

PULP PAPER & LOGISTICS

VOLUME 12 NUMBER 58

January/February 2020

VALMET: Stronger and more flexible

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COMMENT

Welcome to this first issue of Pulp Paper & Logistics for 2020, and to the new decade. One highlight of this issue is the increasing number of reports of paper makers stepping up their game with recyclable replacements for single-use plastics packaging.

Fibre-based materials that fit into a circular economy are increasingly being offered by our industry, with many devoting more of their budgets to research and development into more sustainable and recyclable products.

Consumers are acutely aware in their everyday lives of the benefits of paper-based packaging as more goes into the recycling bag rather than the plastics that end up as general waste. In turn this could mean less plastic ending up in landfill, or the oceans.

But these new ideas don't appear overnight and the demands of consumers must be addressed with smart design, added value and of course meeting the appropriate packaging standards.

This drive to reduce the use of single-use plastics is also being addressed by major retailers and fast-food outlets moving over to specialist packaging papers, board and corrugated products, the key word recyclability. This can only be good for our industry.

Looking forward to the March-April issue of Pulp Paper & Logistics we will be focusing on machine clothing (including rolls, wires, felts), recycled-fibre processing and dissolving pulping technology. Moving raw materials and paper products around more sustainably is a key issue, so contributions on this subject within logistics will also be welcome.

Vince Maynard
Publisher and editorial director

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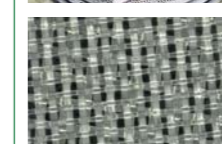
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PULP PAPER & LOGISTICS

Paper cup recycling advances in Europe

The potential for recycling paper-based coffee cups in Europe advanced recently with the establishment of a partnership in Ireland that could collect every cup in the country, and the completion of trials that claim it's possible to convert the cups into white-lined chipboard (WLC).

In Ireland, DS Smith and packaging firm Zeus have joined forces to set up the Coffee Cup Recycling Scheme

The scheme aims to recycle the 200 million single-use paper cups that are thrown away every year in Ireland.

In an exclusive agreement with DS Smith, Zeus is providing the recycling infrastructure, linking up with coffee retailers such as O'Briens and Bagel Factory.

DS Smith has pioneered coffee cup recycling at traditional recycled paper mills, enabling the recycling of both PE-lined traditional paper cups and PLA-lined compostable cups into paper packaging. Used coffee cups collected by Zeus will be sent to DS Smith for recycling.

Tom Campbell-White, director of DS Smith Recycling European Strategic Development, commented: "We are delighted to be partnering with Zeus to roll out the Coffee Cup Recycling Scheme to the Irish market. We



broke new ground last year when we redefined coffee cup recycling and announced capacity to recycle 2.5 billion coffee cups at our mill in Kent in the UK.

"Building on this, we launched our coffee cup recycling boxes in the UK in September, and we are seeing a great response from coffee retailers and other businesses. We are really excited to work with Zeus on providing a recycling solution for Ireland's coffee lovers."

The process of converting coffee cups into WLC has been developed during a trial by Stora Enso and Fiskeby Board in Sweden.

The trials confirmed that paper cups can be used as raw material to produce WLC board without any investments or changes to the process conditions at Fiskeby Board Mill.

With paper cups as part of Fiskeby's normal raw material input, the quality of the WLC board showed no defects, and no problems were experienced in the pulp and board production processes.

Stora Enso recently launched a new material for paper cups, Cupforma Natura Solo, which has a dispersion barrier instead of the traditional polyethylene



coating to make the cup leakproof. The dispersion barrier breaks down in the recycling process, ensuring that all fibres can be fully recovered.

Hannu Kasurinen, head of liquid packaging and carton board at Stora Enso, explains: "By exploring the recycling of paper cups, we are promoting circularity while supporting our customers in the food service industry in their efforts to become more climate-friendly.

"We are open to collaboration with other recycling partners to build an ecosystem of circularity for food service companies.

"Paper cups have a low carbon footprint, which is still cut by half if cups are recycled and carbon remains stored in the fibres during their next life. The high-quality fibres become used for other renewable products in a circular economy."

• Stora Enso is investing €9 million in a pilot facility for enabling the production of bio-based plastics as a barrier in transparent packaging. The pilot plant will convert plant-based sugars into the renewable building block required to make PEF, a bio-based plastic, mainly targeting the food and beverage industry. The pilot plant will be located at Stora Enso's Langerbrugge Mill in Belgium.

Cellulose science conference to precede Zellcheming-Expo

As an introduction to the Zellcheming-Expo being held from 24-25 June in Frankfurt-am-Main, the organisers are holding a science-focused conference for the first time.

The Zellcheming-Conference is being held from 21-24 June at Darmstadt, with the title 'Cellulose-based Materials –

from Science to Technology'.

With input from the Technical University of Darmstadt providing an international knowledge platform, the event will bring together researchers from science and industry interested in topics related to polysaccharides, paper-based materials and bioeconomics.

On 24 June, a coach will link the two locations so that attendees can combine scientific knowledge with all the benefits of the exhibition, such as networking and gathering information on the latest trends and products.

Exhibitors from throughout the paper value chain have already

registered for the Zellcheming-Expo, including ABB Automation GmbH, Andritz AG, Biomontan Produktions und Handels GmbH, fipptec, Kühne+Vogel GmbH, Servophil AG, Valmet and Wöllner GmbH.

More information about the conference is at www.zellcheming.de

A

PULP & PAPER

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ANDRITZ

Now Voith targets Toscotec in Italy

Following its acquisition of BTG (see p7), Voith has agreed to buy a controlling share of Italian papermaking equipment manufacturer Toscotec Spa.

Based in Lucca, Toscotec supplies production lines, systems, products and services for tissue makers in the sanitary products sector such as paper towels, paper napkins, or toilet paper.

Andreas Endters, chief executive of Voith Paper, commented: "Especially in the tissue range, Toscotec is a highly regarded

and established company that strengthens our offering in this important growth area. With this acquisition, Voith can expand its position as a full-line supplier in all areas of the paper industry and gains a tradition-rich, powerful and agile unit."

Toscotec, which has sales of about €100 million and 200 employees, has specialised in the manufacturing of machines for the tissue and paper industry since 1948. Alessandro Mennucci, chief executive of Toscotec, said: "The focus of our efforts is on

maximum production efficiency, reduced consumption, and the highest quality. We are happy to have gained a renowned partner with Voith that pursues sustainable business activities and a likewise sustainable investment strategy."

The deal, the value of which was not disclosed, is expected to be completed during 2020.

Voith Turbo has also agreed to buy a controlling share of Elin Motoren GmbH in Germany, which makes electric motors and generators and provides

customised versions for industrial applications. "Voith is the technology leader in drive technology in many industries," says Dr Uwe Knotzer, chief executive of Voith Turbo. "The portfolio of ELIN Motoren is an excellent addition to our industrial drive solutions and supports our position as a technology-independent supplier of drive systems. With the 125 years of experience of ELIN Motoren, we will achieve a significant advantage for our customers in drivetrain electrification."

Easy-to-use cardboard boxes for e-commerce



A range of cardboard boxes that are quick to assemble, seal and open, and are aimed at the e-commerce market have been launched by UK-based Samuel Grant Packaging.

Marketed in conjunction with PackSynergy, a network of 17 leading European packaging materials distributors, Speed Boxes are said to be made from recycled materials and

are themselves 100 per cent recyclable. There is no need for any additional tape or closing device, as a self-adhesive band provides the required strength.

The boxes are fully customisable and can be printed on both the inside and outside. Available in a range of sizes and shapes, Speed Boxes include a tamper-proof closing system.

Organisational changes for Stora Enso

Stora Enso's Paper division is planning to make organisational changes to improve competitiveness and ensure better customer service after the Oulu Mill's conversion to production of kraftliner for packaging.

The planned changes would primarily affect commercial functions and operations support, and could result in a reduction of up to 135 employees in the paper division by the end of 2020.

The new organisational set-up is expected to be complete in the first quarter of 2021. The transition to the new organisation will take place in phases to ensure good customer service.

No decisions regarding the planned changes will be taken, nor will there be any redundancies until the appropriate co-determination negotiations have been

concluded.

● Stora Enso is planning a new all-wood head office in the centre of Helsinki. In partnership with Finnish pension insurance company Varma the paper maker will lease part of the building, which will showcase world-class modern wooden architecture. "As the renewable materials company, we at Stora Enso want our new head office to be located in a modern sustainable wooden office building. We are glad to be participating in a building project representing world-class wooden architecture in Helsinki, and also to be providing top-level work spaces for our personnel. This will be a cost-efficient solution for our head office and create savings compared to our current location," says Seppo Parvi, Stora Enso's chief financial officer and manager for Finland.

Data sharing partnership for tissue mill optimisation

Valmet and Fabio Perini have established an Industrial Internet ecosystem partnership to strengthen collaboration in the tissue industry. The target is to enable tissue producers and converters to work together more efficiently, and to exchange knowledge and resources for the benefit of their customers.

The partnership combines Valmet's tissue making technology and process optimisation know-how with Fabio Perini's expertise in converting and packaging machines. The two companies' expertise combined with

data from tissue mills and converting plants will provide a new dimension to tissue mill optimisation.

The collaboration aims at providing an unbroken chain of production data from the tissue machine to the converting line and utilising artificial intelligence-driven applications in the tissue production process to make the converting operations downstream more efficient. This will bring significant mill-level quality and efficiency improvements for tissue producers and converters.

Jari Almi, industrial internet chief at Valmet, commented:

"Starting from customer needs, Valmet and Fabio Perini are now taking the first steps to develop solutions where innovation goes beyond company borders, covering both tissue production and converting processes. Through collaboration with our common customers we can provide new digital solutions and services to help move tissue mills' performance forward."

Oswaldo Cruz Jnr, chief executive of Körber's tissue business division, of which Fabio Perini is a leading company, added: "We believe an open innovation model is a key concept through which companies

within tissue business can create different partnerships to make their innovation process more efficient, as well as exchange knowledge and resources. By combining the strengths of our companies, we can facilitate broad innovation and fast adaptation, enable new business and service models and help improve the profitability of companies in the tissue business."

Both Valmet and Fabio Perini have a long history in offering measurement and optimisation applications for tissue production. These reliable measurements have provided proven results for their customers.

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Indonesian delegation visits DS Smith recycling depot

Leading UK paper packaging manufacturer DS Smith hosted an Indonesian trade delegation at its West Uxbridge recycling depot in December as part of a wider visit to British waste management and recycling operations.

The team of five was made up of trade envoys and senior stakeholders investigating

recycling standards abroad. Indonesia is one of the many markets that DS Smith exports and supplies paper to, and the delegation heard from the company's director of the recycling division UK exports, Andrew Akroyd, who focused on the importance of quality for reprocessing.

Jochen Behr, head of recycling at DS Smith, who also hosted

the delegation, said: "We were delighted to host the Indonesian trade delegation and showcase the processes we have in place to make sure that material leaving our UK depots meets the increasing quality standards of our overseas customers. At DS Smith, we operate a circular business model that is based on the highest quality materials. Being transparent with our trade

partners is crucial to this process, and I am very pleased to have had the opportunity to further our relationship with Indonesia."

The issue of waste exports, particularly plastic, has recently topped the government's agenda, with a commitment to ban plastic waste exports to non-OECD countries. The move follows Indonesia's efforts to crack down on exported foreign waste after the country received and last year returned more than 250 contaminated containers in violation of import rules.

Agnieszka Grala of Baltic Control Group, who facilitated the visit, commented: "It was positive for us to see a recycling facility to get an understanding how the process works from the supply side. The visit to DS Smith was very positive and will support DS Smith as well as UK recycling supply to Indonesia in the future."

The group viewed a small presentation on the 32-person Uxbridge operation which included information on recycling quality procedures and AI processes used. They were then taken on a tour to view the operations of the depot, which processes between 70,000 to 80,000 tonnes of paper per year.



The Indonesian delegation and Jochen Behr, DS Smith's head of recycling (third from right) and Andy Akroyd, UK exports director for DS Smith Recycling (second from right)

Beverage carton recycling plant to be built in the Netherlands

The first beverage carton recycling plant in the Netherlands is being planned by Smurfit Kappa in partnership with waste collector HVC, and waste plastic and aluminium processor Bluemats.

More than half of the beverage cartons used in the Netherlands are incinerated or disposed of

in general waste channels, with the remainder being exported to other countries for recycling.

Smurfit Kappa brings expertise in paper-recycling installations to the project, which has been awarded a European LIFE grant.

Henk Hoevers, vice president of paper technology at Smurfit Kappa, said: "We are excited

about being involved in a project that has the potential to solve a very big challenge and potentially push the high recycling rate of paper even further than the current 85 per cent.

"Together, our three companies plan a state-of-the-art installation that can deal with this specific multi-material reject

stream. Using all three separated streams of paper, plastic and aluminium for further recycling is unique.

"This plan is very much in line with the circularity that embeds all our operations and aligns with our Better Planet Packaging initiative which seeks to reduce packaging waste."



Mondi teams discuss innovations at Andritz HQ

The latest innovations and major technology trends in the pulp and paper industries were the topics of discussion for 25 experts from a number of mills in the Mondi group when they visited the Group Andritz headquarters in Austria at the

end of November.

Presentations given by representatives of Andritz focused on mechanical pulping, stock preparation and recycled fibre systems, paper and board machines, rejects and recycling technologies, fabrics and rolls, and power boilers.

Automation experts demonstrated the capabilities of the Metris UX Digital Solutions by remotely monitoring the Metris X control system installed at the Mondi paper production mill at Štětí in Czech Republic.

"It was a very interesting conference with a good mix of

well-known proven technologies and latest innovations like the Vertical Screw Thickener, large steel cylinders, smart fabrics, and solutions for digitalisation. We collected some food for thought, and our teams are looking forward to more detailed technical discussions with Andritz," said Lars Mallasch, director of technology & capex for corrugated packaging at Mondi.

The two-day event included a guided workshop tour and a visit to the stock preparation pilot plant to get an impression of Andritz manufacturing capabilities and R&D activities.

"It was a great honour for Andritz to welcome so many representatives of the Mondi Group here in Graz. This is a further proof of the excellent long-term partnership between the two companies," said Wolfgang Lashofer, manager of the paper, fibre and recycling division at Andritz.

Acquisition of BTG completed by Voith

Voith completed in December the acquisition of Swiss-based BTG, which produces beds and rods for film-metering size presses, high-performance ceramic and cermet coating blades, and pulp and paper process control sensors and laboratory instruments, primarily for paper makers.

The cash deal with Spectris plc, the former parent company of

BTG, was worth €319 million.

"The acquisition of BTG is an important strategic step for Voith," said Andreas Endters, chief executive of Voith Paper. "With BTG and its portfolio that is highly complementary to our own products and services, we strengthen our position as a full-line supplier.

Voith says that BTG will remain

entrepreneurial in nature, therefore Voith and BTG customers will be able to purchase through their existing sales channels as usual.

BTG is decisive in the digital transformation of the pulp and paper industry with its offerings in data analytics, automation and software.

"We are very excited with the

acquisition of BTG by Voith. Together, we will have some tremendous opportunities to deliver more value to our customers, including integrated technologies, as well as Papermaking 4.0 and IIoT solutions. We are looking forward to joining forces with Voith. This will also present more opportunities for our employees going forward," said Rob Crossman, president of BTG.

More changes at Verso Corporation

Verso Corporation, the North American producer of speciality and graphic papers, packaging and pulp, is considering a conversion at its Duluth, Minnesota, mill to produce 375,000 tons per year of

packaging papers.

It revealed the possible move in a note to investors filed in January. The mill also started producing recycled packaging paper at a rate of 90,000tpy as part of what is seen as a move

away from printing papers.

As a result of the strategic review launched by Verso in June 2019, the paper maker has agreed to sell two of its six mills – Androscoggin and Stevens Point – to Pixelle

Specialty Solutions for \$400 million so that it is able to prioritise graphics operations and maximise value for all stockholders. It also plans to return at least \$225m to stockholders.

Fabio Perini expands its footprint in Brazil to meet growth

Fabio Perini SpA is enlarging its administrative offices at Joinville in Brazil and its production plant to handle the increasing demand from the Brazilian and South American market for tissue paper and folded paper products.

"Brazilian and South American markets today are rapidly expanding and show a higher long-term growth rate than more mature markets like those in Europe and the US," said Dineo Eduardo Silverio, chairman of Fabio Perini Ltda.

"In South America, the tissue paper market has been growing by at least 3 per cent a year, and we estimate a growth of around 15 per cent over the next five years."

The enlargement of the Joinville plant is also marked by the entry of MTC, which offers systems for folded tissue products, to meet growing demand in South America.

In November, an Open House



was set up at the Joinville site, where visitors could see the first operational MTC machine made entirely in Brazil.

"Part of the growth of the tissue market comes from increased

consumption of folded paper products, and one of the reasons which drove us to bring MTC technology into Brazil was to answer this growing demand: surely one of the main requests

coming from the Latin American and South American market is for machinery to produce folded tissue paper products. In the coming years, we expect a further upward push," says Silverio.

Mondi chief Peter Oswald to step down

International packaging and paper group Mondi started looking for new chief executive after Peter Oswald said he was resigning in January.

Oswald said it had been an honour to have worked for Mondi and he was extremely proud of what they had achieved together.

"While I am sad to be leaving, I know the group is in the hands of a strong board and an experienced senior management team that will ensure its continued success," Oswald said.

He has been with the Mondi group for 27 years and was

appointed chief executive in May 2017.

Finance chief Andrew King will take over as interim chief executive after Oswald steps down and until a successor is appointed.

Mondi's chairman David Williams said Oswald had made an immense contribution to the growth and development of Mondi since joining in 1992, most notably during his tenure as chief executive of the former Europe and International division and subsequently as chief executive.

"His drive to grow the business



and his focus on ensuring Mondi's long-term sustainable future have been invaluable to Mondi.

The board thanks Peter for his contribution to the group and wishes him all the best for the future," Williams said.

In the UK, Mondi is planning to close two plants making bags, pouches and laminates for the consumer industry with the loss of more than 200 jobs. The plants are at Deeside Industrial Park near Liverpool and at Nelson in Lancashire.

A "change in demand for the niche products" was given as the reason for the decline in business at the sites, and a 45-day consultation process was started.

European paper industry rises to the climate challenge

The EU Green Deal Communication and the set of proposed actions planned for March 2020 have been welcomed by the European paper industry.

Proposed actions include the European Climate Law, the New Industrial Strategy, the Circular Economy Action Plan 2.0 coupled with the Sustainable Products initiative and a new Forest strategy.

"The carbon-neutrality objective requires the European pulp and paper industry to become even

more sustainable, efficient and innovative. It demands that we continue on our transformational journey while maintaining our competitiveness. Our industry is up to the challenge," said Jori Ringman, director general at the Confederation of European Paper Industries (CEPI).

CEPI says that the European paper industry has already delivered a successful decoupling of carbon emissions from economic growth while reducing carbon emissions by 27 per cent from 2005 to date, having product

volumes increased and proved the climate friendliness of its products thanks to certified raw materials and a world class performance in recycling. "We have delivered climate benefits for society," says CEPI.

"In this spirit of transformation and circularity, we have expressed our ambition to go even further for climate in our recent CEO initiative. It sets the path for the pulp and paper industry to become the most competitive and sustainable provider of solutions for a climate-neutral



Jori Ringman CEPI director general: "Our industry is up to the challenge"

Europe in 2050, having a positive impact beyond our own emission reduction," said Ignazio Capuano, incoming CEPI chairman and chief executive of Burgu Group.

Corrugated equipment supplier appoints new rep in US west

Sun Automation Group, which provides equipment to the corrugated industry, has appointed Greene House Group to represent the company in California, Oregon, and Washington.

Frank Greene, Greene House Group's founder and president, brings more than 30 years of experience in both the corrugated and converting segments of the industry. He will be working alongside his son, Hayden Greene.

"We're proud to be represented by Greene House Group, and have full confidence in their ability to convey Sun's value



Greene House Group's Hayden and Frank Greene

to customers. Our network of sales partnerships continues to

be an integral component of our growth strategy," says Greg

Jones, global sales chief at Sun Automation.

Stora Enso to sell its Pfarrkirchen Mill

Stora Enso is selling its sawn construction timber mill at Pfarrkirchen in Germany to a fund managed by private equity firm Dubag Group.

The divestment is part of Stora Enso's profit protection programme and is in line with the group's strategic transformation to focus on

developing integrated mills for wood products production. Stora Enso said that the new owner is in a better position to give the mill the attention it

deserves and to ensure a long-term development.

The deal is expected to be completed during the first quarter of 2020.



Valmet's dewatering system for single bales handles up to 140 bales per hour

Safety first in pulp feeding

Valmet's modularised pulper feed system offers a suitably flexible solution for any paper, board or tissue mill. It increases safety, availability and productivity while reducing lifecycle costs.

With more than 50 systems sold, it ensures smooth and disruption-free operation while the safety considerations of employees are met. Intelligence is built into the system, and with real-time access to monitored data, it has never been easier to optimise operations.

Safety comes first
Valmet's fully automatic pulper

January/February 2020

Feeding bales – often containing wire and other sharp objects – into a pulper is a process that requires attention to safety. Valmet's latest pulper feed system meets those needs, reports Kerstin Eriksson

feed system offers higher productivity and efficiency, and improves staff safety by eliminating the risks associated with manual dewatering routines.

The main machines, used for dewatering and destacking, safely convert cut wire into compact recyclable coils. The installation is divided into safety zones. If anyone enters a safety zone, all power sources are interrupted, which ensures the highest

possible safety for all employees. The system is adapted to local safety laws and regulations before delivery.

"In designing pulper feed systems, we're always thinking about how to prevent accidents and injuries. If the layout makes it difficult to operate the line, safety is sometimes neglected. It's therefore important to resolve the safety issue, but still make the line accessible and easy

to operate," says Mats Backlund, manager of plant and process design at Valmet.

Smart system ensures quality

The intelligent system tracks each bale, bale set and bale unit throughout the line. Using absolute bale position tracking to ensure reliable key data on production and quality, the system enhances

efficiency, logistics and quality management.

Recipe handling is needed to ensure that the pulp meets the required quality when it reaches the pulper. This can be a complex process for operators of manual recipe-handling stations. Valmet's advanced recipe handling software automatically tracks, sorts and collects bales. The software calculates the mix of bales needed to ensure the required quality and guides the

movement of bales to keep the production flow constant.

Efficient wire removal

The machines in the pulper feed system are delivered as ready-to-use units designed for fast installation and start-up. Efficient daily operation is ensured by the superior control system, featuring process logic control (PLC) equipment, which is operated and monitored through a touchscreen with an

easy-to-use graphic interface.

Wires are effectively removed from bale stacks and single bales. Conveyor systems connect the machines for recipe handling, storage, transportation and manual dewatering. The system is autonomous, which means operators are free to perform other tasks. Operators can stop the system without generating cumulative defaults, which create extra work.

"We have the fastest dewatering

solution available for single bales, with rates of up to 140 bales per hour when cutting the commonly used 2+2 wire configuration. Whether it's automatic, semi-automatic or manual, our customers can always have a Valmet Pulper Feed System adapted to any special need and suitable tools to make operation as efficient as possible," concludes Per Jangdal, sales manager at Valmet.

January/February 2020

Getting the best out of OCC stock preparation

What factors determine the quality and efficiency of stock preparation for recovered paper? Voith shows what it takes to create a robust OCC stock preparation process. PPL reports

With more than 120 years of experience in paper production, more than 85 complete OCC (old corrugated container) systems installed, the Voith Group is the world's leading specialist in OCC stock preparation plants.

One of the company's great strengths is its holistic expertise, which enables the manufacturer to develop high-performance systems and components for stock preparation as a full-line supplier.

"We consider OCC stock preparation both at the product level and as an overall process," explains Andreas Heilig, vice president of product management for Fiber Systems at Voith, based at Heidenheim in Germany. "On the one hand, we consistently look for optimisation potential in each individual process step and for all components used in it. On the other hand, with our cross-component engineering at the process level, we have a keen eye for the big picture, so all process steps are optimally coordinated with each other.

"The result is an extremely robust and seamless process that delivers on efficiency, yield and quality."

A robust process despite major challenges

Unexpected downtimes are one of the worst cases for every paper mill. Therefore, a robust and trouble-free production process



The TwinPulp system prevents unnecessary shredding of impurities by early and consistently removing coarse contaminants. This relieves the whole downstream process and contributes to cleanliness at this early stage

is one of the most important requirements for OCC stock preparation. Voith machines, for example, eliminate contaminants consistently and at an early stage so that the subsequent process steps are affected as little as possible from the dirt level upstream.

The coarsest material is already sorted out in the pulper using the TwinPulp system or the IntensaDrum. Typical contaminants in this stage include stones, cans, plastic bags, larger plastic parts, adhesive tapes and wood. In addition to the usual suspects, however, frequently larger rejects such as curtains, brick stones, larger metal items and other extremely heavy contaminants that are normally unexpected in recycled paper can also be found in the pulper.

Extremely heavy rejects – such as big stones and metal parts – are sedimented in the Junkomat outside the pulper (TwinPulp system).

In the next stage, coarse impurities are separated in the IntensaMaXX pulper detaching machine. In the IntensaScreenDrum that follows, the remaining fibre material is recovered, and the reject is discharged from the process. In the TwinPulp system, larger and rope-like plastic parts are twisted together by the rotation of the suspension and form a rag with the help of cut bale wires. The rag is continuously discharged using a ragger.

A problem arises because if the rag breaks, so production must be stopped. This is because the broken rag further agglomerates

and impairs pulper operation significantly or makes it even impossible. The broken rag has to be manually removed from the pulper. It not only reduces productivity, but also represents a safety risk for employees.

"In order to avoid breakage, we have designed the ragger in such a way that it changes its contact pressure depending on the pulling efficiency of the ragger wheel. This minimises the risk of the ragger breaking and adds to the robustness of the process," explains Sebastian Schuster, product manager for OCC Process at Voith.

Fewer chests for increased reliability and efficiency

With its intelligent system design, the screening system further adds to the overall robustness

and efficiency. In conventional systems, the fibre suspension is sorted and if needed deflaked in a three-stage system in several steps. The reject is temporarily stored in a chest or a stand pipe before being passed on to the next stage. In order to avoid the formation of a floating layer in the chests, the reject must be kept in motion with an agitator.

However, agitators tend to spin the contaminants, which leads to blockages and wear in the pumps and machines used in subsequent process stages. For this reason, Voith's coarse screening process works without intermediate stock chests. This reduces potential sources of error and makes the process more reliable. The system's efficiency also increases due to a reduced number of components, which in turn leads to lower energy consumption.

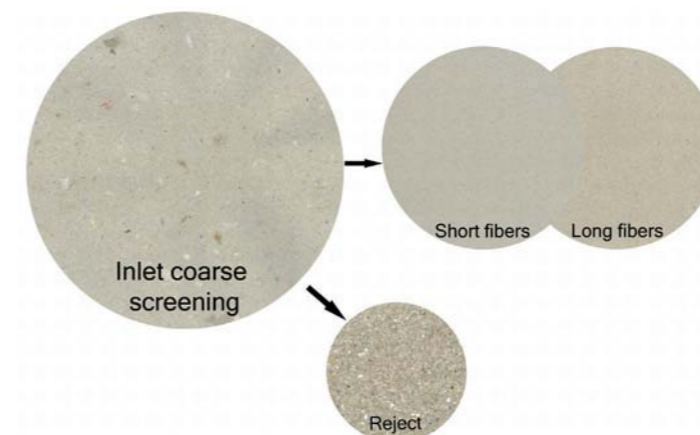
Another point for robustness is the new added flushing sequence in the screening system. Pulping cannot eliminate all rejects and thus smaller plastics, cords, etc. come to the coarse screening system. The rotation movement of the pumps can create smaller rope-like agglomerations that can block the screens or pumps. The creation of such

agglomerations can hardly be avoided but they can be kept at a harmless size by flushing the coarse screening system frequently. This is only possible due to the gentle FiberSorter and IntegraCombiSorter that can swallow the temporarily increased flow without problems or additional losses.

In this way, small agglomerations are eliminated before they can cause problems. Thanks to their design, FiberSorter and IntegraCombiSorter can cope well with these rejects without crushing them.

The Feed-Forward Principle as a central idea

Conventional systems often rely on recirculation of rejects. During recirculation, not only flakes and fibres but also contaminants and stickies enter the system again. Due to repeated treatment in the systems, they are crushed and sent forward unnoticed along with the accepts. This leads to wear on pumps and other downstream units and can have a negative impact on the runnability and efficiency of the downstream paper machine due to increased stickie content of the fibre suspension.



A multi-stage fractionation system separates the inlet into three fractions; long fibres and short fibres are transferred to the next process stage as accepted stock, and the reject is removed from the cycle after several washing processes

In order to avoid breakage, we have designed the ragger in such a way that it changes its contact pressure depending on the pulling efficiency of the ragger wheel. This minimises the risk of the ragger breaking and adds to the robustness of the process for OCC process at Voith

The TwinPulp system prevents unnecessary shredding of impurities by early and consistently removing coarse contaminants. This relieves the whole downstream process and contributes to cleanliness at this early stage.

Assuring good turnover in the pulper consumes most of the pulping energy. An optimised flow pattern in the pulper is key to reducing total energy consumption and achieving reliable operation of the ragger.

One of the guiding principles in the design and optimisation of Voith BlueLine OCC systems is the Feed-Forward Principle. The goal is to consistently move the accept forward wherever possible. This results in significantly lower

volume flows in the systems and higher stock consistencies throughout the process, which benefits the entire plant.

Thanks to the high stock consistencies, the pump energy required to transport the pulp further is reduced. In addition, the pipeline diameters can be vastly reduced. This saves space and minimizes costs, as it enables savings in valves, instrumentation, pumps, motors and energy consumption.

Focus on each component

To improve the efficiency of the entire OCC process, Voith identifies the optimisation potential for each individual component. The Voith IntensaPulper IP-R is a good example of that. Thanks to its optimised flow geometry, the pulping and mixing process has been significantly improved, reducing energy consumption by up to 20 per cent. In this way, an OCC system with an annual production capacity of 350,000 tons achieves savings of more than €100,000 per year.

A further example of Voith's pioneering stock preparation systems is the cleaning process. Standard systems only accommodate low stock consistencies to achieve the required removal rates. However, this reduces the energetic efficiency of the process. For this reason, Voith has designed the EcoMizer to achieve excellent separation and outstanding results with significantly higher stock consistencies.

Water management

A further important aspect for an efficient plant is water management. Water loop separation results in better water quality in the paper

machine compared with the stock preparation. Efficient water management allows the lowest fresh water consumption by controlling the mill's internal process water distribution during all operating conditions. This also ensures stable conditions for biological water treatment, resulting in a constant and best-treated effluent water that can be re-used or send out.

Additionally, a key issue is the quality of the process water. The levels of solids in the water loops should be kept as low as possible to prevent accumulation. The water quality also determines how much yield of fibres and fillers gets lost with the effluent.

"A typical weak point in conventional OCC systems are the filter systems used in thickening," says Schuster. With plastic filter bags on disc filters, there is a risk of holes and cracks forming. This reduces the quality of the filtrate significantly. It leads to clogged cleaning nozzles, for example at the paper machine, and can reduce the lifetime of press felts.

The efficiency of the entire process decreases due to longer downtimes and more demanding maintenance requirements, resulting from the components' shorter operating lives. This is why Voith relies on filter systems made of corrugated stainless steel. These rugged components have outstanding service lives and guarantee the best results in the long term.

Each unravelled fibre is a double gain

A significant factor for the profitability of a paper mill is its yield, in other words the proportion of accepts that can be extracted from the OCC raw material.

The process benefits in two



From wooden boards to metal parts to a whole car engine: Voith systems such as the IntensaDrum pulping drum remove many different contaminants

ways: First, the amount of fibre material recovered for paper production increases. And second, the improved yield reduces the amount of reject that has to be disposed of. For this reason, Voith systems are designed in such a way that the fibres are washed out of the reject as cleanly as possible wherever fibre loss can occur.

The significance of this is demonstrated by the Voith IntensaScreenDrum, part of the TwinPulp System. In an OCC line with a production capacity of 1,000 tons per day, the particularly effective washing of the reject helps to avoid fibre losses worth up to €315,000 per year.

A multi-stage fractionation system separates the inlet into three fractions: long fibres and short fibres are transferred to the next process stage as accepted stock, and the reject is removed from the cycle after several washing processes.

High-performance components to meet the highest quality demands

Another challenge in the OCC process is the clean removal of stickies. With its specialised systems, such as the multi-foil rotor for particularly gentle stickie

removal, Voith has been setting benchmarks for years. Slot widths and process variants can be precisely adapted to individual requirements. In high-speed paper machines with low basis weights, four-stage sorting has proven to deliver excellent results. It enables the best sticky separation with low fibre loss. For slower running paper machines and higher basis weights, three-stage sorting is usually sufficient.

Constant production conditions as a basis

To ensure consistent production quality, Voith BlueLine OCC systems are designed to compensate for fluctuations in the quantity and quality of the raw material as efficiently as possible. The raw material input itself is a frequently underestimated factor. However, fluctuations that occur with regard to quality, fibre material and stock consistency can no longer be completely compensated by the system later on, but only minimised.

To counteract this, Voith systems regulate the raw material input by conveyor belt from the stock consistency in the pulper. At the end of the OCC process, systems that are thoroughly tested and

Pulp Paper & Logistics

have been refined by years of experience ensure production conditions that are as constant as possible.

To compensate for process fluctuations, the screw press is for example controlled by the torque. Unlike many other systems, the Voith InfibraDisp disperser has an adjustable gap that opens or closes depending on the specific power consumption, thus guaranteeing uniform quality.

In the final process step, the Voith TwinFlow refiner with energy-controlled gap adjustment ensures that the fibres are treated consistently even when process fluctuations occur. This guarantees a high and uniform strength development of the fibres, so that the paper machine can be operated safely at maximum speed.

Tailor-made systems from a full-line supplier

Paper manufacturers benefit from Voith's BlueLine OCC process expertise on many levels. One main advantage is that the manufacturer handles the entire conception, planning, manufacturing, startup and optimisation of the complete OCC plant.

"It was important for us to partner with a single-source supplier who could provide us with everything from the conveyor system for waste paper to the winder," says Armin Vetter, managing director at Schoellershammer and a Voith customer.

Furthermore, Voith offers to identify opportunities for production increases and optimisation in existing plants. In this way, significant improvements in robustness, quality, efficiency and yield can be achieved quickly and easily.



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Tune your tissue – with perfect felt designs

Atrojet.T is ideal for use in tissue production thanks to its tailored multiaxial non-woven module:

- Highly flexible and adaptable **yarn structure**
- Tailor-made felt designs – **precise and even**
- Very **fine or coarser** open designs available
- **High dewatering** and even **CD profiles** due to high contact area
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- High tensile strength potential **for economic life time**

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wherever paper is made



Stronger and more flexible

A new bale pulper with an innovative rotor design is part of an upgrade the stock preparation system at Essity's Collodi Mill in Italy. Kaisamaija Marttila reports

Essity's Collodi Mill in Italy specialises in the production of deep and light coloured paper

Fifteen grade changes per day and meeting the needs of more than 100 customers – that's the reality for Essity's Collodi Mill, requiring fast adaptation and striving for efficiency in coloured tissue production.

"We started the stock preparation rebuild project with Valmet because of challenges we had with the old system. Energy consumption was high, and we wanted to increase our capacity and productivity, as well as safety at work," says mill manager Vittorio Bellucci, explaining the background to the recent stock preparation rebuild of TM2 at Essity's Collodi Mill in Italy.

Collodi Mill specialises in the production of deep and light coloured paper, used for example in napkins and toilet paper. Wide flexibility, an extensive colour range and the highest quality standards make Essity Collodi a leading factory worldwide for coloured tissue production. Producing coloured grades places high demands on stock preparation – and especially on pulping.

"We need to pulp the fibres well, because that's when the dyes are fixed to the cellulose. We also use wet strength broke from the machine, which is difficult to repulp after storage," Bellucci explains.

To help Collodi Mill meet its targets, Valmet supplied a rebuild for their stock preparation, which

included a new bale pulper with an innovative new rotor design, two OptiFiner deflakers, an OptiFiner Pro refiner and an under machine pulper.

Co-operation is the key

After the start-up, the Essity crew and Valmet worked closely to tune up the system. The target is to use more wet strength, and the percentage of recycled paper used has increased from 20 to 60 per cent.

According to Bellucci, the supplier's support in problem solving is important. "We've met with trust and openness. Valmet has been open to our suggestions too, and we've worked together very well, despite some challenges," adds PM operations manager Matteo Vanuzzo.

Innovative pulper rotor increases efficiency

Essity's bale pulper is equipped with completely new rotor geometry, which dampens the impact of bales, reducing the load on the shaft, bearing, motor and drives, and creating a much stronger pumping effect for improved disintegration efficiency and a shorter retention time. This in turn reduces energy consumption and increases pulping capacity.

"The new bale pulper is working out very well for both the operation and the operators. We can now repulp every kind of wet strength broke without any problem at the engine's maximum speed," says Vanuzzo.

"We can also run the rotor energy efficiently, without

jeopardising the correct mixing of dyes. We've been able to halve the discharging time, and the working environment is safer for the operators," he continues.

"The mill is also happy with the energy-efficient deflakers and refiners. The system is working well, and we're enjoying producing the right quality for our customers with increased profitability," confirms Bellucci. "I think we have the greatest team I've ever been part of at this mill. We can do everything with this team – hit the customer's quality targets and keep aiming higher," says Vanuzzo.

More information from Walter Mornioli, Product sales manager. Tel: 39 3353 27011. Email: walter.mornioli@valmet.com



Innovative new pulper rotor geometry increases disintegration efficiency and shortens retention time. This in turn lowers energy consumption and increases pulping capacity.



The team at the Collodi mill is happy about the halved unloading time and a workplace that has become much safer. From left: Mauri Lattunen, Matteo Vanuzzo (Essity Collodi) and Valmet's Walter Mornioli



"We need to pulp the fibres well, because that's when the dyes are fixed to the cellulose. We also use wet strength broke from the machine, which is difficult to repulp after storage," says Collodi mill manager Vittorio Bellucci

Essity at a glance

Essity is a leading global hygiene and health products manufacturer with sales in more than 150 countries. Its best-known brands are TENA in the incontinence care segment and Tork in the away-from-home professional hygiene segment, while others include JOBST, Leukoplast, Libero, Libresse, Lotus, Nosotras, Saba, Tempo, Vinda and Zewa. With headquarters in Stockholm, Essity has about 47,000 employees with sales in 2018 of SEK118.5bn (€11.6bn). Its Personal Care division has 37 production sites in 24 countries; Consumer Tissue has 47 sites in 19 countries; and Professional Hygiene had 45 sites in 18 countries. Essity has three production sites in central Italy: Altopascio (LU), Porcari (LU) and Collodi (PT).

Photography by Kaisamaija Marttila and Joonas Nieminen

Under pressure

Design for profitability is the underlying philosophy of modern press felt technology, as demonstrated by number of case studies. PPL reports

Cost savings and growth in earnings, together with achieving the highest quality have long been the central challenges for all paper producers. With its New-Tech press felts, Heimbach has been unlocking many doors to this for a considerable time. What follows are some convincing practical examples of this.

Paper is not alone in being heavily pressed. The whole paper industry is under more pressure than ever through digitisation and globalisation. Battling against this and scoring points with innovative technologies is the key challenge, and where Heimbach has always been a reliable partner.

Setting the course early

Already in the 1990s, with the growing demands of the paper industry always in mind, Heimbach sought ways to preserve and

Atrocross for the fastest starts and nip-dewatering

develop proven existing press felt technology whilst at the same time complementing this with new and meaningful developments.

The result of this long and intensive process was the introduction of a completely new press felt family: The New-Tech generation. This pioneering

position has been continuously expanded to the point where New-Tech press felts account for 80 per cent of their total supply. There is an obvious explanation for the extremely high and rapid growth: significantly better paper quality with lower production costs.

New-Tech press felts are based

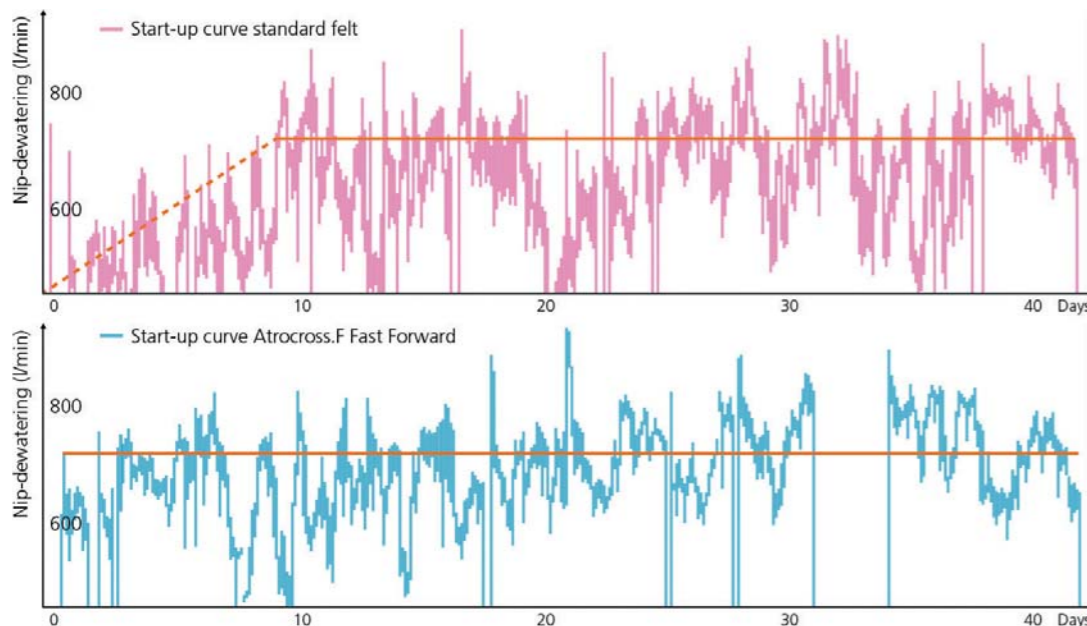
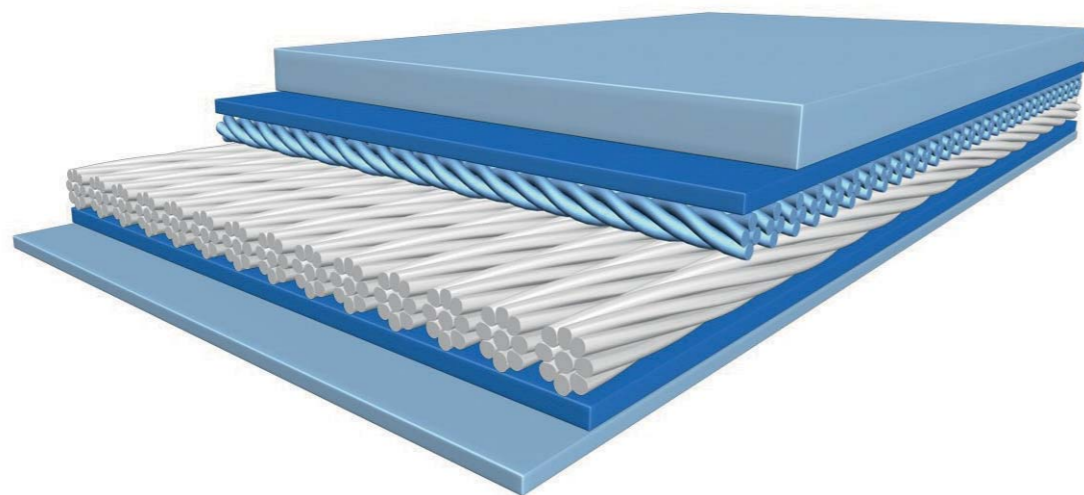
on a modular design with a unique bonding technology. This lends itself in particular to individual and specific application for every machine and position and takes into full account the steadily rising expectations and needs of paper makers and process specialists.

Base technology

Almost 30 years ago, Heimbach was the first producer to bring non-woven press felts to the market, thus opening up the benefits and savings potential of nip dewatering to all paper producers. In the meantime the process has become the preferred drainage concept on faster paper machines across the world.

Truly exemplary

Thanks to the know-how gained over many years in both manufacturing and application, Heimbach is the established world leader for non-woven press felts. Countless practical ex-amples



Start-up time comparison between a standard felt and Atrocross.F Fast Forward

document time after time the great successes of this technology.

Non-woven press felts Benefits and gains

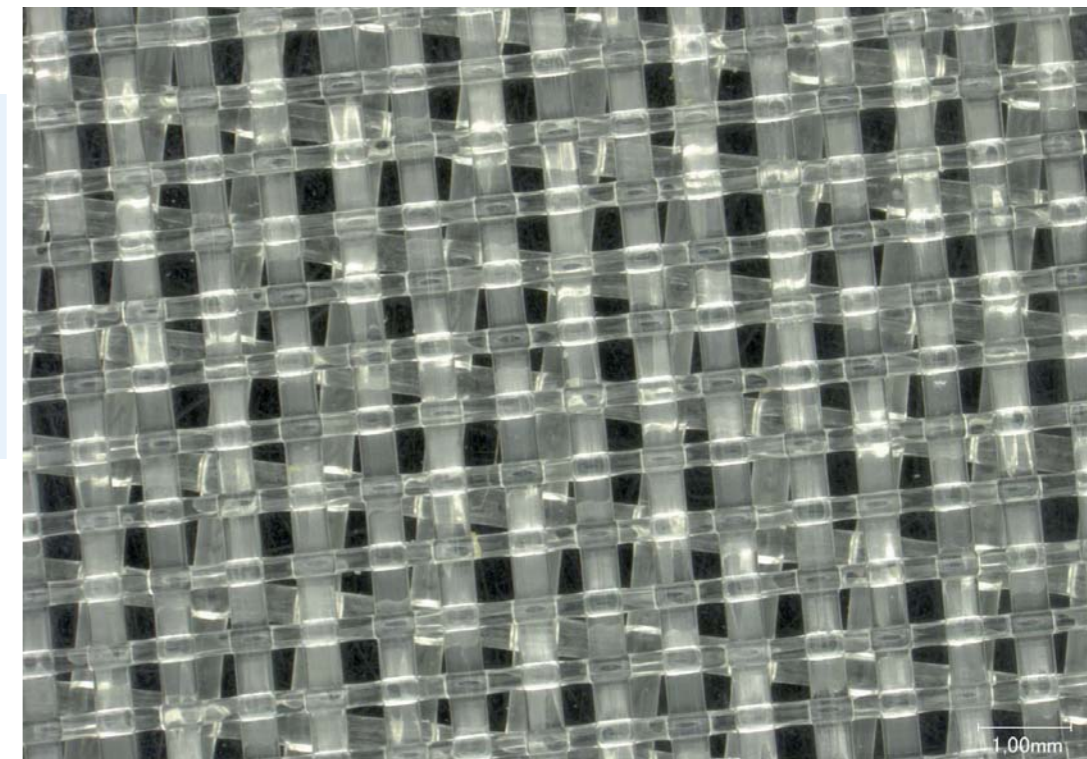
- Significantly faster start-up
- Outstanding nip dewatering (best in class)
- Higher dryness
- Effective self-cleaning
- Possible high savings: Vacuum energy, steam

Case Study 1 Fully saturated after just one hour

On a 7.15-metre wide paper machine producing LWC papers the average start-up time with a competitor's conventional felt in the second press pick up was almost 10 days. Introducing Atrocross.F Connect with the Turbo start-up component Fast Forward from Heimbach led to a dramatically-reduced start-up time. After only one hour, the felt was completely saturated and normal production speed was attained.

Multiaxial technology

The market introduction of multiaxial felts began at the start of the new millennium.



Atromaxx – viewed through microscope

Since that time papermakers have increasingly been placing their trust in this future leading felt construction. Multiaxial technology is also, in fact, a development from Heimbach.

The modular construction results in a high universality. There are multiaxial felt types available to suit every paper grade. Compared to conventional press felts, multiaxial designs

are much less susceptible to compaction and contamination due to their diagonal structure. It is also possible to fine tune these felt types, using the appropriate combination of modules, to the specific requirements of the application.

Multiaxial felts have proved to be particularly successful producing packaging papers. On fast, modern machines, dry

contents of 54-57 per cent are now the norm. In many instances, the use of Atromaxx felts has been a factor in these peak values.

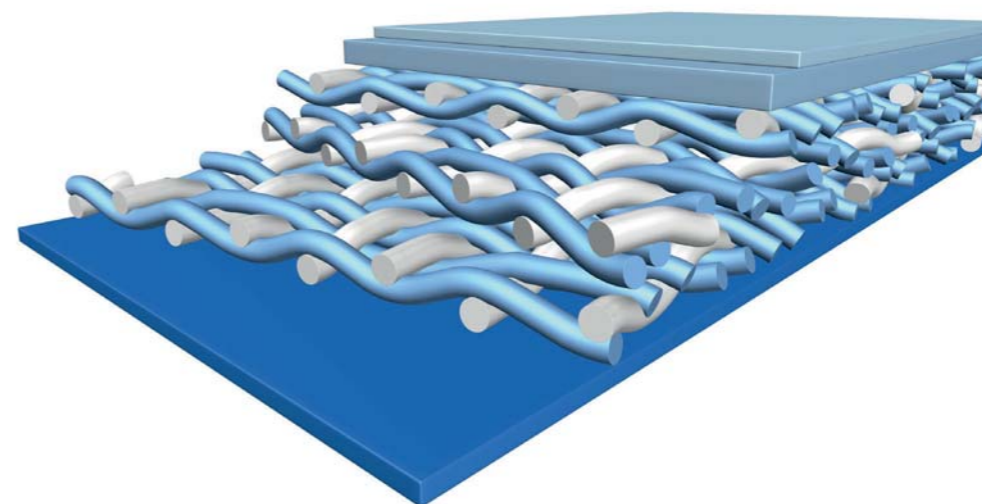
Multiaxial press felts Benefits and gains

- Allows customised solutions
- Various dewatering concepts possible (nip or Uhle box dewatering)
- Fast start-ups with higher dewatering and longer lifetimes
- Excellent runnability

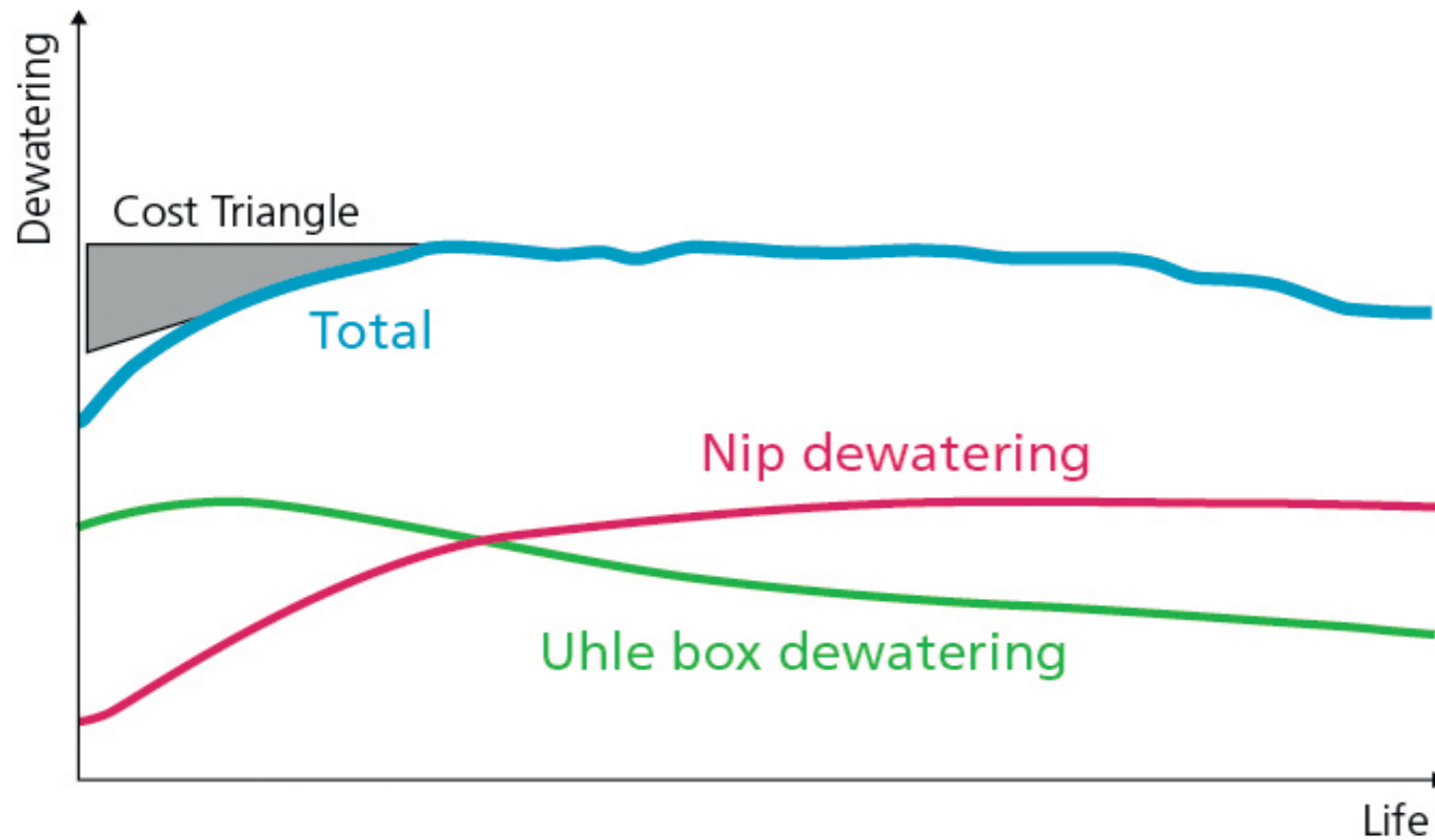
Case Study 2 Savings: €200,000... per year

The multiaxial principle, by the way, works equally well in the production of graphic papers. This is clearly demonstrated by a case study involving a paper machine producing copy papers.

Twenty per cent higher drainage values: this was the result achieved by a customer on the first application of an



Atromaxx – the multiaxial module concept



Atromaxx felt. Accordingly, all further felts were delivered in the same design. With the mill completely converted to New-Tech felts, machine productivity continued to increase. The values determined one year after the change of type were impressive across the board:

- Steam savings: Close to 70 per cent
- Electricity consumption:** Reduced by two thirds
- Productivity:** Eleven hours additional production time due to reduced breaks
- Savings:** €200,000 per year

Modern production technologies in combination

As the recognised specialist in non-woven and multiaxial clothing, Heimbach has gone on to successfully further develop these proven production techniques. So Atrojet combines woven modules with a multiaxial non-woven structure. This new technology has now also entered the market,

proving its strengths on a daily basis.

Multiaxial non-woven press felts Advantages and gains.

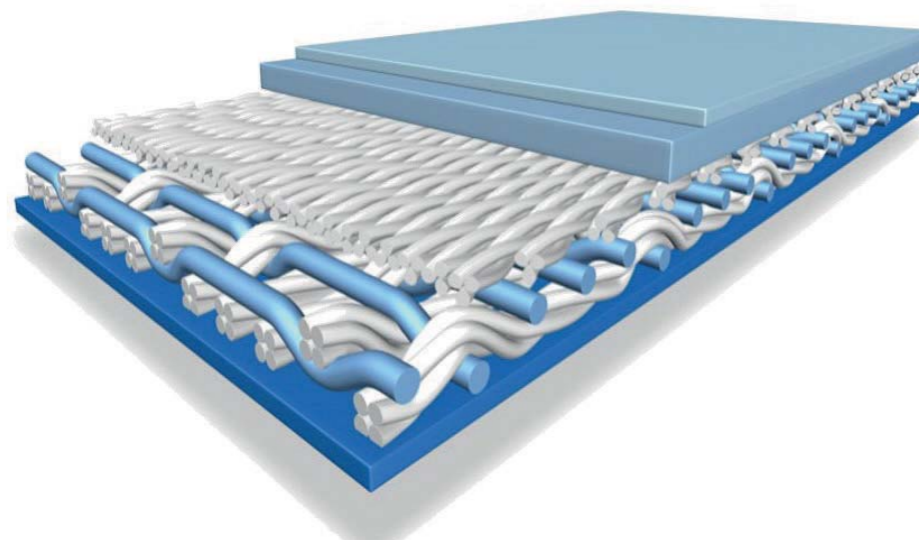
- Excellent start-up and drainage behaviour
- High uniformity of paper profiles
- Minimised hydraulic disturbances in the paper

- High residual strengths for given surface dimensions
- Very robust (e.g. very resistant to intensive treatment from HP showers)

Case study 3 Successful as a set of 3

The operator of a high speed LWC machine (1,800 m/min) runs with three New-Tech generation designs: Atrojet in the pick-up

position, Atrocross+ in the first press and Atromaxx in the second press. Atrojet started up with excellent dewatering values. Atrocross+, the crossless felt with intermediate batt, worked without suction boxes. Nip dewatering occurred immediately and start-up speed could be increased by 100 m/min. The so-called 'cost triangle' could be eliminated right from the off.



Atrojet combines woven modules with a multiaxial non-woven structure

Smooth operators

Attention to detail in the grinding and metalising of dryer cylinders is one speciality of Voith's On-site Dryer Services. PPL reports

Quality problems and web breaks in paper production are often the result of inadequate roll coatings in the dryer section.

When recoating existing cylinders, Voith's On-Site Dryer Services attach great importance to ensuring a homogeneous surface. In the long term, thorough preparation and attention to detail by an experienced team pays off for paper manufacturers through reduced wear, improved paper quality and higher productivity.

Various practical examples show that the work of Voith's service teams makes it possible to significantly extend the runtimes of components.

Longer runtimes reduce life cycle costs

Downtime on paper machines is always associated with costs and as such is kept as short as

possible. The metalising and grinding of dryer cylinders is a high investment item for the paper manufacturer. It requires downtime and if not done correctly can be very expensive in terms of further downtime and lost production. There are too many cases in the paper industry where service suppliers cut corners, resulting in further unnecessary lost production for the papermaker.

Voith shows how attention to detail on each process step when metalising a dryer cylinder can provide long-term payback for the paper manufacturer.

Careful grinding reduces vibrations

The temptation can often be to grind off the cylinder surface quickly to save time, for example, in steps of 0.04 mm by using high grinding pressures. Voith's experience proves that a gradual removal of thinner layers, for

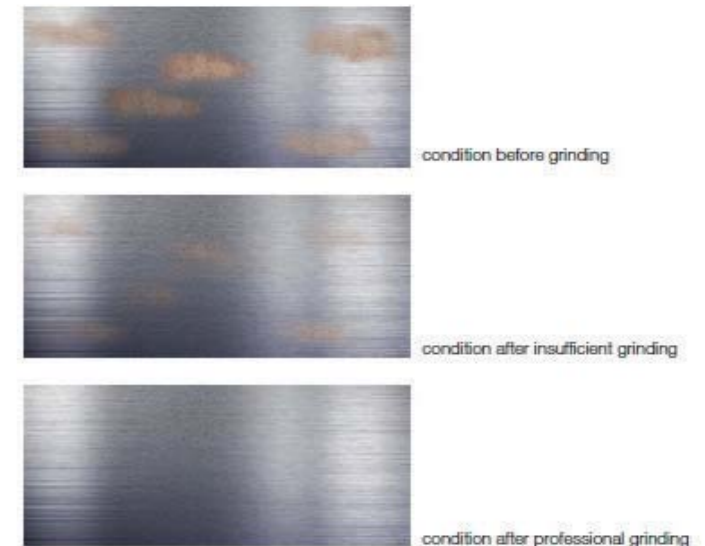


Figure 2: Grinding steps to remove problem areas on the cylinder surface

example 0.02 mm, reduces the risk of vibration, producing a more homogeneous cylinder surface. The subsequent blasting process removes all grease residues. This ensures that the new coating bonds better to the surface.

"Like most things in life, time spent to prepare the foundation pays off when building subsequent processes," says Carl Taylor, global product manager of the dryer section and on-site service at Voith. "For example, time spent preparing the cylinder removes any evidence of chatter marks and ensures optimum particle bonding of the coating." A case of unwanted chatter marks caused by too coarse grinding is shown in Figure 1.

Grinding is often required to remove damage or corrosion in the cylinder surface.

It is critical to ensure the problem area is removed before metalising the cylinder. Figure

2 shows how corrosion should be removed through grinding. If grinding is stopped too soon and some evidence of corrosion remains, this will not be apparent once metalised but will show through at a later stage. Voith ensures that all problem areas are fully removed before metalising the cylinder, resulting in a longer service life.

Significant increase in production possible

Just how important this precise procedure is can be seen in the example of PT Indah Kiat Perawang, an Indonesian paper manufacturer. In August 2017, the company chose a service provider to metalise dryer cylinders on its PM6 machine. After only nine months, the drying cylinders showed severe surface wear and corrosion, as seen in Figure 3. The result: a drop in paper quality and an increase in number of



Figure 1: Chatter marks on a dryer cylinder caused by uneven grinding



web breaks. In August 2015 and July 2017, Voith's On-Site Dryer Services team applied TerraDry C Express coatings to six rolls on the PM3 machine. In 2018, the team inspected the paper machine to find that the Teflon coating was still in near mint condition. This had a significant impact on paper production.

"The customer had recorded significantly fewer paper breaks, and the paper quality had increased," says Taylor.

Thicker hard metal coating with finer particles prevents corrosion

Voith has a TerraDry Express coating for all dryer cylinder applications. TerraDry C, CT, CN and CS are applied thermally through a HVOF (high velocity oxygen fuel) process.

The pressurised gas mixture flow accelerates through a nozzle at high speeds that lead to very dense particles with excellent bonding properties. The aim is to achieve a hard metal surface with the highest possible protection against corrosion. The temptation for some suppliers is to use large particle sizes, for example 75 microns. Voith uses small particle sizes, for example 45 microns, which create a denser structure and higher bonding strength. This

Figure 3 (clockwise from above): The surface of the dryer cylinders on IK Perawang's PM6 showed severe wear and corrosion before Voith applied its On-Site Dryer Service

does take a little longer to build up the coating thickness, but the payback is a higher resistance to corrosion.

Fewer web breaks thanks to homogeneous Teflon layers

The functional (uppermost) layer can certainly improve the performance of the metalised coating: for example, it can be formulated to improve contaminant resistance and/or surface durability. The temptation for some service suppliers is to rush the metal coating and then make up for it with the Teflon function layer.

"Our Voith On-Site Dryer Services experts know that a thin function layer improves heat transfer, leading to more efficient drying of the paper web," explains Taylor. "The higher heat transfer can increase dryness, reduce sheet breaks and improve sheet quality."

A homogeneous application of the Teflon coating is a prerequisite. An irregular coating leads to an unbalanced heat distribution and ultimately to



uneven drying of the paper web with a corresponding loss of paper quality. Furthermore, an irregular coating of Teflon can result in different curing times across the length of the cylinder during its application. If not thoroughly cured, the Teflon will be easily removed in localised areas.

Eight years in operation

Other paper manufacturers have benefited from the detailed work of Voith's On-Site Dryer Services. At another Indonesian paper manufacturer, PT Tjiwi Kimia, the team applied TerraDry CT Express coatings to two rolls on its PM11 machine in January 2010. This contributed to a longer service life and running time of the dryer cylinders. Despite a running time of more than 10 years, both rolls continue to work so well, that no reconditioning has been

necessary.

Furthermore, not only are the rolls more durable after metalising by Voith; the service life of doctor blades has also extended by up to 100 percent.

Ultimately, the paper manufacturer needs to produce tons of paper. This can only be done efficiently when the paper machine is running. Voith On-Site Dryer Services is often called on to replace coatings applied by other service providers who have clearly tried to speed up the job.

In the long term, the high quality of Voith TerraDry Express cylinder coatings and, most importantly, the attention to detail from the Voith On-Site Dryer Services teams more than makes up for the investment with longer component life, higher paper quality and a reduction in web breaks.

Roll covers made from recycled and renewable raw materials

What are claimed to be the world's first roll covers based on biomaterials and recycled materials for board, paper, tissue and pulp making have been launched by Valmet.

The new composite covers for press, guide and calender rolls are now available for customers in the paper industry.

A bio-based resin and hardener in the polymer matrix is used to manufacture the roll covers. The reinforcing fibre and filler originate from recycled consumer plastic and glass. Depending on cover type, the content of recycled or bio-based raw materials is 75-96 per cent. New materials are being tested continuously, and the target is to reach 100 per cent as soon as possible.

Valmet says it has set strict criteria for the bio-based raw material in the covers. Only renewable materials derived from non-food chain plants or plant parts are used, in order to prevent the impact on global food production. Cultivation and



"In best cases, bio-based materials can be produced from plant parts that would otherwise be waste. For example, lignin, carbon black made of lignin and nanocellulose can be utilized as reinforcing fillers in roll covers," explains Jani Turunen, R&D manager for polymeric roll covers at Valmet (right), pictured with Pertti Hytönen, R&D Engineer at Valmet

harvesting of plants must not endanger the growth of natural forests either.

"In best cases, bio-based materials can be produced from plant parts that would otherwise be waste. For example, lignin, carbon black made of lignin and nanocellulose can be utilised as reinforcing fillers in roll covers," explains Jani Turunen, R&D manager for polymeric roll covers

at Valmet. "Our customers do not have to compromise in product performance either, as the results have shown that in some applications the performance is even above the traditional offering."

Roll covers used in paper, board, tissue and pulp making need periodical renewal and are therefore a significant consumable. A major part of the raw materials

of traditional roll covers has been manufactured from fossil-based materials, which has been refined and processed from crude oil.

Valmet's R&D work focuses strongly on enhancing raw material and energy efficiency and promoting the use of renewable raw materials. Valmet is continuously investigating the possibilities to replace fossil-based materials with renewable or recyclable materials. For example, recycling and more sustainable use of ceramic and metallic roll covers is under active research.

Jukka Heikkinen, senior manager for Roll R&D at Valmet, commented: "Our continuous investing in R&D of sustainable solutions for our customers helps us increase the occupational safety of our employees, replace fossil-based raw materials with renewable ones, re-use and recycle materials and save energy. This is our contribution to the global challenge we face regarding our planet's future. And by doing this, we are helping our customers do their part as well."

Extra-large paper winders launched

A new high-capacity winding machine that accommodates much wider reels has been launched by A.Celli Paper.

Two examples of the E-Wind P100H were demonstrated at the company's factory at Lucca in Italy late last year.

The machine has been designed, says A.Celli to manage reel widths up to 8 metres with diameters up to 3.8 metres and weighing about 65 tonnes. Efficient operation was a priority says A.Celli.

The winders are said to be ideal for processing high-quality flat-papers and test-liner papers of the lowest basis weights, at speed of up to 2,500 metres per minute.

Innovative features include a Slittomatic dual-motor cutting unit positioning system and built-in automatic Spool-Parking.

More information from A.Celli Paper spa, Via del Rogio 17, 55012 Tassignano, Lucca, Italy. Tel: 39 0583 98441.

Website: www.acelli.it



Non-destructive analysis of paper and board

With the Emtec ACA Ash Content Analyzer already claimed to be capable of measuring minerals and fillers in paper and board within 30 seconds, an updated instrument was launched by Emtec Electronic at the 14th PaperEx International Exhibition & Conference on Pulp, Paper & Allied Industries in New Delhi last December.

Emtec sales partner in India, Deepak Pachkude from Rishabh Metals & Chemicals, and Emtec global sales manager Ullrich Kasten, provided a live demonstration of the new ACA device.

The lab instrument replaces the traditional combustion method with the latest X-ray technology, and enables a non-destructive measurement of the total mineral filler content as well as the percentage content of the individual filler components in paper and board. Disadvantages



More accurate and non-destructive: Emtec's latest analyser

of the combustion technique, such as time consuming test procedures and sample moisture dependence, are said to be no longer an issue.

"Independent of the user or the state of the sample, the

instrument always measures the correct amount of the used fillers and fines," says Giseler Gruener, general manager of Emtec Electronic GmbH. "The new method is much more accurate and reliable – the margin of error

is less than one per cent."

Emtec Electronic also showcased its specialised portfolio of testing instruments to improve and control production and converting processes and to increase the quality of final products.

Emtec Electronic GmbH develops, produces and distributes test devices for the detection of relevant processing and quality properties of paper, board, nonwoven and textile materials. The mostly portable measuring devices enable manufacturers and converters of paper, nonwoven and textile products for example, to control and optimise manufacturing and converting processes during ongoing production. From the wet-end to the final product, the application of the devices enables an efficient process to achieve and ensure the best possible quality with the least possible effort.

More information about Emtec's products at www.emtec-electronic.com

Modular folding line from OMET

An automatic interfolding line that is said to combine modularity, ease of use and high productivity for the production of 1, 2 or 3-ply paper hand towels; 2, 3 or 4-ply facial tissue; and 2-3-ply toilet paper has been launched by OMET.

The global tissue equipment manufacturer based at Lecco in Italy says the ASV Storm interfolding line can be designed and configured flexibly according to user requirements.

A number of functional



modules are offered: unwinders, lamination units, embossing units, calenders, lotion application systems and wheel knurling units, banding units, log and gang saw, as well as the automatic interfolding head and the longitudinal slitting units that form the core of the machine.

Two versions of the ASV are offered, the Tornado and the Storm Line, distinguished by their different folding units and a wide range of finishing units.

The Storm is equipped with side suction system and two folding and cutting rollers. The folding system accommodates widths up to 1,500mm.

More information from OMET Srl, Via Caduti Lecchesi a Fossoli 22, 23900 Lecco, Italy. Tel: 39 342 363 6767. Email: massimo.bellingardi@omet.it

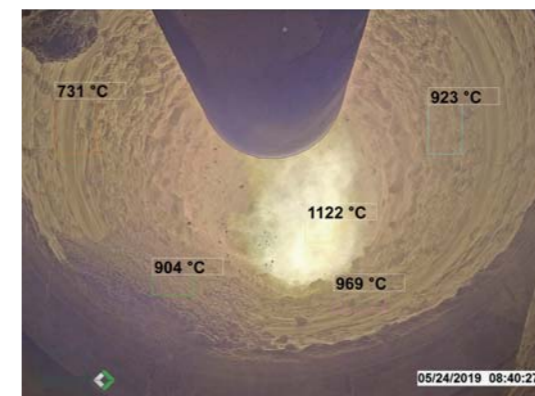
Visible imaging system for lime kilns in pulp mills

A Visible Thermal Imaging System, which provides the highest-quality lime kiln process monitoring for pulp mills, has been launched by Valmet.

Combining the camera temperature information with process controls enables an improvement in combustion optimisation and reburned lime quality, and reduces emissions.

The system also allows visual evaluation of flame shape, size, and temperature profile. Reduced maintenance costs and better visibility during start-up and full load conditions can also be achieved.

The Visible Thermal Imaging System is a rugged, air-cooled, HD visible camera paired with a high-resolution thermal sensor for real-time measurements. Designed for comprehensive observation and analysis of kiln environments, the camera system is said to provide



Engineered for durability – Valmet's thermal imaging system for kilns

unparalleled image quality from start-up to full load conditions.

Rodeo Winchell, automation product manager at Valmet, says: "There has been a very positive and enthusiastic use of this camera system during the initial pilot cases, especially in observing and tuning the kiln burner flame during operation and start-up. It is exciting to see such an active customer engagement in using the camera features to monitor and improve their processes."

Valmet's systems are engineered for durability and longevity inside hot, dusty environments, providing a low-maintenance answer to many complex process challenges. Optional automatic retraction hardware protects the camera from overheating in the cooling air loss. Digital-only data transmission improves the reliability of video streams, eliminating unwanted noise or image signal degradation.

The Visible Thermal Viewer



software combines the HD visible image with a high-resolution thermal sensor array. With up to eight customised regions of interest for calculating temperature, users have full control over their data. Coupled with a user-friendly interface, it is simple to record images, view historical data trends, and configure temperature threshold alerts.

More information from www.valmet.com/kilncamera

ABB supports automation skills centre in South Africa

Expertise in pulp and paper automation and software is being donated by ABB to the Sappi Skills Centre, based at Umkomaas in South Africa.

The Skills Centre, established by Sappi in 2018 to equip local youth with the basic technical skills to prepare them for meaningful employment, is close to Sappi's Saiccor Mill, the largest single site dedicated to dissolving wood pulp.

An automation training system will comprise Ability System 800xA distributed control system (DCS), and include a fully functional 800xA DCS, as well as field



Sappi's Saiccor Mill in South Africa

instruments, I/O cabinets and IT equipment.

The ABB contribution to this system includes licensing for ABB Pulp and Paper Libraries and Field Information Manager as well as

a training cabinet. ABB will also assist with design, engineering and configuration of the system and provision the basic simulation software and automation training services.

"Skills development will lead to safer operations and higher productivity as well as providing the local community with greater employment opportunities," said John Manuell, local business line manager for South Africa at ABB Process Industries.

Krish Naidu, general manager at the Saiccor Mill, added, "Our goal with the Sappi Skills Centre is to develop a learning campus that empowers the Umkomaas community with skills that will enable them to find meaningful employment or build their own enterprises."

Dohaco's mill in Vietnam orders automation systems from ABB

Dohaco, one of Vietnam's leading producers of Kraft paper, carton boxes, cardboard and pulp, selected ABB to supply a complete electrification and automation system to expand the operations at its latest mill in Ben Tre province.

ABB's proposal incorporates medium voltage (MV) and low voltage (LV) motor control centres, MV and LV motors, power transformers, sectional and single drives, Distributed Control System (DCS), Quality Control System (QCS) and a Dilution Profiler.

This enables Dohaco to benefit from a complete system centred around a collaborative platform for the optimisation of electrification and automation of large board machines.

ABB was involved in the entire project, including project management, installation supervision and commissioning, ensuring increased efficiency and accuracy throughout the project.

"The flexibility of ABB solutions and our understanding of the

intricate process of expanding an existing mill placed us in an excellent position to handle this complex project," said Wei Ming Liew, head of ABB's pulp and paper industry in South Asia. "We greatly look forward to helping Dohaco achieve its efficiency and productivity goals."

Luong Van Thanh, vice general director of Dohaco, commented: "We selected ABB as our automation and electrification supplier due to their excellent track record and expertise in automation and for the paper industry. This is a crucial project to Dohaco, and we appreciate ABB's project execution and excellent service support."

For smoothly handling future upgrades and migration, the system integrates the latest virtualisation technology, along with a seamless integration into ABB Ability System 800xA for DCS, QCS and sectional drives together with ABB's Pulp and Paper Library for board machine applications.

"We are proud of this project because it underscores to everyone in Vietnam and the



Dohaco's facility in Ben Tre Province, Vietnam



Dohaco's latest board paper machine is operated by ABB's electrification and automation system

surrounding region that ABB has the right expertise to optimise and support local pulp and paper operations, helping to keep mills

up and running at all times," said Nguyen Hoang Giang, ABB's business line manager for process industries in Vietnam.



An ABB Network Platform 800 scanner is also installed to improve production quality and reduce downtime



ABB's multi-drives and single drives at work in the mill

Bracell orders pulp technology for its Star project in Brazil



Energy-efficient and environmentally-friendly pulp production technologies and key process equipment have been ordered from ANDRITZ by Bracell for its new mill in São Paulo province, Brazil.

Start-up of the Star project at Lençóis Paulista (formerly Lwarcel), which will increase the mill's production capacity from 250,000 tonnes to 1.5 million tonnes a year, has been scheduled for the third quarter of 2021. The contract was revealed by the Austria-based technology group last July, but the customer was not mentioned.

Four of the six most important process islands in the pulp mill will be supplied by ANDRITZ, and will be supplied on Engineering, Procurement, Construction and Civil Construction (EPCC) basis:

- A complete wood processing plant including chipping

lines, stacker-reclaimer, chip screening, biomass handling with BioCrushers, and biomass storage. Each chipping line for eucalyptus processing consists of a horizontally fed HHQ-Chipper (EXL model), ensuring high capacity without compromising on chip quality. Woodyard operation is enhanced with IIoT products, including ChipperEKG, stone detection, the ScanChip chip analyzer and a FlowScanner, which measures the density and moisture content of the chips to optimise the fibre line process.

- A Herb recovery boiler running a pressure of 101 bar and temperature 515 deg C to maximise power generation. The recovery boiler features energy-efficient flue gas cooling and feed water preheating technologies to maximize steam production for power generation. It is designed for extended operating periods without requiring wash water. At the beginning of December 2019,

Andritz successfully completed assembly of the first recovery boiler column.

- Hardwood fibre lines that ensure low-effluent emissions, can produce both kraft and dissolving pulp, and which also include a chip feed system, LoSolids continuous cooking system with Pre-Hydrolysis Vessel (PHV), screen room and bleach plant, as well as DD-Washer technology, that is said to provide low operating costs, low emissions, extremely high washing efficiency, and excellent fibre quality.

- An EvoDry pulp drying system based on the high-capacity Twin Wire Former technology, with airborne dryers, cutter-layboy and baling lines. The approach flow with cleaner systems ensures homogeneous pulp feed to the subsequent process stage for both types of pulps – dissolving and kraft. The pulp dewatering machine comprises

Bracell's Star project at Lençóis Paulista in Brazil is expected to start up in the third quarter of 2021

a headbox with dilution control, a Twin Wire Former, and a press section with one combi-press and two shoe presses. In addition, the EvoDry sheet dryer is the most energy-efficient of its kind. Finally, the reliable cutter-layboy provides the pulp bales to be further processed in the high-capacity baling lines, where the final pulp bale units are produced.

Bracell is one of the largest speciality cellulose producers in the world and has operated in Brazil for 15 years. The company has its main operations in Bahia Specialty Cellulose in Camaçari, Bahia and in Lençóis Paulista. By the time the expansion project is completed in 2021, Bracell will have an annual production capacity of two million tons of dissolving pulp.

Valmet to supply evaporation and white liquor plant for Star project in Brazil

The pulp production line at Bracell's Star project in Brazil (see also p29) will be built by Valmet.

Equipment to be supplied for the project at Lençóis Paulista includes an evaporation plant and a white liquor plant, in which the lime kilns are fueled with gasified biomass. It will contribute to the mill's capacity being increased from 1.25 million tonnes to 1.5m tonnes a year.

"The new São Paulo unit in Lençóis Paulista will feature best-in-class technology with a flexible line designed primarily to produce dissolving pulp. This project is the largest private investment in the São Paulo state in the last 20 years and it generates employment

opportunities for the entire region," said Bracell's projects director Carlos Pastrana.

Bertel Karlstedt, president of the pulp and energy business line at Valmet, added: "Our technology represents new innovations and is designed for flexible production with high energy efficiency. The project will have a significant employment impact both for engineering and production in Brazil and the Nordics."

The equipment being supplied by Valmet includes an evaporation plant with a super concentrator. The plant features Tubel technology for highest availability and easy washing. The evaporation is designed for high energy efficiency with energy recovery

from hot weak black liquor.

The white liquor plant is an essential part in the mill's chemical recovery process. This includes the complete white liquor plant with recausticizing and two lime kilns. In addition, Valmet will provide two biomass dryers and gasifiers. The two lime kilns are fueled with biogas, thereby decreasing the need for fossil fuels. The white liquor plant is designed for producing high quality white liquor for cooking with lower operating cost with renewable furnace fuels and low specific heat consumption.

A non-condensable gas handling system will control and minimise odours emerging from the chemical recovery processes.

Commenting on the energy

system, Fernando Scucuglia, director of Valmet's pulp & energy division in South America, said: "Valmet has extensive experience in delivering fossil-fuel-free lime kilns, which are fueled with either wood powder or gasified biomass. Using gasified biomass is a sustainable and economical solution for large mills. Our solution works seamlessly together throughout the whole process from biomass drying, gasification and lime kiln to emission control. Our evaporation technology represents leading energy efficiency and is designed for long lifetime and high availability."

More information from Bertel Karlstedt, tel: 358 10 672 0000, or Celso Tacla, tel: 55 41 3341 4581.

New tissue production line for Alas Doradas in El Salvador

An Advantage DCT100HS tissue production line, including a deinking plant and an extensive automation package, is being supplied by Valmet to Alas Doradas in El Salvador.

The new tissue line will meet a need at Alas Doradas for new capacity of high-quality tissue products in the region. The start-up is planned for the first half of 2021.

Chief executive of Alas Doradas Paul Ekman commented: "Our cooperation with Valmet started with the rebuild of our existing machine where the press section was upgraded with an Advantage ViscoNip press combined with Advantage ReDry technology.

"With the results achieved, we are convinced that Valmet's technology is what we need to differentiate from competition and become the frontrunner in the Central American tissue market. Even more important is the collaboration with a reliable partner as Valmet. We see this as the first step in a long-term partnership. Valmet has met and exceeded all expectations as a reliable partner during our cooperation."

The machine will have a width of 2.8 metres and a design speed of 2,000 metres/minute. It will add 35,000 tons tissue paper per year to Alas Doradas' current



The Valmet and Alas Doradas teams celebrate the signing

production of high-quality toilet tissue, napkins and kitchen towels.

The production line will include a complete deinking plant and an Advantage DCT 100HS tissue machine. The machine will be equipped with OptiFlo headbox and cast iron Yankee cylinder as well as the Advantage technology

including ViscoNip press, AirCap hood, WetDust dust system and SoftReel reel. Also included will be an extensive automation package with Valmet DNA, Valmet IQ quality controls, Industrial Internet applications, Valmet Performance Center agreement and tissue line training simulator.

Record-breaking calender rolls for Papierfabrik Palm mill in UK

New calender rolls – said to be the heaviest of their type in the world – have been ordered for Papierfabrik Palm newsprint mill at King's Lynn in the UK.

Installation of the rolls that feature a heating system, replacing two that were supplied by Voith for the mill's PM7 line ten years ago, will be completed by the end of 2020.

The calender rolls are being cast at Hüttenwerke Königsbrunn in the Heidenheim district of Germany.

The castings for the rolls have an external diameter of around 1.6 metres, are more than 11



The calender rolls for Papierfabrik Palm are made from 76-tonne castings

metres long and weigh around 76 tonnes. They are made from ductile cast iron, which enables the finished calender rolls to be heated up to a surface temperature of 210 deg C.

"These dimensions make them the heaviest calender rolls

worldwide made from the modern materials," says Christian Tenbruck, sales and application chief at Voith. The rolls are induction-hardened during manufacture, giving a higher load capacity, fatigue strength and durability. Collaboration between

Papierfabrik Palm and Voith meant that the PM7 newsprint line started operating three weeks ahead of schedule in 2009.

It has a width of 11.4 metres, and with a maximum speed of 2,200 metres per minute has a production capacity of 400,000 tonnes per year. Using 100 per cent recovered paper, the line produces improved paper grades in the basis weight range 40–52 g/sqm in addition to standard newsprint. The modernisation will further improve paper quality and extend the company's product range, says Voith.

The transportation of the completed rolls to King's Lynn is scheduled for May 2020.

Irving to double tissue capacity at its Macon plant in Canada

A second Valmet Advantage ThruAir tissue machine has been ordered by Irving Consumer Products in Canada.

The order follows the installation in 2019 of a similar machine to the Irving's Macon mill at Fort Edward near Toronto.

Start-up of the latest TM9 machine is being planned for 2022 and will enhanced Irving's range of ultra-premium tissue products sold into the North American market

The latest machine is the fifth tissue project collaboration between Valmet and Irving, which includes major rebuilds of the TM1 and TM2 machines at Irving's St John mill.

Irving recently announced that it is doubling its capacity for



ultra-premium household paper products at its Macon plant and are immediately initiating an expansion of the plant.

"The new TAD machine will help Irving Consumer Products continue to grow and deliver ultra-premium quality tissue paper products to our customers," said Robert K Irving, president of Irving Consumer Products.

Sales chief at Valmet Jan Erikson added: "Valmet and Irving have a long relationship of successful projects. We are excited to work with them to reach the production and quality targets.

"Their products have been very much appreciated by the demanding North American market which requires the best softness, bulk and absorbency. The success is obvious with the rapid decision to invest in tissue machine TM9. Our relationship is built on trust, setting joint targets and delivering results."

Valmet will deliver a complete tissue production line with stock preparation equipment. The line will include an Advantage ThruAir tissue machine including an OptiFlo II TIS headbox, ThruAir Dryers and Air system and an Advantage SoftReel reel. The

scope also includes mist and dust systems, automation systems, basic mill engineering and advisory services. The production line will add a capacity of 75,000 annual tonnes of tissue to Irving's current production.

Irving Consumer Products is one of North America's leading manufacturers of household paper and baby diaper products, including Irving Tissue and Irving Personal Care. Irving Tissue produces premium household store brand paper products for many of North America's top retailers, in addition to some of the top-selling tissue brands in the marketplace. Irving Personal Care is the only manufacturer of baby diapers and training pants in Canada.

Stora Enso appoints head of new Forest Division

Jari Suominen has been appointed as head of Stora Enso's Forest Division from the beginning of January. He will continue as a member of the Group Leadership Team.



Jari Suominen is head of Stora Enso's new Forest Division

Suominen – who continues as a member of the company's group leadership team – has led Stora Enso's Wood Products division since 2014, and has held a number of management positions in Stora Enso's paper and wood products businesses since 1995.

"Sustainable forest management and efficient wood supply are at the core of Stora Enso's operations," said Suominen. "Being in control of our raw material secures continuous innovation of

sustainable products. This in turn drives substitution of fossil-based alternatives. I am very excited to take on this new role and develop our forest operations into the future together with a very skilful team."

Seppo Toikka, currently head of strategy and business controlling in wood products, will be acting head of the division until a new head is appointed.

Stora Enso announced last September that it would create a new Forest division and start reporting it separately at the beginning of 2020.

Chief executive Annica Bresky commented: "I am very pleased to announce the appointment of Jari Suominen as the head of our new division. He has proven to be a solid change leader, a quality needed now that we are focusing also on forest management. In addition, as head of our Wood Products business, Jari comes from the customer side for our wood supply, so I am convinced that he has the best capabilities to develop our forest and wood supply operations."

Andrew Perkins is head of paper at Clearpoint

UK-based recyclable materials exporter Clearpoint Recycling has appointed Andrew Perkins as its new head of paper.

He will be leading the Yorkshire-based, Environment-Agency-approved firm's expanding fibre operation.

With 25 years of experience in waste management, Perkins was most recently commercial director at global paper-based packaging firm Smurfit Kappa Recycling in the UK.



Andrew Perkins has moved to Clearpoint Recycling

Commenting on the appointment, Clearpoint Recycling's chief

executive and founder William Lee said: "With the current economic and political uncertainty, it's a turbulent time for the recovered paper market. However, it's amid these industry challenges that we can demonstrate our faith in the industry and remain resilient – fighting to keep our stakeholders' materials moving smoothly.

"Andrew's wealth of experience plays an important role in sustaining our strong and ethical offering to our clients."

New chief executive for chemical firm Achroma

Heike van de Kerkhof has been appointed as chief executive of Achroma, the Swiss-based global manufacturer of colour and speciality chemicals.

She succeeds Alexander Wessels who had been chief executive since the company was formed in 2013. Wessels has been

appointed vice chairman of the Achroma board and will take on a senior advisory role at SK Capital, working on its portfolio of investments that include Archroma.

Heike van de Kerkhof joins Archroma from Castrol, the branded lubricant division of BP

plc where she was vice president for the western hemisphere, a business with sales of US\$2 billion.

"I have a true passion for innovation and sustainability, and I am thrilled to join Archroma as its next chief executive," van de Kerkhof commented.

New manager for Metsä's Joutseno pulp mill

Olli Kokki has been appointed vice president of the Metsä Group's Joutseno pulp mill. He previously worked as technical manager at the mill. In his new position, Kokki will report to Jaakko Anttila, senior vice president of Metsä Fibre's pulp production division.

Metsä Fibre is the world's leading producer of bleached softwood pulp under the Botnia brand and a major producer of sawn timber. It also produces bioproducts and bioenergy.



Olli Koki, who is heading up the Joutseno pulp mill



Heike van de Kerkhof, new chief executive of Achroma

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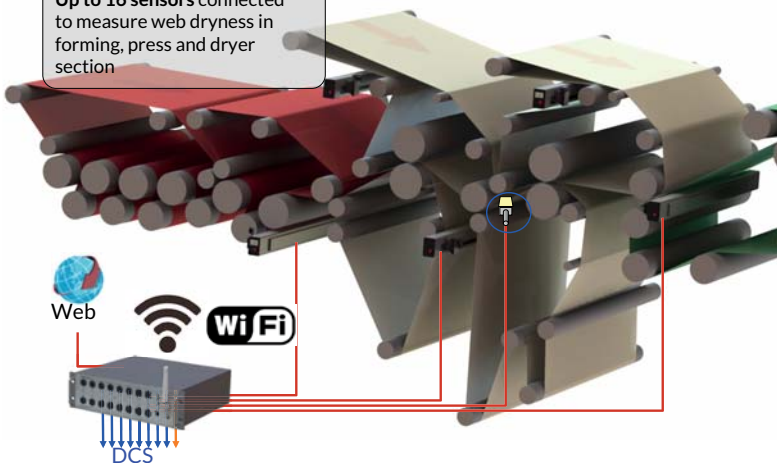


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