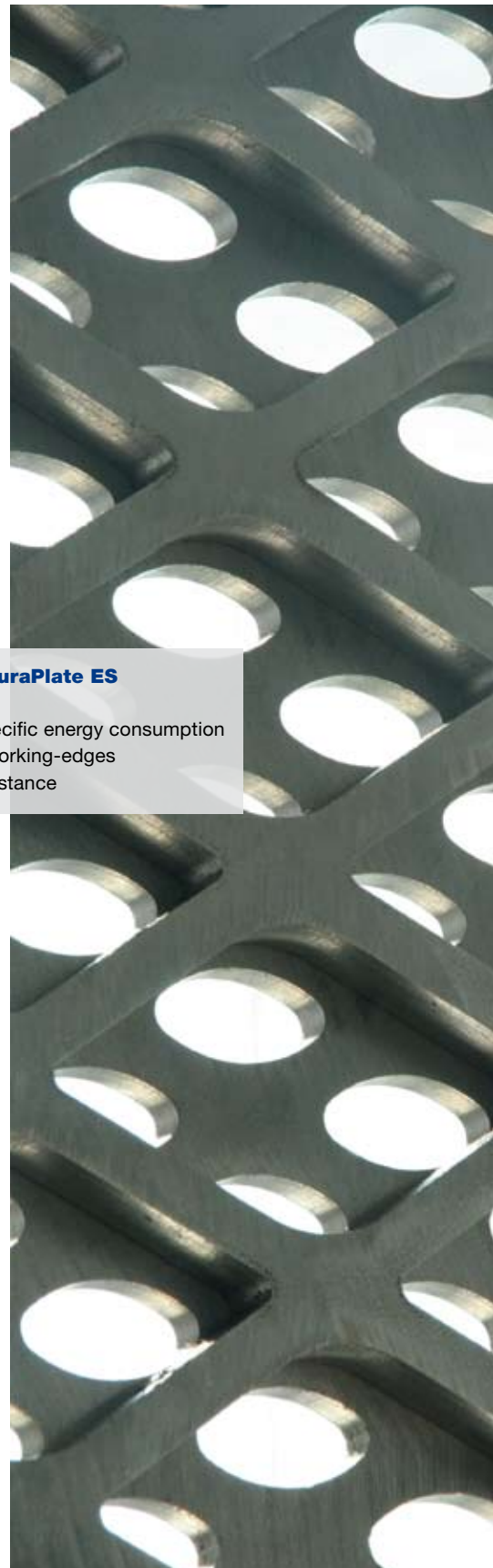
Accelerated pulping, improved accept quality

A faster pulping time allows a pulper capacity increase. Above all, the specific energy consumption can be reduced – this in continuous, as well as batch operations. In both cases process times are improved by the ability to pulp out the recovered paper in a shorter time frame, thus raising energy efficiencies.

A significant difference over previous applications is that after installation of the new screen plate, the same or

better accept quality can be achieved, despite accelerated process times.

NDuraPlate ES screen plates can be installed in almost all Voith pulpers as well as in pulpers from other manufacturers. These screen plates have also proven themselves in detrasching machines such as the Contaminex CMV and Fiberizer T.S from Voith Paper. NDuraPlate ES is also available in multiple layer “Multilayer” screen plate arrangements. This technology has proven itself particular effective in the case of screen plates with high thicknesses. For these applications the uppermost screen plate layer is replaceable, thus reducing costs.



At a glance: Customer benefits of NDuraPlate ES

- Increased pulping capacity with lower specific energy consumption
- Improved deflaking effect due to longer working-edges
- Longer service life due to better wear-resistance

Right: patented multiple layer “Multilayer” screen plate system (under-side view).

On focus: NDuraPlate ES

ProEnvironment	++	□	□
ProRunability	++	□	□
ProQuality	++	□	□

Section: stock preparation
Paper grade: all

Contact



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Energy-efficient systems in the approach flow section reduce costs

Success on two counts: Energy savings and energy recovery

The approach flow system of a paper machine moves large volumes of stock. This uses a considerable amount of pump energy that needs to be reduced and/or used more efficiently. The cleaners represent an area of the approach flow system where energy consumption can be substantially reduced. The axial-turbine PowerTube now offers a new system to recover energy.

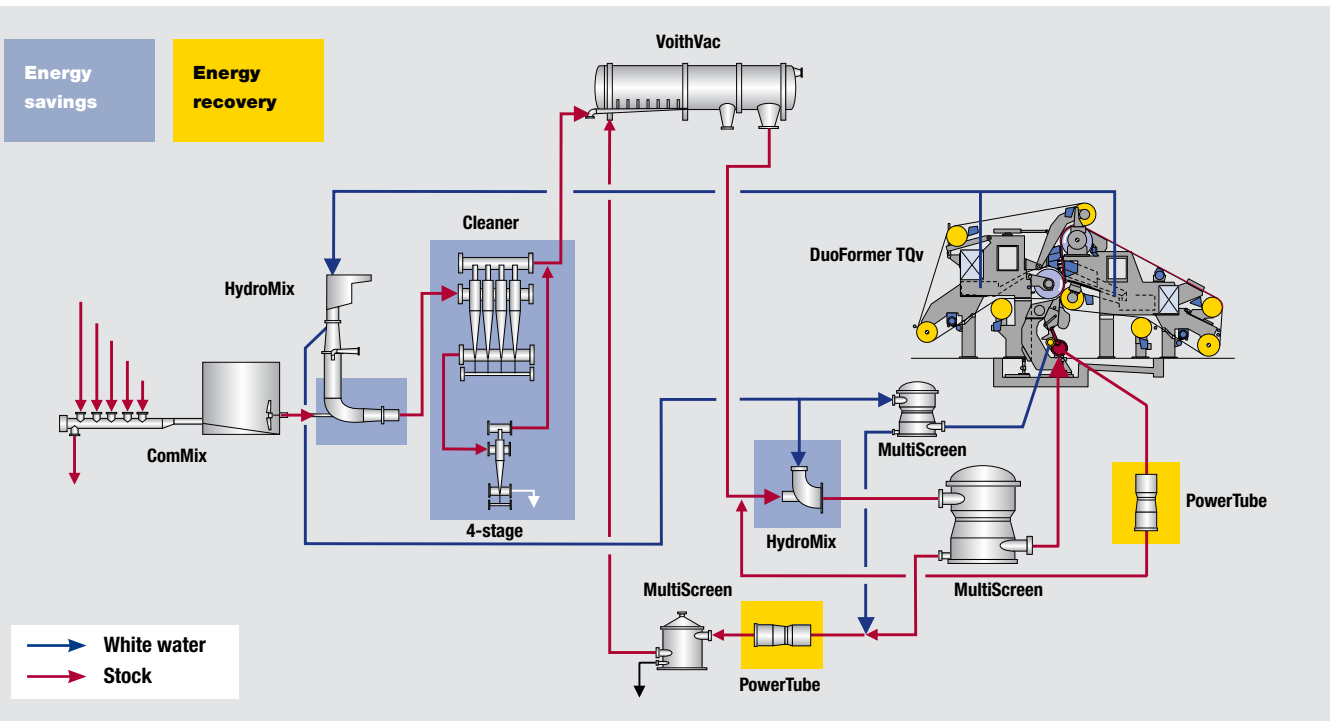


Fig. 1: Energy savings and energy recovery in the approach flow system.

In conventional systems the stock suspension is diluted to the low consistency needed for sheet formation upstream of the first cleaner stage. At stock consistencies of 1.2-1.4% this results in considerable volume flows. Depending on the volume flow a large number of cleaners and pump energy is necessary.

With its new concept (Fig. 1) Voith Paper is pursuing a separation of

the diluting process into two stages. In the first stage the high consistency stock is diluted to 2.0-2.5% upstream of the inlet into the cleaner system. This has the effect of reducing the volume flow compared with conventional systems by up to 50%.

Voith cleaners working on the EcoMizer principle continue to allow an efficient separation of the stock even at high stock consistencies.

Despite the increase in stock consistency the efficiency of removal of heavy particles (e.g. sand) is still greater than 95%. The EcoMizer system can be retrofitted to existing cleaners.

The accept stock is deaerated in the VoithVac and in the second stage brought to the necessary consistency for sheet formation. Afterwards, the stock suspension is transferred to the headbox via a two-stage pressure

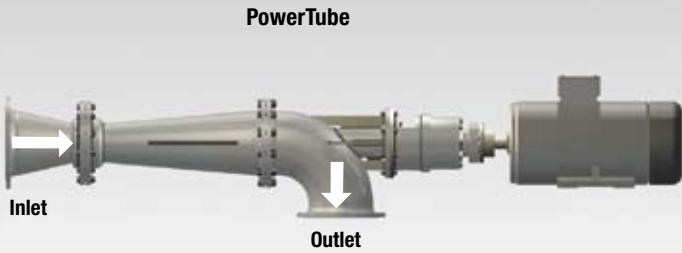


Fig. 2: The axial-turbine PowerTube can recover energy up to 80 kW.

screen. Thanks to the new system, for example, the necessary pump energy for the cleaner system of a 10 m wide newsprint machine with a production speed of 1,900 m/min can be reduced by around 610 kWh. Assuming 350 production days and an electricity price of 0.07 €/kWh, this means that savings of 360,000 €/year in energy costs can be achieved.

As well as saving energy, there is also the option to recover energy in the approach flow system. Valves generally have to be used to reduce the pressure of some volume flows occurring as overflow or rejects. This pressure loss, however, can just as

easily be re-used for energy generation. However, in order for the energy yield to be cost-effective the volume flows have to be available in sufficient quantity. The recirculation flow at the headbox, or the reject volume flow at the primary screen separator, are particularly suitable for this purpose (see yellow marking in Fig. 1).

For efficient energy recovery Voith Paper developed the axial-turbine PowerTube. This generates a pressure loss in accordance with the turbine characteristic and, using a generator, converts this to electrical energy. The load on the pressure reduction valve is

substantially reduced and it is subject to a lower degree of wear.

Depending on the size of the volume flow the energy recovered can be up to 80 kW. One reference installation in Germany (Fig. 3) is already producing 52 kW and saves the operating company up to € 31,000 a year in electricity costs. As a result, the necessary investment pays for itself in just a few years.

These solutions can also be retrofitted to most plants and help to reduce energy costs.



Fig. 3: Reference installation of axial-turbine PowerTube in Germany.

On focus: PowerTube

ProEnvironment	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
ProRunability	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ProQuality	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
ProSpace	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Section: approach flow system
Paper grade: all

Contact



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Fine and nonetheless stable: PrintForm IS

Forming fabric impresses customers worldwide

A new class of structure-bound fabrics revolutionizes the market and does justice to two claims in equal measure: running performance and quality. With the PrintForm IS forming fabric and its unique warp ratio of 3:2, Voith Paper has been providing completely new perspectives since the product launch a year ago.

PrintForm IS suites a wide application field from demanding packaging grades to fine graphical papers.



The PrintForm IS is ideally used in machines with up to 1,500 m/min. It is used for the production of fine paper as well as demanding packaging paper. Graphic paper such as LWC and ULWC was previously manufactured on fine to medium-fine SSB (sheet support binder) fabrics or double-layer fabrics to ensure non-marking, retention, formation and porosity. Demanding packaging paper was produced on designs that tended to be more robust so as to ensure stability and to meet running time expectations but with lower fiber support. That has fundamentally changed with the use of PrintForm IS. Now it is possible to work on paper quality with the aid of forming fabrics without limitations on the running performance.

Enthusiastic customers

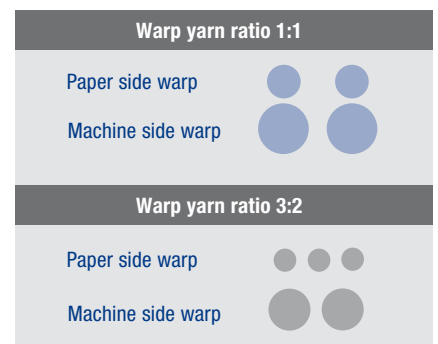
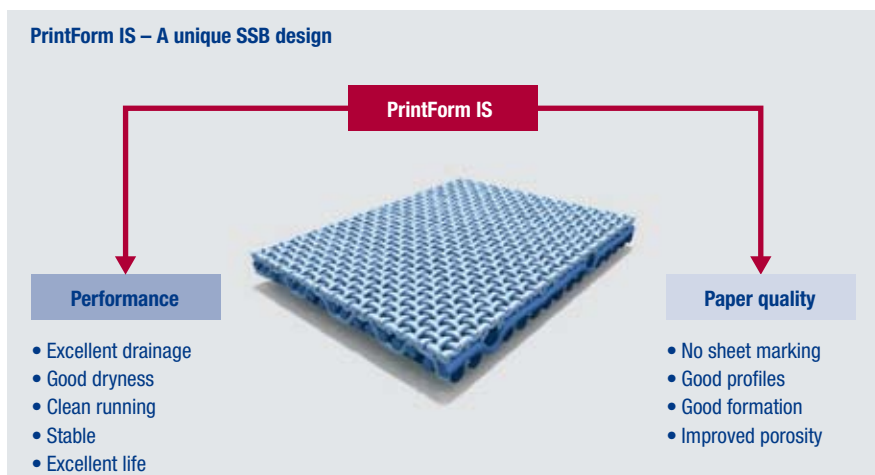
LWC and ULWC paper is produced on the Norske Skog PM 4 in Walsum, Germany. The Voith PM with a DuoFormer CF and a wire width of 8.10 m runs at a speed of 1,350 m/min. By using the

PrintForm IS in the top wire and a fine SSB fabric from Voith Paper in the bottom wire, the profile quality was improved and the surface roughness was reduced. The marking tendency was also noticeably minimized. “We are very satisfied with the use of the PrintForm IS on our machine,” says Andreas Jaeger, Assistant Manager Production on the PM 4 in Walsum.

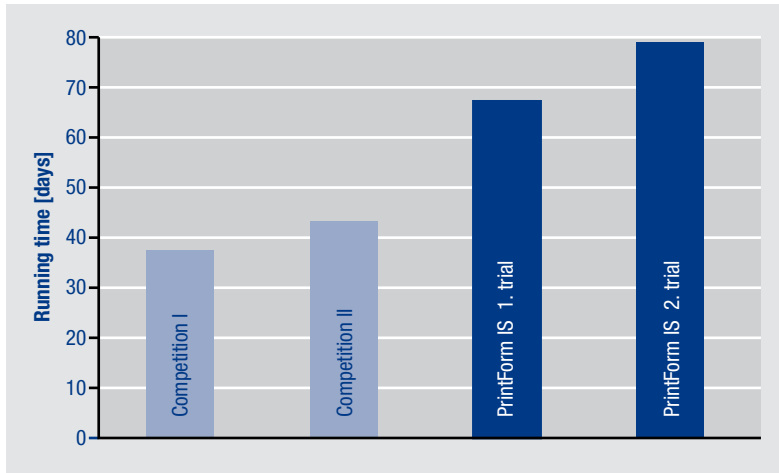
Similarly positive experiences prompted a customer in North America to choose PrintForm IS as its standard clothing. On the BelBaie machine with a wire width of 8.5 m and a speed of 1,200 m/min, wood-free coated and uncoated paper is produced within a base weight range of 75-104 g/m². By using the PrintForm IS, the running time was noticeably increased and the fabric showed outstanding dewatering performance. In comparison to a competitor’s SSB design, PrintForm IS increased the running time from 55 days to 87 days. The downtime and the costs were thus reduced and efficiency increased.

A customer in Asia was able to harness the advantages of the high fiber support. A competitor’s design with a 1:1 warp ratio had been in use on the customer’s BelBaie machine. But the competitor was clearly beaten with the first installation of the PrintForm IS. The high dewatering performance of the PrintForm IS had a positive effect on the energy balance. The fine paper side of the fabric led to better retention, which allowed the customer to reduce the use of retention aid. A clear success with regard to paper quality and cost-efficiency.

Up until now, such results had only been possible with trade-offs in running time expectations for the fabric. The PrintForm IS convinced a customer in North America of the contrary. Due to the addition of abrasive fillers, the customer had been having problems for years with short fabric running times of on average of only 50 days on the DuoFormer D machine for production of newsprint with a wire width of 7.4 m. In September 2009, Voith Paper installed the PrintForm IS



The new warp ratio of PrintForm IS sets the basement of a unique SSB Design: an optimal combination of runability and paper quality.



Running time of PrintForm IS is significant higher than comparable products.

Advantages of PrintForm IS as compared to SSB

While conventional SSB (sheet support binder) forming fabric concepts with a warp ratio of 1:1 (yarns in machine direction) reach their limits, PrintForm IS offers new possibilities. The special feature is a completely new arrangement of warp yarns to one another. Instead of a 1:1 ratio, the warp yarns are in a paper to machine side ratio of 3:2. Through this combination, the fine top side of the fabric for fiber support can be united with a stable bottom side for better service life and stability (see a detailed article on PrintForm IS in twogether, issue 29, page 51-53).

forming fabric for the first time in the bottom wire. A record running time of 67 days was thus achieved.

Immediately thereafter, the second installation was done at this position. The result was even better: a running time of clearly more than 80 days. Cost savings came about due to lower fabric consumption and fewer downtimes. For this reason and also with improved formation, the customer chose Voith Paper as its standard supplier.

High demands for quality and running performance also moved a

customer in Finland to test the PrintForm IS fabric on a hybrid former. Book paper in a base weight range of 60-90 g/m² is produced there at a speed of 1,380 m/min. The high dewatering performance, good formation and higher running time prompted the customer to rely on the PrintForm IS design. The clothing times and downtimes were noticeably reduced. High fabric stability ensures good profiles and outstanding running characteristics. Due to the high dewatering performance of the fabric, the power could also be reduced.

On focus: PrintForm IS

- ProEnvironment +++
- ProRunability ++++
- ProQuality ++++
- ProSpeed ++

Section: former
 Paper grade: graphic paper, high quality board & packaging paper

Contact



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“We are very satisfied by using the PrintForm IS.”

Andreas Jaeger, Assistant Manager Production, Norske Skog Walsum

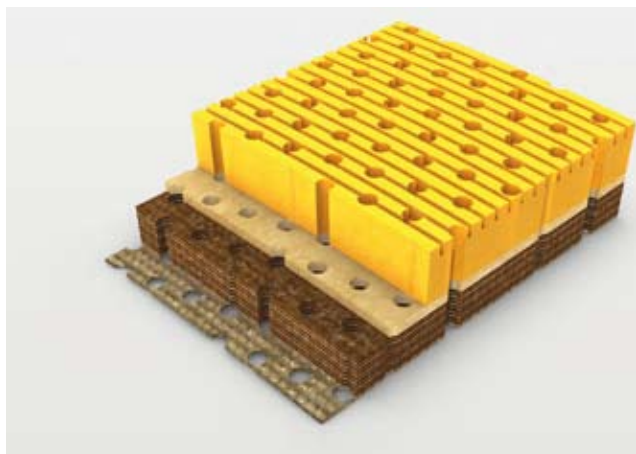
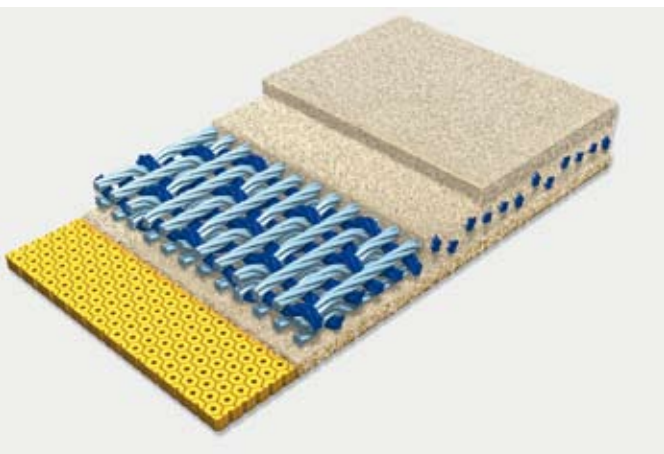
“By using the PrintForm IS in the top wire and a fine SSB fabric from Voith Paper in the bottom wire, the profile quality was improved and the surface roughness was reduced. The marking tendency was also noticeably minimized. We are very satisfied by using the PrintForm IS.”

SolarMax: ingenious combination of a suction roll cover and a press felt

Higher dry content – less energy – improved quality

Production costs can significantly be reduced with improved press section dewatering. A 1% increase in dry content out of the press section can lead to energy savings of up to 4% in the dryer section. The quality of the roll covers and felts used is the most important factor to ensure high-performance dewatering. For that reason, Voith Paper now relies on a combination, so far unique, of high-performance felt and especially efficient roll cover.

The perfect interaction of roll and felt is determine for the maximum dewatering performance.



The new SolarMax product combination, consisting of the structurally optimized E-Flex felt (left) and the polyurethane suction roll cover SolarFlow (right), has great dewatering potential.

SolarMax is the key to improved dewatering in the press section. Two recent products from Voith Paper form the foundation of this dewatering solution: the SolarFlow high-performance roll cover and the E-Flex structurally optimized press felt which can effectively bridge the roll cover grooves due to its polymer network structure on the roll side. Each product is already individually distinguished by increased dewatering characteristics. Together, they make a formidable team for fast-running paper machines.

The primary advancement is in the aggressive surface structure of the suction roll cover. With a novel groove concept, blind drilled holes can be completely eliminated in some applications. Increased groove depth and narrow land widths provide a roll cover surface with more efficient water storage capacity than any other roll cover on the market. The increased void volume of the grooves is possible due to improved polyurethane which features a denser molecular structure with optimized

material characteristics. These include greater elasticity, mechanical strength, increased temperature resistance and enhanced hydrolytic stability.

Blind drilled holes becoming obsolete

The surface pattern of a standard suction roll cover can consist of three elements which support the dewatering of the paper web: suction holes, grooves and blind drilled holes. Blind drilled holes or grooves have typically been used in addition to the suction holes to further increase cover storage volume. The properties of the cover material limited the dimensions of the grooves. Therefore, high water load applications sometimes required increased void volume from blind drilled holes in addition to grooves in the surface structure.

Blind holes can have negative effects on paper quality especially on paper grades which are critical for marking respectively on fast-running machines. Blind drilled holes are typically a less efficient surface pattern as they

are more difficult to evacuate in comparison to grooves. The remaining water in the blind drilled holes is carried back to the nip, significantly reducing its actual storage capacity. This can result in reduced dewatering efficiency with a higher flow resistance, resulting in increased hydraulic pressure and re-wetting. In certain circumstances, this also leads to a visible mark in the end product referred to as shadow marking, which noticeably reduces the quality of the paper.

The SolarMax solution utilizes the highly developed polyurethane material found in the SolarFlow suction roll covers. Voith engineers succeeded in developing a new polyurethane functional layer that withstands the highest pressure and abrasion conditions while maintaining a high level of resistance to chemical attack. The stability of this innovative functional layer allows for aggressive groove patterns. The covers used in the SolarMax solution utilize groove depths of up to 3.0 mm with a minimal space between grooves of

1.8 mm. The additional dewatering capacity from these aggressive groove patterns can eliminate the need for the less efficient blind drilled holes. This reduces the danger of hydraulic pressure build-up and minimizes shadow marking in the paper.

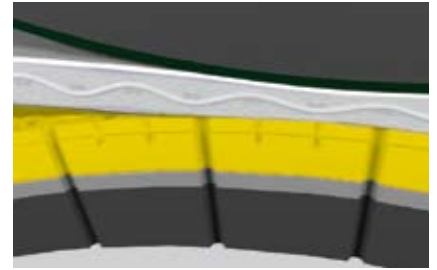
Dewatering performance fully utilized

At the Paper Technology Center (PTC), the new suction roll cover with a maximized grooved surface pattern was combined with a wide variety of felts in order to find the optimal match. The best results for paper machines with high speeds were obtained with the E-Flex press felts. Thanks to the polymer network structure of the felt, pressure transmission is distributed uniformly over the entire surface of the web, thus facilitating uniform pressing and dewatering. In addition, the polymer coating prevents the felt from compacting too rapidly. The

unimpeded flow of water to the channels of the roll cover can be ensured over the lifetime of the felt. With its extremely stable structure, E-Flex itself bridges the grooves of the roll cover used without resulting in any markings in the paper web.

Convincing results were obtained with the SolarMax dewatering solution on the pilot paper machine at the PTC. Sheet solids in the press section were improved in some cases by as much as 1%. In addition, the increased water storage capacity of the felt and roll cover allowed for a reduction of uhle box vacuum, increasing nip dewatering and leading to additional energy savings. SolarMax is the ideal solution to fully optimize the dewatering performance of the suction press roll. The maximum groove void volume of the suction roll cover in combination with the uniform surface structure of the E-Flex felt insures high sheet solids even at high speeds while obtaining optimal paper quality.

SolarMax impresses with its perfect coordination of roll cover and press felt.



Successes in practice

SolarMax is already being used by customers. Although the new roll together with cover and press felt are still in the adjustment phase, the dry content has been increased by 0.5% and dewatering performance has also increased. This vividly demonstrates the importance of perfect interaction of roll and felt for satisfactory dewatering performance.

The polymer network structure of E-Flex provides for uniform pressure distribution in the nip.



On focus: SolarMax

- ProRunability ++++
- ProQuality ++++
- ProSpeed ++++

Section: press section
 Paper grade: graphic paper,
 board & packaging paper

Contact



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Cost-efficient package for SCA Barton

Integrated automation replaces insular solutions

SCA's tissue plant in Barton, Alabama, needed an automation package that could be integrated seamlessly into existing systems. Voith Paper succeeded in defining a solution that exactly matched this requirement.



The tissue plant, situated in the state of Alabama in the USA, needed an automation package for both its new de-inking facility and its PM 14, a 5.50 m wide tissue machine with crescent former that came on stream in October 2008. As well as a cost analysis taking account of the entire life cycle of the new PM 14, SCA Barton attached particular importance to the seamless integration of the automation package into the existing system topography at its facilities.

Specific objective for award of contract

For SCA, one factor was crucial when it came to awarding the order for the automation package for the new PM 14: an integrated solution with a uniform user interface and – as much as possible – common technical and maintenance-specific components. The system should be fully integrated without superfluous interfaces.

The solution should be based on only one platform, including process, quality, motor and drive control.

SCA Barton was looking for a fully integrated automation solution – and found it with Voith Paper.

At the same time, the focus for SCA Barton was on achieving a balance between technical and economic benefits. The most important aspect was the option of in-house servicing. The company specified that everything had to be capable of being maintained in-house. SCA Barton did not want to rely on external assistance, as it has sufficient know-how within the company and has previously had the experience that external servicing can rapidly escalate costs.

Integrated solution wins the contract

The decision in favor of Voith Paper Automation as the system integrator in charge of the project was taken following a comprehensive technical evaluation and a visit to Voith's Paper Technology Center (PTC) in Heidenheim, Germany. SCA Barton saw the advantages of collaborating with an automation supplier with the experience and process know-how to control tissue manufacture and de-inking processes to optimum effect.

At SCA Barton the automation system developed by Voith Paper is based on Rockwell hardware. For SCA, the decision to work with a Rockwell platform made both technical and economic sense. The paper mill already had hundreds of Rockwell controllers installed in its PM 12 and downstream processing facilities.

The cooperation between Voith Paper Automation and Rockwell came as no surprise, as the two companies

had already worked on jointly developing control function blocks, controller faceplates and user interfaces a year before the SCA Barton project. Voith Paper therefore achieved its objective of supplying the customer not with "automation islands" but with integrated solutions with a standardized user interface.

In addition, the scope of supply includes a modern quality control system. The scanner for the PM 14 is equipped with a basis weight sensor and a 4-channel infrared moisture sensor. The basis weight sensor offers a high measuring speed and a good signal-to-noise ratio, as it dispenses with the energy-absorbing windows used in conventional ionization chambers. Any axis shift of the sensors or the effects of sheet flutter are automatically identified and corrected.

The 4-channel moisture sensor guarantees accurate measurement at four defined wavelengths, even in the event of uneven formation and moisture. Dust build-up, a particularly critical issue in tissue manufacturing, is prevented by a range of measures including the use of purging air and antistatic components. In addition, the DynaComp function counteracts dirt or deposits on the measuring windows. This allows consistently high measuring accuracy to be achieved and means that fewer standardization periods are necessary.

SCA was particularly impressed by the option to replace sensor modules in next to no time without any special tools. All that is necessary



The scanner impresses with its reliability and ease of maintenance.

to separate the measuring heads and insert a new sensor module. The whole process takes only a few minutes. This is a major precondition for cost-effective in-house servicing.

Mark Phiscator, Vice President of Engineering and Maintenance at SCA Barton, rated the benefits of the system as follows: "In our view the Voith Paper Automation OnQ System was reliable and can be repaired quickly if necessary, meeting our original objectives for in-house servicing capability. The measuring accuracy of the QCS is among the best available on the market and it is the most cost-effective solution over the long term."

FAT in Appleton

To guarantee a smooth commissioning process all components of the automation solution were tested



View of control room: Visualization of process control system for the de-inking facility.

beforehand in a three weeks factory acceptance test (FAT) at Voith Paper's Appleton site in Wisconsin, USA. The tests covered the system communication, controls, interlocks and enable devices as well as operator control functions. During the process all necessary adjustments were made. During the system acceptance inspection the user interface for the Rockwell drives was then also integrated into the operator control system.

The attention shown to even minor details paid off, and led to a smooth start-up. SCA Barton was very satisfied with both project execution and the work of those involved in the project. "Whenever there was a problem I only had to call one person – and that was Tom Orella, the Voith Paper Automation project manager," says Tim Fulmer, electrical engineer

at SCA, expressing his satisfaction about the ease of contact with the company.

Simple transition to new system

The new automation system simplified the changeover for operating personnel, some of whom had previously worked on the existing PM 12 at the Barton paper mill. The aim was to take over the operating philosophy of the PM 12 as far as possible, or to further improve it where still necessary. Voith Paper therefore designed the PM 14 user interface in such a way that existing operating and diagnostic processes and data display were retained and optimized.

By the summer of 2009, the first conclusions could be drawn: the

machine exceeded SCA Barton's expectations. The production speed of the tissue machine, which mostly produces napkins, was already at over 95% of the paper mill's target values.

On focus: OnQ Quality Control System

ProSafety	+ □ □ □
ProEnvironment	+ □ □ □
ProRunability	+ + + □
ProQuality	+ + + +
ProSpeed	+ + □ □

Section: total paper machine
Paper grade: all

Contact



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Journalist visits Voith Paper Automation

A day at the Neuwied production facility

Paper machines – the first thing that springs to mind when you hear the name Voith Paper. But would you associate it with automation technology? Mark Rushton, editor of the trade publication “Pulp & Paper International” (PPI), was in a similar position. So, with his curiosity aroused, he went to have a look for himself.

Just a few minutes after landing at Germany’s Cologne-Bonn airport, I am sitting in my rental car and entering a street name and place I have never heard of before into my GPS: Carl-Borgward-Straße – Neuwied.

Until now I have been in much the same situation regarding Voith Paper Automation, the automation supplier that I am planning to visit in person today. I was familiar with Voith Paper as a leading manufacturer of paper machines. However, I was less familiar

with the fact that the company is also a supplier of automation technology. Seeking more information about a non-contacting caliper sensor they recently launched, I contacted the company to learn more about the sensor and was immediately invited to come to Germany to visit the company and find out for myself.

Impressive dimensions

After a one-hour drive, my GPS had obviously brought me to the



The Voith Paper Automation site in Neuwied, Germany.

right place, as you can see the Voith company logo on the production halls from a long distance away. I find myself in front of the Center of Products and Manufacturing for quality measuring technology at nine o’clock in the morning.

Richard Windheuser, responsible for both the Neuwied facility and international sales at Voith Paper Automation, personally welcomes me at the door. My tour through administration, production, R&D and the testing area begins right away. “Everything you see here has to do with the development and production of sensors, which as a component of the comprehensive QCS have become the centerpiece of our automation systems,” says Windheuser. After the takeover of Windheuser’s former company “LSC Process- und Labor-systeme GmbH” by Voith Paper Automation in 2007 the development and production sector at this location was extended by 700 m² due to the high capacity utilization.



Richard Windheuser wears two professional hats: He is responsible for the Neuwied production facility and he heads the international sales of Voith Paper Automation.

In the final inspection area, where all systems are tested prior to dispatch, I am looking at two huge scanners that have to be longer than 12 meters. Their identification plates reveal their destinations: Hainan PM 2 and Perlen PM 7. Instinctively I tap on one of the scanners. This is how you imagine “Made in Germany”: a modern yet robust design. As well as the huge scanners there are countless other versions for paper machines with smaller working widths, destined for customers all over the globe.

A “hidden champion”

Afterwards, in the conference room, I enjoyed a presentation of various facts about the company. What is surprising is that even during the economic and financial crisis the company could be very satisfied with its sales figures. Since 2002, Voith Paper’s automation business has grown to 140 million euros and its workforce has increased to around 460. Voith Paper Automation might perhaps appear to be not so well known, but in financial terms it can hold its own with other, established vendors.

The automation division has its headquarters in Heidenheim, Germany, and it is represented by local organizations worldwide. In recent years, the service network has also been expanded in addition to the product range. Even thousands of kilometers away from here, local service employees can commission, service and optimize systems on site. However, I am informed that this is generally not necessary. “Nowadays, we can quickly and easily resolve 80% of all problems using remote support. Generally, our personnel only go to our customers’ premises for optimizations or contractually agreed maintenance work.”

**Revolutionary product:
Voith LSC QuantumSens**

The next stop on the tour is the R&D department. There, I am shown a new example of the development expertise available: Voith LSC QuantumSens. According to Windheuser, it is the first fully non-contacting caliper sensor for use on a paper machine. I just have



to get some more detail about this. “The sensor has the same structure as all our other modular sensors and also features the same quick-release couplings. This means that it can be retrofitted to all existing Voith LSC systems,” explains Windheuser. The first thing I notice is the large number of different measuring windows on the sensor’s surface. Thomas Ischdonat, product manager for quality measuring technology, explains how the sensor works: “QuantumSens has three optical distance measuring devices in each sensor head to accurately determine the position of the paper in the measuring gap. In addition, measuring head alignment is also monitored accurately by three high-resolution eddy current sensors plus an XY sensor.”

Then, equipped with safety glasses, I take things into my own hands: I would like to see for myself if it is possible to change the sensor in next to no time. I am astounded. With a little bit of instruction from one of Voith’s employees, I manage to change the sensor in 30 seconds,

The modular sensor concept enables high availability.



Left: Voith LSC Scanner – high quality at lowest cost of ownership.



Right: test and integration of a quality control system.



without even having to use a tool. Windheuser grins and explains that when developing the system the engineers were principally concerned with keeping the costs of the system over its lifetime as low as possible. This is why, as well as offering durable hardware and software, they consider it crucial to supply systems that are easy to maintain and service. And that also includes being able to replace the sensors quickly.

Expertise in all areas

On our way back to the conference room we come across a legacy system from another supplier that has been dismantled. I am surprised to see work being done here on systems from other manufacturers as well. My host explains: “We have recently replaced this system and we are just removing some parts in order to be able to help out our customers with spare parts in the short term.” He adds that many paper manufacturers repeatedly experience brief shutdowns caused by obsolete automation systems for which spare

parts are becoming unavailable. A look at my watch shows how quickly time has passed, leaving a whirlwind of different impressions from the day. Of course, ultimately I still want to know what kind of investment a paper mill needs to make in a new quality measuring system from Voith LSC. Sales manager Windheuser is now in his element, as he explains: “Most paper producers can only keep their systems going with an expensive service contract. At the same time, they keep experiencing shutdowns and the quality of their products is impaired. We offer potential customers the option of having one of our experts come to their plant to get an overview and check their system. For most clients the investment in a new QCS from Voith LSC pays off in one to four years at the most.” There are also some attractive financing models on offer that have already been used for certain projects, he adds.

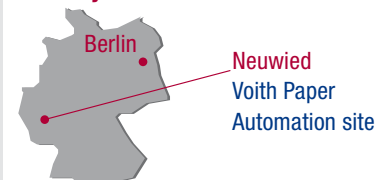
At the end of the day I set off back to England. In my luggage, a stack of paper – the written notes that will

form the basis for an article in one of the issues of PPI. However, perhaps what is more important is the knowledge I have gained in the course of this visit and a clear idea of what lies behind the name Voith Paper Automation.

*Author: Mark Rushton,
Pulp & Paper International*

Location

Germany



Neuwied is located about 10 km northwest of Koblenz. The city was founded in 1653 and emerged as one of the earliest industrial locations in Germany. Neuwied has approximately 65,000 inhabitants.

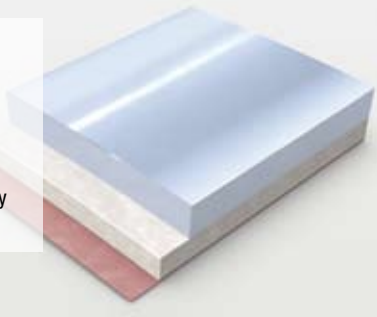
Contact



Richard Windheuser
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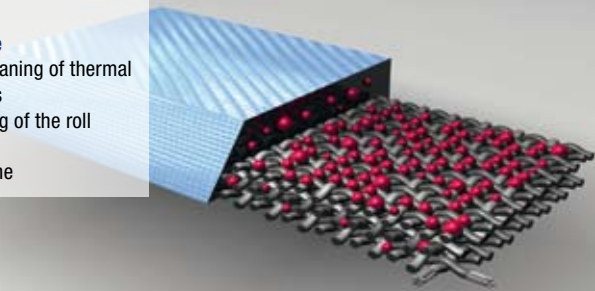
**NanoPearl
Resin composite cover**

- Vibration reduction
- Energy savings
- Extraordinary lifetime
- Saves grinding costs
- Increased operational safety
- High damage resistance



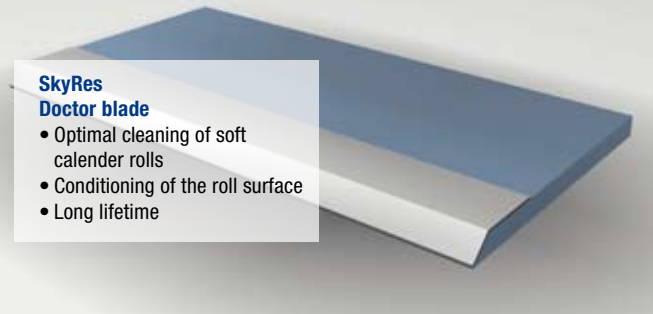
**SkyTop
Doctor blade**

- Optimal cleaning of thermal coated rolls
- Conditioning of the roll surface
- Long lifetime



**SkyRes
Doctor blade**

- Optimal cleaning of soft calender rolls
- Conditioning of the roll surface
- Long lifetime



**TerraGloss
Thermal coating**

- Long lifetime
- Energy savings
- Positive impact on gloss and/or smoothness
- Minimization of complex energy adjustments



Combination of resin composite cover, thermal coating and doctor blades

Optimal interaction increases calender performance

Calender requirements are getting more and more complex. Energy savings, enhanced paper quality and longer component life are crucial for efficient calendaring. The new calender concept from Voith Paper Fabric & Roll Systems focuses on these areas and offers significant cost benefits through the interaction of engineered products.

Today's rising costs for raw materials and energy, as well as more specific roll cover requirements and calendaring objectives, prompted Voith Paper to take a new path. The core concept is, instead of separately developing individual

covers and doctor materials in the calender, to push towards optimizing all components in a package that harnesses the effects of synergy. The systematic teaming up of covers and doctor blades allows calender performance to be improved,

something that could not be achieved with any of the individual products alone. The first such product package for the calender comprises the combination of TerraGloss and NanoPearl and the specifically tailored doctor blades SkyTop and SkyRes.

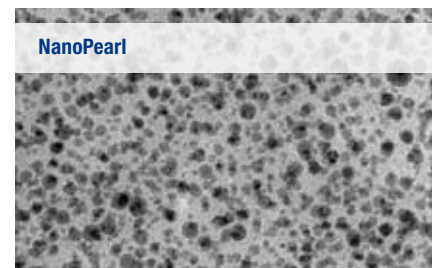
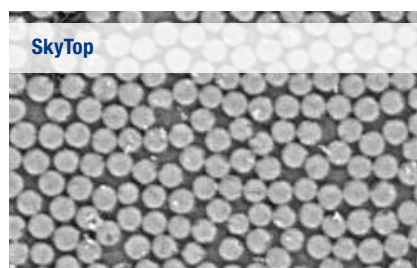
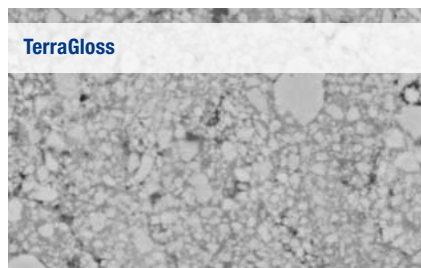


Fig. 1: Coordinated filler sizes for uniform abrasion.

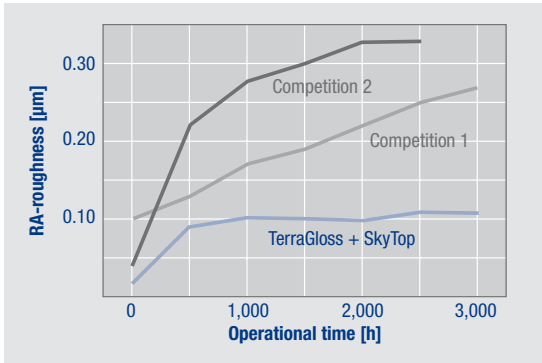


Fig. 2: Consistently low surface roughness of thermal coating due to doctoring with SkyTop.

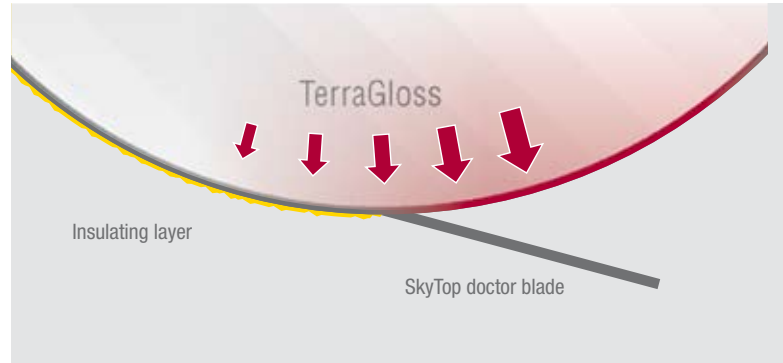


Fig. 3: SkyTop removes the insulating layer of contamination to achieve maximum heat transfer.

Deploying synergies

The main issues to be considered are wear, tribology and surface topography. The aim is to control wear on the roll surface in such a way as to maintain a consistently smooth surface with good cleaning properties. This can only be done by systematically coordinating the fillers; their proportions, geometry, type and particle size distribution (Fig. 1).

The thermal coating TerraGloss features wear and corrosion resistant layers of hard materials that have been applied with high kinetic energy. The increased use of nano-structured hard materials achieves very high wear resistance while enhancing

thermal properties such as heat conductivity and heat transfer from the roll surface into the paper. The SkyTop doctor blade was developed especially for the TerraGloss carbide coating. The adjusted particles and fillers enable constant and intensive cleaning of the roll surface. This leads to an increase in roll lifetime. In addition, a high level of heat transfer is obtained by eliminating contamination and keeping surface conditions constant (Fig. 2 and 3).

Directly related to this is the filler development in the NanoPearl elastic calender cover. The evenly distributed nano-particle matrix used is crucial to very long lifetime and enables high surface quality to be achieved. The

SkyRes blade, specially developed for the NanoPearl, prevents stickies and stripes on the roll cover. In addition, roll cover unevenness, caused by irregular wear, is smoothed out (Fig. 4 and 5).

The abrasion resistance of TerraGloss and NanoPearl prevents contact between the roll covers in the edge zone, avoiding transfer of vibrations. This increasingly stabilizes the operation, ensuring constant paper quality and trouble-free running (Fig. 7).

Focusing on customer’s benefit

Pivotal to the concept is the focus of the covers and doctor blades on specific customer benefits (Fig. 6):

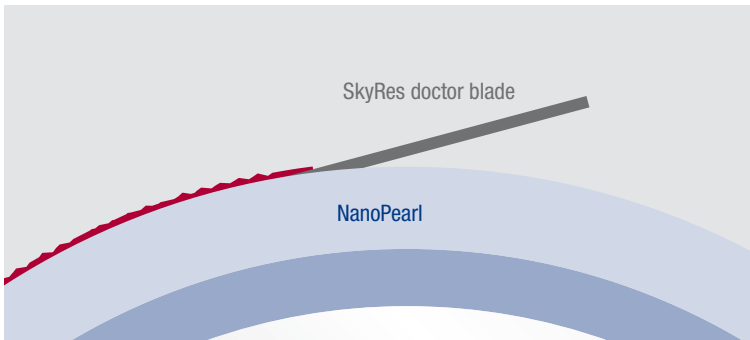


Fig. 4: SkyRes prevents unevenness in the composite cover and eliminates stickies.

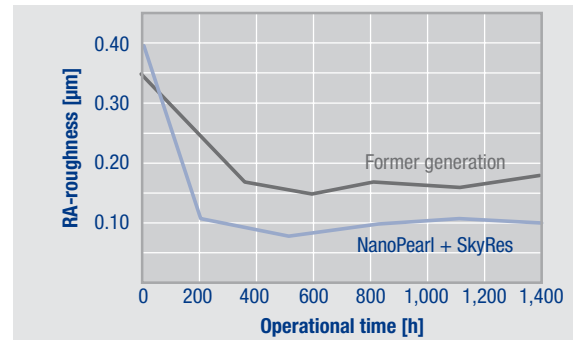


Fig. 5: Consistently low roughness of NanoPearl due to doctoring with SkyRes.

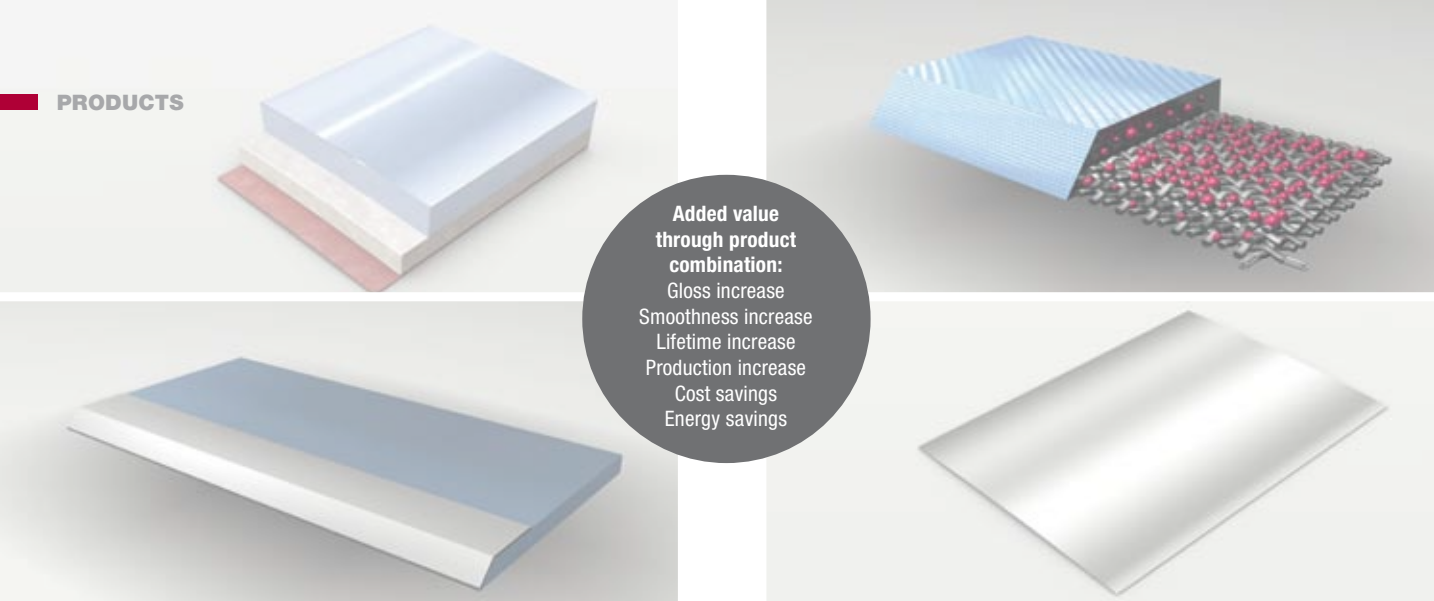


Fig. 6: When combined, the benefits of the individual products provide considerable added value.

- Increased component lifetime
- Increase in specific paper quality parameters (gloss, smoothness)
- Reduction of the energy required for calendering

The concept addresses a specific goal that brings the customer a measurable cost benefit, either reducing the number of roll changes, grinding costs, output on heated rolls, raw materials used or enhancing the paper quality.

Proven in practice

The product combination has already demonstrated its capabilities in the calender several times. For example, the lifetime of both – elastic covers and thermal coatings – were significantly improved.

The production engineer for a European paper manufacturer confirms that the line load was reduced from 240 kN/m to 185 kN/m (data refers to mean values). The calendering conditions in the first nip were optimized by using TerraGloss. This resulted in a reduction of the two-sidedness. The paper mill was very pleased with the combination of NanoPearl S and TerraGloss and was able to realize significant reductions in calender rejects. The target values of 225 kN/m and 120°C with the same quality characteristics were achieved. Energy savings in the form of reduced drive output were also obtained. This was made possible by the lower line load and by reducing steam consumption in the soft calender by lowering the inlet temperature of the heated roll by 20°C.

In an online multi-nip calender the lifetime of the flexible covers was increased from 400 to over 1,000 hours. At the same time, by replacing the existing thermal coatings with TerraGloss, the heating energy required to achieve a gloss level of 55 in the topmost heated roll was reduced from 1,400 KW to 900 KW, equivalent to annual savings of several tens of thousands of euros.

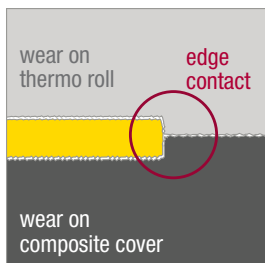


Fig. 7: High abrasion resistance prevents contact in the edge zone and reduces vibrations.

On focus: Best Fit Calender

ProSafety	+++
ProEnvironment	+++
ProRunability	+++
ProQuality	+++

Section: calender
 Paper grade: calendered paper
 (mainly graphical paper)

Contact



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New attraction at Stora Enso Fors

VariFlex – a top-class winder in action

Instead of going to the capital Stockholm, recently many papermakers have been drawn to the location of Fors in Dalarna County, Sweden. They are attracted by the VariFlex winder, which has been in operation there for two years in the Stora Enso board mill and delivers first-class results.

When you get hold of the products from Stora Enso Fors you discover coated folding boxboard of the highest quality: from cigarette packs, chocolate and confectionary

packages to deep-freeze packages. Also luxury products such as perfumes and high-quality cosmetics are willingly packaged in cartonboard “fabriqué dans la Papeterie de Fors.”

The 180-400 g/m² premium cartonboards are produced on two board machines. And what leaves the board machine as a premium product also should not be neglected later at the

Top slitters with connecting lines for slitter dust removal system.



Technical details of the VariFlex at Stora Enso Fors

Design width:	4,300 mm
Working speed:	2,500 m/min
Design speed:	2,800 m/min
Acceleration/deceleration rate:	40 m/min/s
Max. parent roll weight:	20,000 tons (planned for the future: 41,000 t)
Max. parent roll diameter:	2,600 mm (planned for the future: 3,800 mm)
Max. roll diameter:	2,100 mm
Roll width:	150-2,500 mm
Edge trim width:	15-300 mm
Slitter section:	12 pairs of knives with connected cut dust vacuum unit
Surface cleaning system with ionization unit and vacuum device	
Fully automated set change	
Start and end gluing with Gecko hot glue system	
Soft function covers on the winder drums and the rider roll	
Option for fully automatic reel change	
Transport system for the rolls via transport conveyors	



Process coordinator Per Eriksson of Stora Enso (center), as well as Günter Grill (left) and Reiner Delau (right) of Voith Paper have every reason to be pleased.



Stora Enso's production location in Fors, Sweden.



View of slitting station with empty reel spool.

end of the production line, because coated board is not easy to produce and even less easy to wind. It is a very sensitive product with high demands on the winder in terms of markings, gloss spots or bulk loss.

Thus Stora Enso Fors had very clear project goals when it came time for a new winder for the BM 2. Along with the required increase in capacity, improvement of winding quality, reliability and the performance of the gluing units are at the top of the

wish list. The old Jagenberg VariDur winder had had its day.

The decision was made in favor of the VariFlex winder. The basis for this was the technical and technological discussions, laboratory experiments and especially great feedback during the reference visits. Fors was above all impressed by the optimal winding quality due to the cover technology and very good end sheet and start gluing using the Gecko gluing units. The high productivity resulting from

the fast automatic roll change with good roll quality and also high production speed was of great significance.

Outstanding results

For a project to be successful, it is important to have in-depth discussions and to clarify technical details in advance. In addition, flexibility is sought after. The wishes of Stora Enso Fors were always the main focus and were

implemented wherever feasible. Suitable solutions were found through working together on the issues that came up during the assembly and start-up phase.

The end result is very impressive. The assessment of Stora Enso process coordinator Per Eriksson couldn't be better: "The VariFlex always runs at the maximum speed of 2,500 m/min, and from the very first day after start-up." Eriksson would have the unit do even more, but the current drives don't allow it. The acceleration rate is always 40 m/min/s, with the top speed being reached very quickly.

The VariFlex winder is impressive from both a technical and technological perspective. Its stable design prevents vibrations to a large extent; the Gecko start and end gluing system runs flawlessly and needs only minimal maintenance. In addition, the control allows adjustment of all critical parameters at any time. The roll quality is ideal and even matt grades can be wound without adverse markings.

Along with good roll structure, it is also a matter of adhering to specified tolerances such as diameter and especially roll width. The slitter section that was further developed by Voith Paper completely won over Per

Eriksson. The reliability of the formats is at a high level. Not a single roll produced since start-up was outside the tolerance limits and even the service life of the knives is very high. In addition, the VariFlex is easy to operate. If a disturbance occurs, the control system shows the operator quickly and intelligibly where the problem is and how it can be eliminated.

Eriksson also praised the general collaboration. For example, the thorough training of employees played a substantial role, as VariFlex is a complex unit with a very high level of automation. He is very happy that Fors got the necessary support and all imaginable help during the start-up phase. "Voith Paper's expert knowledge and determination to eliminate all malfunctions, and to help us improve our board quality and winding technology even further, was and still is extraordinary," Eriksson says two years after the rebuild.

Precise inserting of cores into carrier roll bed.



Parent roll transport with fully automated barcode labeling unit.



Operating unit with roll transport visualization.

On focus: VariFlex

ProEnvironment	+++
ProRunability	++++
ProQuality	++++
ProSpeed	++++
ProSpace	++

Section: winder
Paper grade: all

Contact



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Machine audit identifies capacity reserves in Heidenau PM 4

Dresden Papier producing more than 10,000 t extra per year

It doesn't always have to be the big solutions that make a crucial difference to the development of a paper machine that is past its prime. This is demonstrated by Dresden Papier's success in carrying out sectional rebuilds at its Heidenau paper mill, in Germany. Since mid-2008, these measures have been implemented consistently and step by step on the PM 4 in collaboration with Voith Paper. Within the scope of a machine audit, weak points were identified systematically and development steps devised.

Dresden Papier GmbH, a subsidiary of Fortress Paper Ltd. in Canada, is among the leading producers of high-quality print substrate for the wallpaper industry. In 2002/2003 the company was faced with a shift in its market environment, which caused it to move away from its traditional wallpaper base production to specialize in premium quality duplex non-woven wallpaper bases. High dimensional stability, good dry release properties, color retention, printability and abrasion-resistance are the decisive quality features that characterize these products containing synthetic fibers.

A long-standing partnership

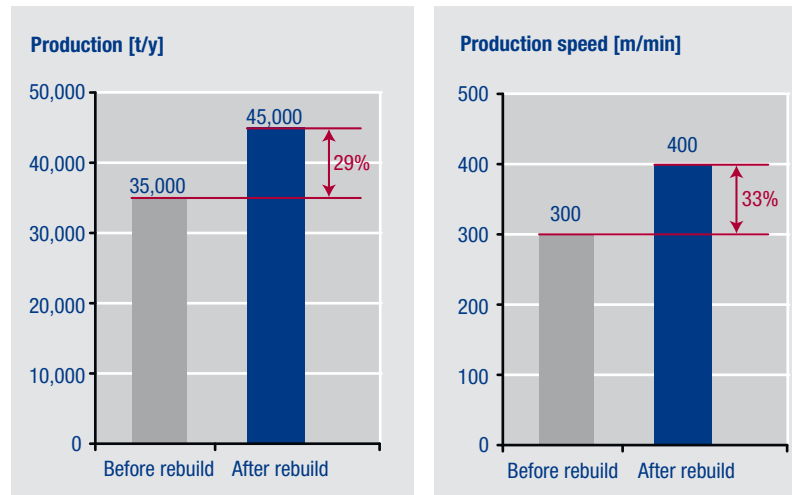
The decision to extend the product range was the cornerstone of an intensive collaboration, based on a spirit of mutual trust, between the two companies Dresden Papier and Voith Paper. Dresden Papier saw in Voith Paper the ideal partner to resolve the diverse challenges associated with this kind of product realignment.

Between 2003 and 2007, a number of extensive rebuild measures were already undertaken. For example,

Dresden Papier was highly satisfied with the completed modification of the stock feed to the two sheet forming systems including the installation of two MasterJet F/L headboxes on the top and bottom wires. In this process, the insertion of synthetic fibers and handling capability in the downstream papermaking process were the challenges that had to be mastered by working together. Subsequently, drying capacity downstream of the SmartCoater was extended by installing a Voith InfraAir dryer system.



Dresden Papier in Heidenau, Germany.



The rebuild measures after the machine audit (phases 1 and 2) resulted in a considerable increase in production and speed.

Machine audit for higher productivity

Following on from these successful rebuild measures Dresden Papier commissioned Voith Paper to perform a machine audit in December 2007. The aim was to further enhance the performance of the PM 4. The operating speed for producing the main non-wovens was to be raised from the then current level of 300 m/min to a future level of 400 m/min, while at the same time improving the quality characteristics of the products that were established on the market.

The machine audit was performed in several stages, in order to prepare customized, cost-effective proposals for optimizing the system.

First step: preliminary investigation on site

To gain a detailed insight the first step is to carry out a visual inspection of the production facility on site. This also includes a perusal of existing customer documentation by Voith Paper specialists from a wide range of disciplines. The main focus of the on-site inspection is to record the actual mechanical condition of individual system components, relevant operating data and visible weak points and/or bottlenecks in production. Based on this, there is then a technical discussion between Voith Paper and the customer. The aim of this discussion is to ensure that the operating experience and technological factors impacting the product parameters from the operator's perspective are included when developing the concept.



PM 4 Heidenau.

Rebuild phases Heidenau PM 4

Sheet width, uncut: 3,380 mm

Product: duplex non-woven wallpapers/
duplex wallpapers

Basis weight: 65-170 g/m²

The goal of this rebuild is to optimize product quality, energy efficiency, and runability. Furthermore, maintenance/servicing expenditures are to be reduced, while increasing production capacity with a multi-phased rebuild of the paper machine.

1. Rebuild phase 2008:

- Engineering to provide multi-motor drive and steam/condensate system
- 2x TwinFlo refiners to expand grinding capacity
- Group separation 1st slalom group, modification of rope carrier system in pre-dryer section including use of RopeRings
- Partial rebuild of drying cylinder bearing system to roller bearings
- Modification of steam and condensate system
- Installation of Prevo web threading technology
- Installation of a DuoShake shaking unit on bottom wire
- Supervision of installation, complete assembly, and commissioning

2. Rebuild phase 2009:

- Installation of another 3 TwinFlo refiners
- Extending drying capacity downstream of SmartCoater with MCB-Dryer
- Converting remaining drying cylinder bearings to roller bearings
- Further performance adjustments to steam and condensate system
- TailDeflector tail threading system in the press section to improve operator safety
- Capacity adjustment with new screen on top wire
- Supervision of installation, complete assembly, and commissioning

3. Rebuild phase in summer 2010:

- Engineering, delivery, and installation of a new Turbair vacuum system including heat recovery
- Installation of suction couch roll fluting including doctor system
- Rebuild of rope system to 3 ropes for coater and end section
- Capacity adjustment with new screen on bottom wire
- Supervision of installation, complete assembly, and commissioning including piping construction and installation of control and instrumentation technology



Dr. Ulrich Paris, Head of Operations Development Dresden Papier (right) discussing the project with Tobias Müller, Sales Specialty Papers Voith Paper.



Grinding with TwinFlo refiners.



Improving operator safety by installing a TailDeflector for tail threading in the press section.

In the case of the PM 4, the examination of critical components for the desired speed increase extended to a whole range of machine sections:

- Headbox
- Wire section top and bottom wire
- Press section
- Dryer
- Yankee drying cylinder
- Blade coater with non-contacting drying
- Machine calender
- Reel
- Web guide
- Vacuum system
- Electrical and mechanical multi-motor drive
- Steam and condensate system

In order to record the current condition of the vacuum system air, flow measurements were also taken at the individual suction points. In addition, the dry content and associated CD moisture profiles were measured using a transportable scanner system in order to evaluate the functioning of the press section. A vibration status analysis provided important information about the mechanical condition of the entire machine.

Second step: elaborating on the “Perfect Fit” solution

The process data collected in the paper mill and the findings from the preliminary investigation are then

analyzed and evaluated in a second step. This forms the basis for the re-engineering of the existing machine components with a view to future production and quality. The necessary rebuild measures are derived from this and the investment requirement with budget figures included. The process engineer in charge can call on Voith Paper's extensive knowledge during this procedure.

The findings and proposals regarding the PM 4 were summarized in a report containing the following key points:

- Re-design of existing machine components
- De-watering calculations for the two wire sections



“The machine audit by Voith Paper provided us with the ideal basis to identify the optimization potential of the PM 4 ...”

Dr. Ulrich Paris, Head of Operations Development at Dresden Papier

“The machine audit by Voith Paper provided us with the ideal basis to identify the optimization potential of the PM 4 and then implement this systematically in a series of rebuild phases. The rebuilds have allowed us to increase annual production by more than 10,000 metric tons and achieve a leading position in our product category.”



SmartCoater with downstream infrared and air drying.



Ventilation technology for MCB-Dryer.

- Drying simulation of pre-drying section, Yankee cylinder, after-dryer section and non-contacting drying downstream of coater
- Elaboration of “Perfect Fit” solutions for the individual machine sections e.g. optimization of threading into press and dryer sections, enhancing product quality by installing a DuoShake, improving production by rebuilding the dryer section and re-arranging the dryer groups of the steam and condensate system, as well as further recommendations on improving machine availability

Third step: presentation of audit results and prioritizing

The audit result is presented to the customer and if necessary a prioritizing of the recommended “Perfect Fit” solutions is performed, to realize a step by step implementation such as for the PM 4.

Machine audit pays off

Carrying out the machine audit gave Dresden Papier the foundation to

find the unifying thread for future development. Thus its own investment program could be aligned accordingly.

For Dresden Papier, the audit provided optimum planning security for the future optimization of the PM 4 in both technological and financial terms.

In working with Voith Paper, Dresden Papier has opted for a partner that offers process expertise covering all sections of the machine and comprehensive project experience, and that at the same time assumes overall responsibility for the planned rebuild.

A large number of the measures proposed in the machine audit have already been implemented successively in several rebuild stages. It was possible to increase annual production from 35,000 t to 45,000 t. Today, this annual production rate makes Dresden Papier the global market leader in this product segment. A further rebuild stage will take place in the summer of 2010.



The German Marburger Tapetenfabrik, among others, processes the coated non-woven base from the Heidenau PM 4 into high-quality wallpapers.

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Paper Machine division's new Customer Service Center to be central contact point

“We are with our customers through the entire lifecycle of their paper machine”

Efficient service is indispensable in the paper industry. Thus, service is a special focus for the four divisions of Voith Paper. Services have been placed at the very heart of the management structure two years ago. In addition, the Paper Machine division has now established a new customer service center, and its area manager, Bernd Stibi, explains its advantages in our interview below.

twogether: Mr. Stibi, what is the background for the restructuring of the service area in the Paper Machine division?

Bernd Stibi: With past service inquiries, it was sometimes difficult for our customers to find the right contact in our company. We have many different service experts in our departments, specialized in their particular fields. Now, the newly established Customer Service Center functions as the central contact point for our customers. With that setup, customer inquiries can now be

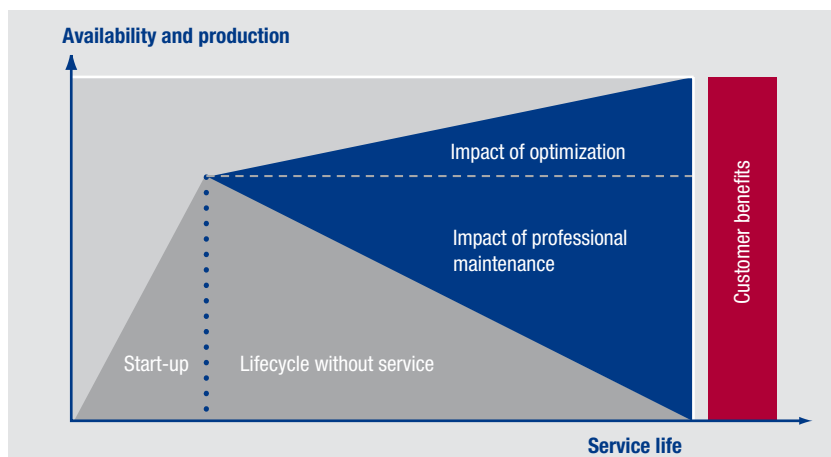
processed much more quickly and efficiently.

twogether: What specific tasks does the customer service center take on?

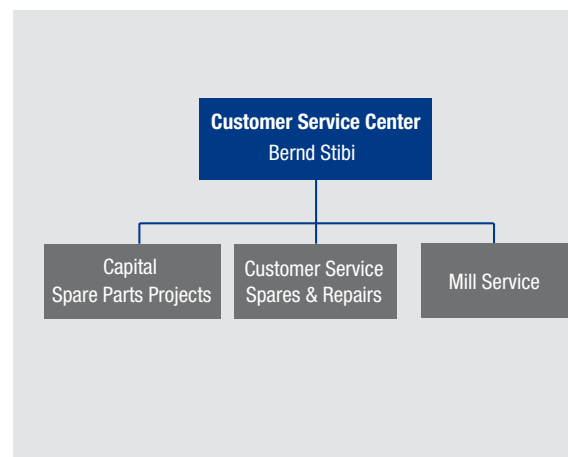
Bernd Stibi: In a way it is the “face” to our customers. Within it, three departments are responsible for all service inquiries concerning the paper machine. For new system projects, the Capital Spare Parts Projects team puts together an optimal and cost-efficient spare parts package, customized for each

customer. The Customer Service Spares & Repairs department consolidates the spare parts business for paper machines of all paper grades in Heidenheim.

With the third department, Mill Services, we offer comprehensive services that only Voith Paper can offer in this form as a complete process provider. Together with our colleagues in the Voith Industrial Services group division, there is also the capability to support a paper mill with all of their service and maintenance needs with more involved cooperation models.



Professional service is the key to long service life and high productivity of the production line.



The newly established Customer Service Center is the central point of contact for all service-related enquiries.

“With the new setup for consistent, professional service from Voith Paper, our customers can increase productivity and reduce operating costs.”

Bernd Stibi, Area Manager, Customer Service Center, Voith Paper, Heidenheim, Germany



twogether: Support throughout the entire lifecycle of a paper machine? What is meant by that?

Bernd Stibi: With the new setup for consistent, professional service from Voith Paper, our customers can increase their productivity and reduce operating costs. In view of the ever-increasing cost pressure in the paper industry, that is a considerable advantage for the profitability of our customers. Although budgets for maintenance and modernization are

constantly dropping, the carefully targeted use of the resources available can ensure the cost-efficient operation of a paper machine. Specifically, this means that professional service increases the efficiency of the paper machine, unplanned downtimes are reduced and production output is increased. Combined with suggestions for process optimization, our service saves money for the customers: Performance and service life of a paper machine are extended,

machine availability and paper quality are improved.

twogether: Where do you see the difference between Voith Paper and the many small service providers in the market?

Bernd Stibi: Because of our know-how as an equipment supplier and service provider, we have suitable experts in every area related to the paper machine – whether it's for maintenance, trouble-shooting,



“For any problem or question around their paper machine, our customers are guaranteed to find the right contact in the Customer Service Center.”

Bernd Stibi

process optimization or product upgrades. For any problem or question around their paper machine, our customers are guaranteed to find the right contact in the Customer Service Center. Therefore, we can support each paper producer according to the individual needs: whether it's repair or maintenance work on an individual component or a comprehensive support project for an entire production line.

twogether: Isn't that more like the standard service package of a provider for plant engineering?

Bernd Stibi: It is intended to be that. Our service portfolio extends from replacement parts and repair business all the way to the development of maintenance and support concepts for the entire plant over many years. For new system

projects, we put together the optimum replacement parts package and in the process take into account the existing maintenance setup in the paper mill. Our customers also get support for their maintenance planning and execution and can be sure that critical spare parts are on site in time as required. In regards to spare parts, each paper mill will have its dedicated contact person who can quickly react to any 'questions that arise. That is of crucial importance, especially in emergencies. Things have to move quickly then in order to keep downtimes as short as possible.

In addition, we offer a very special service with our audit capabilities: With proven evaluation methods, we uncover any potential for improvement in the plant's equipment itself as well as in the production and

maintenance processes. Thus, according to state-of-the-art technology, we provide paper mills real solutions for increasing productivity and quality.

twogether: The close coordination of the individual service products with one another sounds a lot like the "integrated solutions" concept.

Bernd Stibi: Correct. Integrated solutions also are a large part of our service concept. All service areas are closely connected with one another so that we can coordinate our services in the best possible way. The Customer Service Center consists of experienced key people for the coordination of services, who can access the respective experts as required. This way, a quick coordination of services is ensured and our customers get the service they expect.

Total Press Management for press section optimization

Production increase despite cost reductions

Longer roll runtimes, more even paper profiles and fewer web breaks – this sounds like a costly rebuild. Actually, real improvements can already be achieved with a holistic analytical approach.

With the Total Press Management, Voith Paper offers an optimization process by having all components of a press section analyzed and fine-tuned to each other by a

single source. Only by optimizing the interaction of all individual components can the true potential be achieved. >>> [Arctic Paper Kostrzyn](#), the largest manufacturer of offset

paper in Poland, has used Total Press Management since September 2009 to optimize its PM 1 press section. By optimizing all rolls, especially the functional rolls, and by carrying out comprehensive mechanical roll service, coordination of roll covers and optimization of clothing and doctors, the dry content can be increased. In addition, the number of web breaks can be minimized, and the runtimes of rolls and clothing can be increased. This is exactly where the difference to other concepts on the market comes into play.

>>> Info: Arctic Paper S.A.

Arctic Paper S.A. is one of the leading European manufacturers of bulky book paper and graphic fine paper. The group produces high-quality coated, uncoated wood-free and uncoated wood-containing papers. The main customer groups are primarily the printing and advertising industries and end users in the book and magazine publishing industry.

The Group's product portfolio consists of the brands Amber, Arctic, G Print, Munken, Pamo and L Print. Production is carried out at four different European paper mills: in Poland at Arctic Paper Kostrzyn; in Sweden at Arctic Paper Munkedals and Arctic Paper Grycksbo, and in Germany at Arctic Paper Mochenwangen. The total production capacity of the Group's four paper mills is 810,000 tonnes of paper per year.

PM 1 Kostrzyn has a wire width of 5.95 m and a web width of 5.30 m. It produces high quality uncoated woodfree offset and bulky paper with a basis weight range of 60-100 g/m².

In setting out with the Total Press Management, thorough analysis of the press section is undertaken first, in close cooperation with the customer. After recording and analyzing all technical data, precise assessment of the measures required to reach the agreed goals needs to be carried out. Initial analyses at Arctic Paper Kostrzyn had shown that the current press concept would allow for higher dry content and longer runtimes of rolls and press felts. This resulted in both, cost reduction and an increase in production capacity.



Steffen Voit (left), Customer Service Engineer Voith Paper Weissenborn, and Tomasz Luczkowski, Rolls Workshop Supervisor at Arctic Paper Kostrzyn, in conversation.

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Arctic Paper Kostrzyn counts on Total Press Management

“Increase in efficiency starts for us at the press section”

Voith Paper started the new Total Press Management at the PM 1 of the paper producer Arctic Paper Kostrzyn in Poland. Total Press Management is designed to optimize the press section by providing a beneficial influence on the overall performance of the paper machine. In a collective interview, a team of Kostrzyn talked about the background and first experiences.

The team of Arctic Paper Kostrzyn during the interview in Heidenheim, Germany (from left to right): Roman Kamiński, Dominik Darski, Piotr Sobków and Marcin Burzyński.

twogether: Growing domestic consumption and increasing paper exports to Western Europe are revealing one fact: compared to other countries the Polish paper industry has the enviable ability to increase production. What do you think about this development?

Roman Kamiński, Technical

Director: The consumption per head in Poland is about 90 kg and shows an increasing tendency. Arctic Paper holds a strong market position not just in Poland but also in other European countries like Germany, Austria, France and UK. This positive development brought us to our target to increase paper production at Arctic Paper Kostrzyn in the near future. The production has been quintupled since 1995 from 47,000 t to ca. 275,000 t planned for this year. In order to achieve this ambition, we decided to go for the new Total Press Management from Voith Paper.

twogether: You expected to see production increase and cost reduction from Voith Paper – what were the reasons behind these demands?

Roman Kamiński: We had already invested in infrastructure in our mill in Kostrzyn, for example, in the power plant, water preparation, waste water treatment and we will be more competitive in this area in the future. However, we needed more capacity on PM 1 and in order to achieve this we have to tap the full potential. This means shortening machine downtime by extending the shut-down to shut-down paper machines operation, extending equipment diagnostics and minimizing sheet breaks.

twogether: You decided to go for Total Press Management. Why?

Dominik Darski, Production

Director: At the moment our largest unused potential is in the press section. Therefore, we need additional product technology, as well as the know-how of Voith Paper. Besides, we've known Voith Paper through years of trusted cooperation and we are aware of their knowledge throughout the whole machine.

twogether: What positive effects have you been able to detect – even though the implementation of Total Press Management happened just recently?

Piotr Sobków, Maintenance

Engineer PM 1: Voith has already shown us some initial success with their efforts which have not involved major investments. Fine-tuning of all of the press section components has identified a lot of previously undetected potential, for example the pick-up roll run time has doubled. The crucial factor for this was mechanical roll service carried out at the Service Center Weissenborn, Germany.

Marcin Burzyński, Production

Manager PM 1, adds: Due to the close teamwork and transfer of know-how, we have already achieved good results – like less and shorter downtime.

twogether: How far did you get with the implementation of Total Press Management?

Roman Kamiński: Total Press Management is an ongoing process and offers multiple synergies and improvement options. Further steam and energy savings are still on our agenda. Having said that, we've started long-term cooperation inviting Voith Paper for the PM 1 press section project.



AquaPress excels thanks to its special surface structure

New polyurethane cover for press rolls

In summer 2010, Voith Paper is launching the efficient AquaPress polyurethane cover for press rolls into the market. Thanks to its innovative WebNet technology and a sophisticated groove concept, it provides optimal dewatering and better paper quality.

Roll covers for press rolls, by their very nature, have to offer more efficient dewatering than covers for suction rolls. Since there is no vacuum applied to press rolls, the combination of the roll cover and felt are the key factors in dewatering.

The new >>> AquaPress roll cover meets this core requirement with its special surface structure. The AquaPress technology is primarily a result of two Voith Paper developments: an innovative polyurethane functional layer and the new WebNet bonding technology. The functional layer has a dense molecular structure with improved material characteristics. It has enhanced mechanical strength, outstanding hydrolytic behavior and

is more elastic than standard polyurethane roll covers.

Deep grooves, higher drainage capacity

These improved material characteristics allow for innovative surface patterns. The depth and width of the dewatering channels can be enlarged without impairing the stability of the product. With a maximum groove depth between 2.0 and 2.5 mm and an allowable

minimum width of 2.0 mm between grooves, AquaPress covers can meet the dewatering requirements of most press applications. Deeper grooves provide additional cover storage capacity and allow for increased water removal in demanding positions. In addition, the excellent hydrolytic behavior of the AquaPress polyurethane means the cover absorbs far less water. The material does not swell, which results in reduced wear and longer running times of up to 12 months.

>>> Info: AquaPress

Starting in summer 2010, AquaPress will be available in the market and will complete the series of high-performance roll covers from Voith Paper. The rest of the series consists of the SolarPress and G2000 covers for press rolls, SolarFlow and AquaFlow for suction rolls and the SolarMax roll cover-felt combination.

	Continuous operational temperature on the cover surface	Hardness	Primary applications	Groove dimensions			
				Groove width	Web width	Groove depth	
AquaFlow	75 °C	5, 10, 15, 20, 25, 30 and 35 P&J	Suction roll	0.5-0.9 mm	2.0-2.5 mm	2.0-2.3 mm	Roll cover for all current applications
SolarFlow	80 °C	5, 10, 15, 20, 25, 30 and 35 P&J	Suction roll	0.4-0.9 mm	1.8-2.5 mm	2.5-3.0 mm	Premium roll cover for high demanded applications
AquaPress	75 °C	5, 10, 15, 20, 25, 30 and 35 P&J	Press rolls, smoothing press rolls, counter rolls in double felted shoe presses	0.5-0.9 mm	2.0-2.5 mm	2.0-2.5 mm	Roll cover for all current applications
SolarPress	80 °C	5, 10, 15, 20, 25, 30 and 35 P&J	Press rolls, smoothing press rolls, counter rolls in double felted shoe presses	0.4-0.9 mm	1.8-2.5 mm	2.5-3.0 mm	Premium roll cover for high demanded applications
G 2000	85 °C	4 P&J	Press rolls and counter rolls in double felted shoe presses Steel roll replacement	0.4-0.9 mm	1.8-2.5 mm	2.5-3.0 mm	Premium roll cover for high demanded applications

The right cover for each application: Voith Paper offers different polyurethane roll covers for the press section.

AquaPress is available in three different surface designs: grooved, blind-drilled or a combination of grooved and blind-drilled. AquaPress can therefore be adapted to meet the dewatering demands of the customer's application. It is also worth noting that in some applications a high void volume grooved surface pattern may be used instead of grooved and blind-drilled. These patterns can provide improved dewatering and eliminate the potential for nip flooding and shadow marking. AquaPress compensates for the capacity of the

blind-drilled holes with the newly developed groove structures.

WebNet technology as the successor to AST

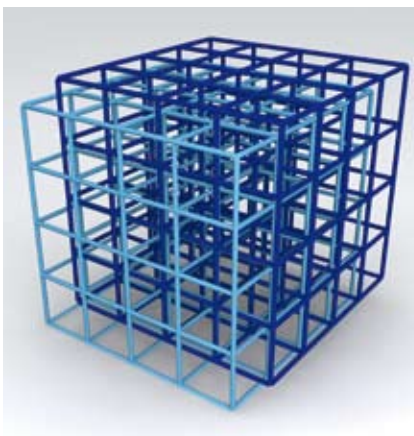
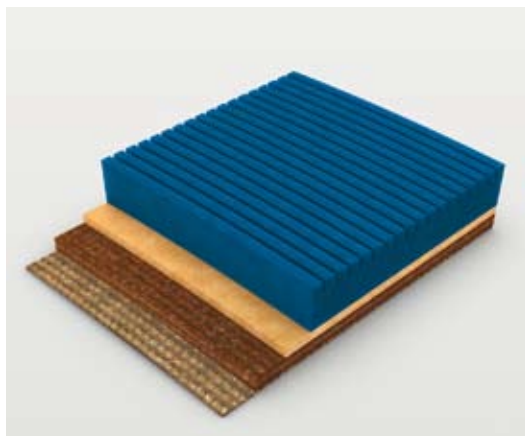
The WebNet layer is an additional innovative component of AquaPress. WebNet has an enhanced three-dimensional cross-linking of polymers and provides an improved bond between the polyurethane functional layer and the base layer. WebNet is an evolutionary advancement of the AST bonding layer developed by Voith Paper in the 1990s.

WebNet is based on the interpenetrated network technology used in aircraft and automobile construction. The close cross-linking of polymers in the bonding layer results in improved temperature resistance and increased stability of the roll cover against chemical damage and high mechanical stress.

Contact



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The grooved AquaPress roll cover (left) stands out due to the new WebNet technology (right).

Still topical after 30 issues

“twogether” magazine celebrates its anniversary



In 1996, the first issue of twogether was published.

In 2000, a Chinese edition was added.



The magazine was given a new look in 2006.



Over time, the main thematic focus has become cost-effective and resource saving products.

In 1995, two machine and equipment manufacturers, Voith and Sulzer, merged their paper engineering divisions to form the new Voith Sulzer Papiertechnik. The first issue of their joint customer magazine “twogether” appeared a year later. And the name of the magazine? It alludes to the fact that two former competitors became one.

The merger between Voith and Sulzer in the paper engineering sector was also the main topic in the first issue of twogether in 1996. Markets and opportunities were explored and new, jointly developed systems and projects presented. In the following 14 years, twogether repeatedly focused on current developments and advances in the paper industry, from the numerous speed records achieved as a result of revolutionary technologies to product innovations breaking new ground for the paper sector.

When Voith became majority shareholder in the joint venture in the year 2000 and the corporate division was renamed Voith Paper, twogether remained on board as the company’s customer magazine. For many readers from the pulp and paper industry, the magazine had already become a firmly established and much appreciated information source.

China, facelift & resources

Changes in the paper industry were also reflected in twogether’s development: Initially the magazine appeared in English and German only, but in 2000, a Chinese version was added to take account of the growing significance of the Asian market for the paper industry.

However, the magazine also informed its readership about changes within Voith Paper itself. In 2005, twogether reported on the changeover at the company’s helm: Hans Müller retired and his successor Dr. Hans-Peter Sollinger was welcomed. Along with the change at the top, the Voith Paper customer magazine was also given a “facelift” to create a new look.

The opening of the Voith Paper Technology Center in 2006 was a milestone in the history of the division and was therefore the main topic in the magazine’s 22nd issue. The magazine described the unique testing opportunities offered by the PTC to customers from the paper industry.

The customers have always taken center-stage in the magazine. And that is why today, twogether represents the close cooperation between customers and Voith Paper.

Right up to the present day, twogether has been distinguished by the topicality of its reporting on developments and research outcomes within the paper industry. Mainly because Voith Paper, as one of the largest paper machine manufacturers in the world, has expert know-how in all areas of the papermaking process.

Reflecting the times, the customer magazine has also focused on cost-effective products that save resources. Following issue No. 24 in 2007, which was devoted to the subject of energy efficiency, the magazine has covered core issues such as sustainable forestry, water savings, recovered paper and the handling of rejects. These areas will also continue to be of importance to Voith Paper in the future, as they offer enormous potential for reducing costs for its customers.

The customers have always taken center-stage in the magazine. And so it has been quite some time since twogether just stood for Voith and Sulzer; it has come to represent the close and successful cooperation between Voith Paper and its customers.

Survey results: twogether hits the mark

Dear readers,

It is rare for a readership poll to receive as much response as we got with our survey about twogether magazine. More than 500 randomly selected readers provided feedback on the quality and design of our customer magazine. We would like to sincerely thank all the participants for their views and suggestions.

As an editor of such a multifaceted magazine like twogether you keep asking yourself the same questions: Is this topic interesting not just for me but mainly for our readers? Is it well structured and understandable? Does it strike the right chord and does it also give our customers something useful for their daily work? After all, twogether is surely not supposed to be for us, it's for our readers – and should contain

information that is important to them. Therefore, as we have done in the past, we consulted our readers directly in March of this year. Over a period of ten days, an independent market research institute contacted readers all over the world. It was an exciting time for us, as we were naturally very eager to find out what they think about twogether magazine.

Now that the results have been interpreted our sense of anticipation has given way to delight. We have received a lot of praise and affirmation of our endeavors and the majority of readers are satisfied with our magazine just as it is. There was particular interest in articles about new technologies and developments, while many readers appreciated the high information value provided in

the magazine. We were very glad to hear that a great many of you believed the magazine had improved in terms of content and design in recent years. This is great confirmation for us that we are on the right track.

At the same time, you provided very valuable suggestions on what we could still refine and improve in the future. Constructive feedback like this from our readers is very important to us. We now know, for example, that some of you would like information to be more detailed in some places. We will try to accommodate this by providing additional “technical detail” boxes. In addition, we will strive to achieve a balance of topics, so that there is something for everyone. In the future, you will be able to read more about rebuild projects in particular. Thanks to your frank and honest feedback we can design forthcoming issues so that they are informative, exciting and entertaining for our readers and ensure that our articles continue to hit the mark.

As thanks for taking part in the survey we gave away three prizes to participants. Congratulations to the lucky winners from France, USA and Greece.

Your twogether editorial team

Changes in the editorial team



Since the end of 2007, twogether magazine has been published under the leadership of Stefanie Gerstenlauer. With great dedication she has driven forward the focus on high-quality, topical articles. After five issues in charge she went on parental leave at the beginning of this year.

Starting with this issue, Julia Bachmeier will be editor-in-chief of twogether. She brings with her five years experience in marketing at Voith Paper and will now assume responsibility for this magazine that has become an established feature of the paper industry.

Expert engineering services on demand

Contract engineering as a growth market

Voith Industrial Services is one of the leading global providers of technical services. By merging its three existing engineering companies it has established a strong new company – Voith Engineering Services. This business division specializes in engineering services for the aerospace, rail and road vehicle and process industries.

Components for aircraft, locomotives and cars – that sounds like quite a challenge, given the different requirements involved. Voith Engineering Services succeeds by pooling specialists with different areas of expertise, enabling it to support a range of industries and provide engineering services on demand.

As well as the development and production of components, this also includes planning sophisticated new facilities and entire industrial sites. In addition, it offers the performance of various surveys and process analyses. For the process industry in particular, and this includes the chemical, petrochemical and energy-producing sectors, professionally executed safety analyses and risk assessments are extremely important. However, Voith Engineering Services also

offers staffing services for engineers from all sectors.

“The market for contract engineering has expanded in recent years. We view this as a very promising sector for us and have therefore pooled our expertise,” says Markus Glaser-Gallion, member of the management board of Voith Industrial Services and responsible for the new business unit with its workforce of around 550. Customers benefit from a high level of planning reliability and cost certainty, efficient project management and innovative concepts for their products and production.

The foundation for the new business division was also created through recent acquisitions: In 2006, the company acquired the East German firm Hörmann Engineering that has made a name for itself in recent

years, primarily in the automotive and rail sectors. In 2008, another engineering service company was added: the North German EADS-supplier CeBeNetwork, a specialist in the development of aircraft components. An engineering company providing studies, analyses and facilities planning for the process industries had also been part of Voith Industrial Services for quite some time. “We have the know-how, the experience and the capability to provide optimum support to our customers and to lead the field in contract engineering,” states Glaser-Gallion with conviction.

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Engineering of Voith Industrial Services supports the planning of production facilities from the ground up.



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