

# nextlevel

by Voith Paper — N° 06

**08**

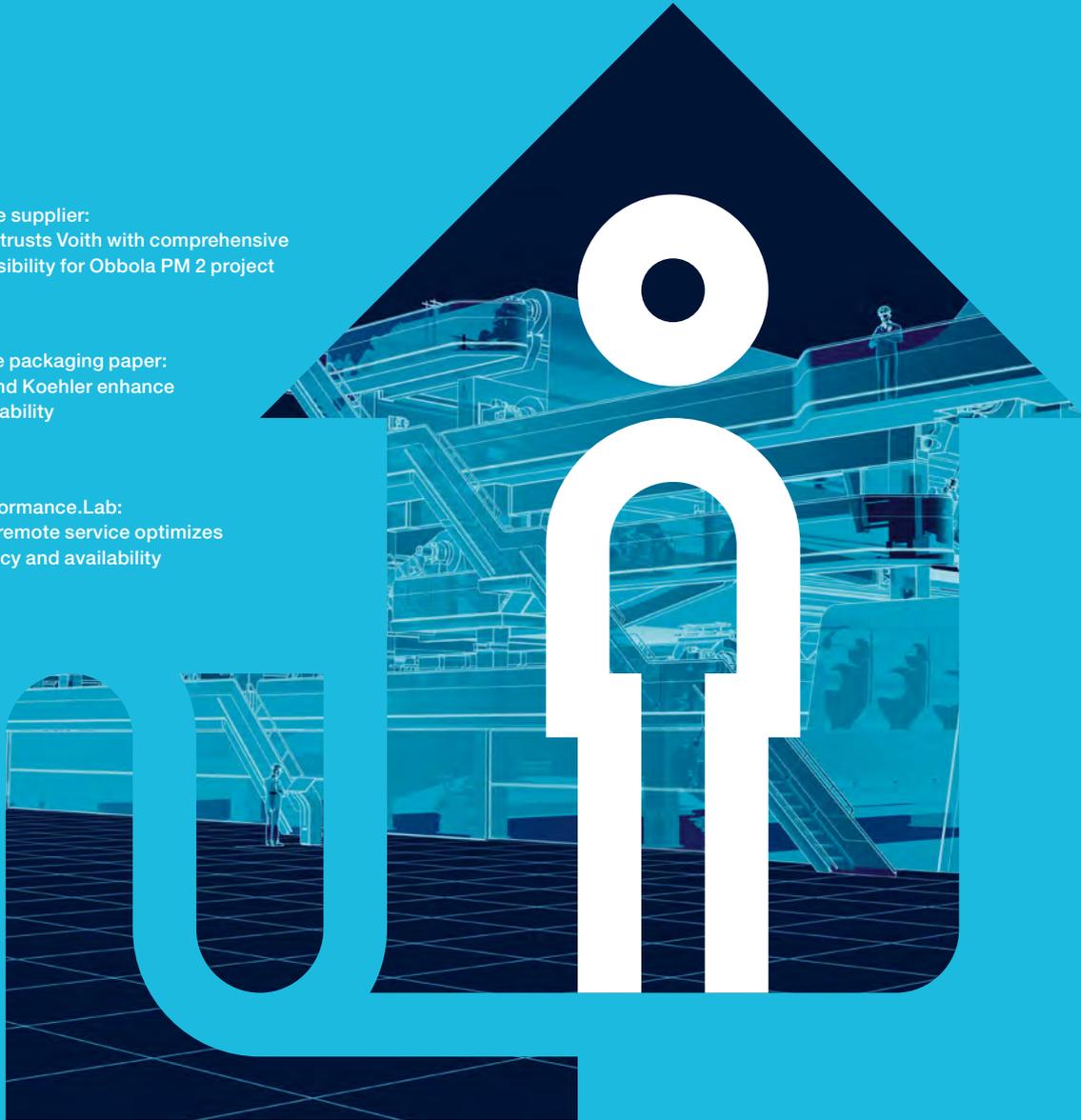
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efficiency and availability



# Discover!

A visionary Voith design project is developing  
the paper production line of the future



A visionary Voith design project is developing  
the paper production line of the future

# Our Vision!



# Editorial nextlevel N° 06



2020 is an historic year. Overcoming the coronavirus pandemic and its consequences poses major challenges to the global economy, and with it, the paper industry. Supporting our customers in the best possible way by providing efficient solutions and services and helping keep their production running is our top priority. But despite focusing on the current situation, we are already thinking ahead. The cost pressure on paper manufacturers will continue to exist as will the need to continue increasing sustainability by consuming the least amount of resources possible. That's why we have long been working on shaping the future. Our innovations are squarely focused on helping our customers minimize their carbon footprint as well as water and fiber consumption. Our goal is not only to make these innovative products available but, as a full-line supplier, to ensure that the components of the papermaking process are perfectly compatible, automated and work together with maximum efficiency. In this issue, we would like to show you the many different facets of this approach – like our work with our customer SCA, with whom we are building a particularly efficient kraftliner production line. But that is simply one example. Many further innovations and visionary solutions await you on the following pages!

*Andreas Endters*

Andreas Endters  
President & CEO Voith Paper



08

Voith assumes responsibility for the entire new construction of PM 2 in Obbola, Sweden

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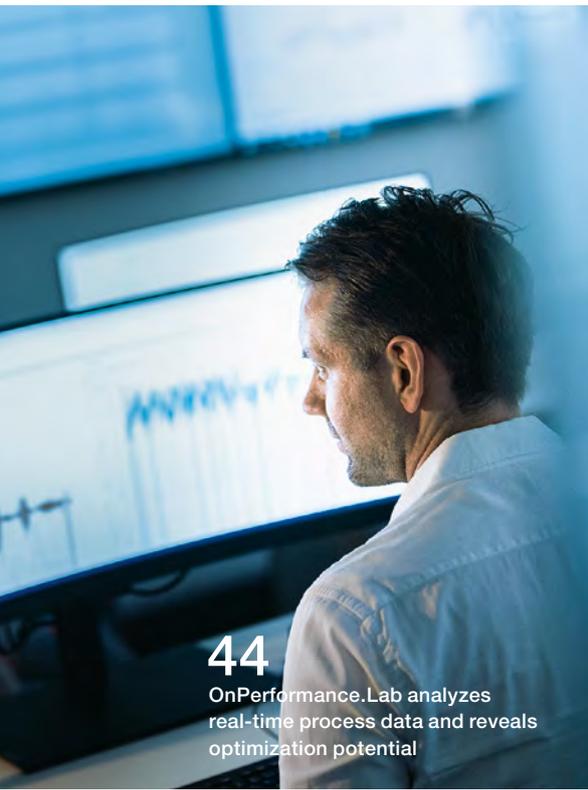
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# Zoom

## Sensors

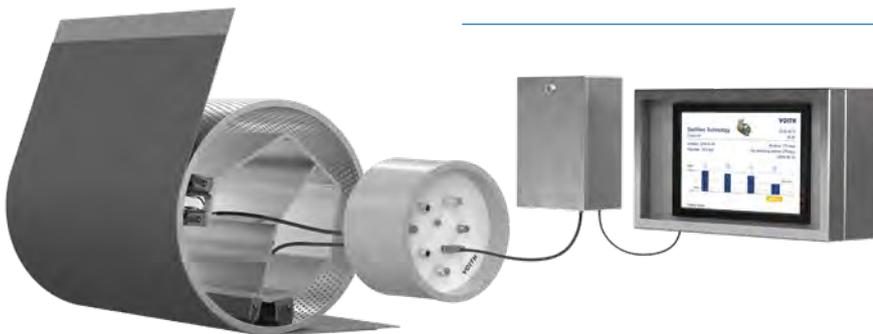
### Rugged

Pneumatic – instead of electrical – wear sensors function reliably even in the damp suction roll environment.

## System

### Flexible

SealView can be used as a stand-alone system with a graphical user interface or integrated into existing IT systems.



Experience is good, measurement is better – since it's impossible to determine the degree of sealing strip wear in a suction roll from the outside, up until now operating personnel have used their knowledge and experience to decide when it was time to replace them. This often led to the strips being removed earlier than necessary to avoid unscheduled downtime – a costly safety cushion. Companies that want to increase transparency and thereby simultaneously increase efficiency need to look no further than SealView. The digital monitoring solution measures the degree of wear of each individual sealing strip across the entire width and indicates in a timely manner when it's time to change a roll. The system uses two built-in, pneumatically controlled sensors per sealing strip for this purpose, which make it possible to determine the level of wear and calculate the expected service life of the strip. When about half of the sealing strip's service life is reached, SealView notifies the operator. If only a small safety cushion remains before maximum wear is reached, the system warns the operator accordingly. In addition to sufficient lead time for service planning and spare parts procurement, this allows papermakers to safely extend the service life of their sealing strips in a resource-friendly manner. "We provide a great deal of information and the customer gets the chance to go in a completely new direction and switch to condition-based maintenance," sums up Marc Erkelenz, Senior R&D Manager at Voith Paper.

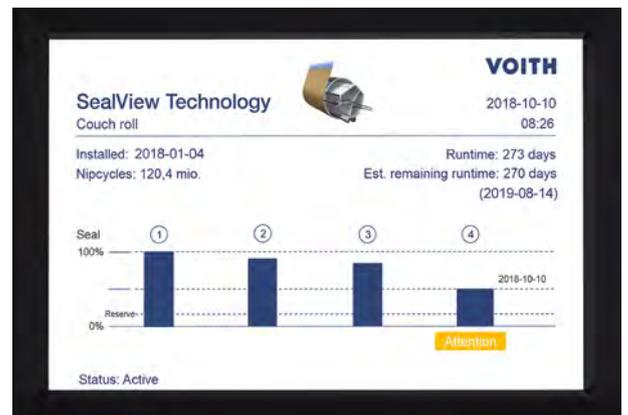
# Se



## Status

### Informative

In addition to the wear indicator on the screen, SealView also offers the option of sending notifications via e-mail, such as to smartphones, for example.



# alview

## Voith wins major rebuild project in Brazil

Voith is set to undertake an extensive upgrade project for global paper producer Oji Papéis Especiais at its Piracicaba facility in São Paulo, Brazil. The contract comprises the modernization of the paper machine PM 2 and coater PC 3 as well as the transfer and rebuild of a VariPlus winder from the Oji mill in Tomioka, Japan. Within the scope of work, Voith will also optimize the production processes and increase the degree of automation to prepare the factory for implementation of Industry 4.0 solutions. Through the rebuilds of the PM 2 and PC 3, Oji is creating the basis for increasing capacity, while at the same time the Voith technology is improving energy efficiency and reducing CO<sub>2</sub> emissions.

## Model factory is created in Düren

The paper model factory is being built in Düren, Germany. A consortium from the paper industry, mechanical engineering sector, and the world of research (of which Voith is a member) selected the city on the western edge of the German state of North Rhine-Westphalia. This is where the joint project intends to conduct pre-competitive basic research into carbon-free paper production that is climate-neutral over the long term. Düren has a high concentration of paper mills and is also characterized by its proximity to important research locations such as RWTH Aachen University, the Aachen University of Applied Sciences, and the Jülich Research Center. The consortium hopes that the connection to these institutes will provide additional input for the model factory's activities.



### Koryazhma

Local team installs new headbox on PM 4



# 3,300 km



### Heidenheim

Voith experts assist via OnCall.Video



## Modernization from a distance

Despite the restrictions imposed as a result of the pandemic, Voith has succeeded in installing a new headbox for the kraftliner machine PM 4 at the Russian Ilim Group's location in Koryazhma. In addition to supplying the headbox MasterJet Pro, Voith was also responsible for its installation, initial setup and automation. To integrate the headbox into the production environment and monitor its installation, the team relied on the audiovisual communication and collaboration system OnCall.Video. With its help, a hybrid team was able to complete the installation, with local employees assisted by experts from Voith headquarters in Heidenheim, located 3,300 kilometers away in the German state of Baden-Württemberg, who were connected via OnCall.Video.

"I cannot praise the employees that worked on the project enough," notes Alexander Pozdnyakov, Senior Vice President Operations, Ilim Group. "We not only received best-in-class equipment, but our teams also found the most effective way to carry out the installation and initial setup work using state-of-the-art technologies." PM 4 has been producing paper grades of extremely high quality with different grammages since mid-July. "The level of performance we've now achieved far surpasses the project objective, and the kraftliner machine is operating smoothly," Pozdnyakov sums up.

# #YOUR FULL LINE SUP PLIER

Discover the potential of  
holistic papermaking solutions.

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725,000 t per year  
SCA will produce this  
amount of kraftliner  
at the Obbola site in the future.



Engineering/  
Construction

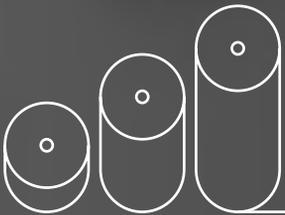
Stock  
Preparation

# Obbola

725,000t  
per year

# Full-line

# X



+70%  
The new PM 2 will provide this  
increase in production.

Please open  
and discover the  
full program!



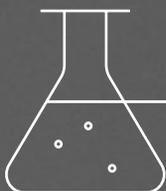
As a full-line supplier, Voith is realizing a particularly efficient kraftliner production line for papermaker SCA in Obbola, Sweden. The complete package includes not only state-of-the-art paper machine technology and digital applications, but also a long-term service agreement and on-going efficiency improvements are part of the project scope.

# Full program



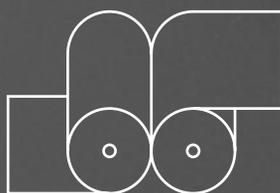
## Full-line supplier

Voith bears the comprehensive project responsibility for the rebuild and new construction, respectively, of PM 1 and PM 2.



### BlueLine OCC and IntensaPulper

Both the energy-efficient IntensaPulper and the maintenance-free InfiltraDiscfilters with Bagless Plus discs are used in stock preparation.



### XcelLine

The new XcelLine paper machine operates with a wire width of 10,200 millimeters and a design speed of 1,400 meters per minute.

In the far north, both the latitudes and the demands are high. The 2000-strong village of Obbola is a seven-hour drive from Stockholm. There, at the Gulf of Bothnia between Sweden and Finland, SCA and Voith are building a production line for packaging paper that will set new standards and create new opportunities. The PM 2 will increase the capacity of the existing location by 70 percent to 725,000 metric tons of kraftliner a year to meet the growing demand in the principal market of Europe. With its help, SCA also wants to expand beyond that.

“As the most modern kraftliner machine on the market, the PM 2 will significantly improve the competitiveness, cost situation and product quality of our mill with the best technology available. We see the partnership with Voith as the next step in our digitalized future,” says Mats Nordlander, President, Paper, at SCA. The commissioning of the PM 2 with a wire width of 10,200 mm and a design speed of 1,400 m/min is planned for Q1 2023.

Voith’s role in the realization of these plans is critical. The group is not only supplying an extremely extensive machine, digital and service package for the major PM 2 project, but it also has taken on the overall responsibility. “We now have the opportunity to prove that our full-line supplier approach offers unequalled advantages and makes this production line a global reference and a milestone,” says Andreas Endters, President & CEO Voith Paper.

The core of the new PM 2 is an XcelLine paper machine, which is preceded by a BlueLine OCC stock preparation line complete with IntensaPulper for energy-efficient pulping. The high-performance two-drum winder VariFlex Performance has been selected as the winder. The engineering for all ancillary units is also part of the order as are products from the Papermaking 4.0 portfolio. “We are supplying a process line package that extends from design, basic engineering and detailed engineering through shipping, installation and commissioning,” says Patric Romes, Senior Project Manager at Voith.

But it is not just the scope of supply that is a challenge. “Obbola involves a new installation and a rebuild at the same time; that makes it so complex,” Romes explains. While the PM 2 is being erected in its own building, the 40-year-old PM 1 must continue to produce right next door until its successor starts operation in 2023. In this way, SCA will continue its lucrative kraftliner business without interruption.





#### Papermaking 4.0

As part of the digital package, the OnEfficiency products use machine learning to increase efficiency and improve process and product quality.



Ma

Digital  
Solutions

BOSS

VariFlex  
Performance

Prima  
AKING  
servolution

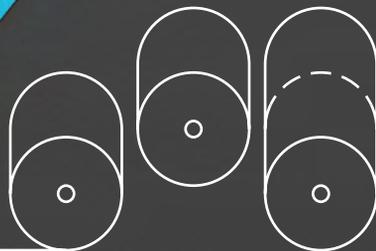


An important cornerstone of this strategy is the long-term efficiency and service agreement that the Swedes signed with Voith. It provides for, among other things, a significant increase in the performance of the PM 1 during its remaining life through new digital applications. “The digital extension of the existing paper machine should above all build up knowledge in the organization about working with the new tools and at the same time get the maximum productivity out of the old paper machine,” explains Per Asplund, Senior Project Manager, Strategic Projects, at SCA.

Meanwhile, Voith is preparing for the smooth commissioning of the PM 2 with a comprehensive training program for the team at the paper mill – partially on the e-learning platform DRIVE and partially as on-site training. But that is not all: An extensive preventive maintenance program and a joint concept for efficiency optimization will secure the highest possible production output.



**VariFlex Performance**  
The winder ensures  
consistent roll quality  
with maximum  
operating efficiency.



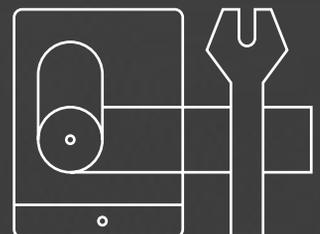
The fact that SCA is relying completely on the technology know-how of Voith and has made the company the general contractor has a special meaning for Romes: “That is extraordinary and a clear vote of confidence.” Both contracting partners profit from having Voith take over the full project responsibility for the process line. “Because the overall coordination lies with us, fewer interfaces are needed between outside companies and the customer,” says Romes. “That is a huge advantage for scheduling, among other things, and SCA employees can concentrate on their main tasks.”

Voith engineers are already working on digitally retrofitting the PM 1 to increase its efficiency through Papermaking 4.0 applications. Meanwhile, the foundation work for the new mill building is underway in Obbola. Installation of the PM 2 will begin in August 2021, and trial operation will start in September 2022. Takeover of the PM 2 by SCA is planned for early 2023. The machine will not initially run at full capacity, because it will have to share the raw material feed with the PM 1 at first. A completely new stock preparation system should be ready to be put into operation in mid 2023.

Voith is already thinking past that point in time. “Once just the PM 2 is running, a further increase in efficiency should be achieved for the planned output and beyond,” Romes explains. “Even if the requirements grow, the PM 2 will grow with them.”

### Servolution

**Voith’s service portfolio includes customized, results-oriented packages that help customers increase the performance and productivity of their paper mill.**



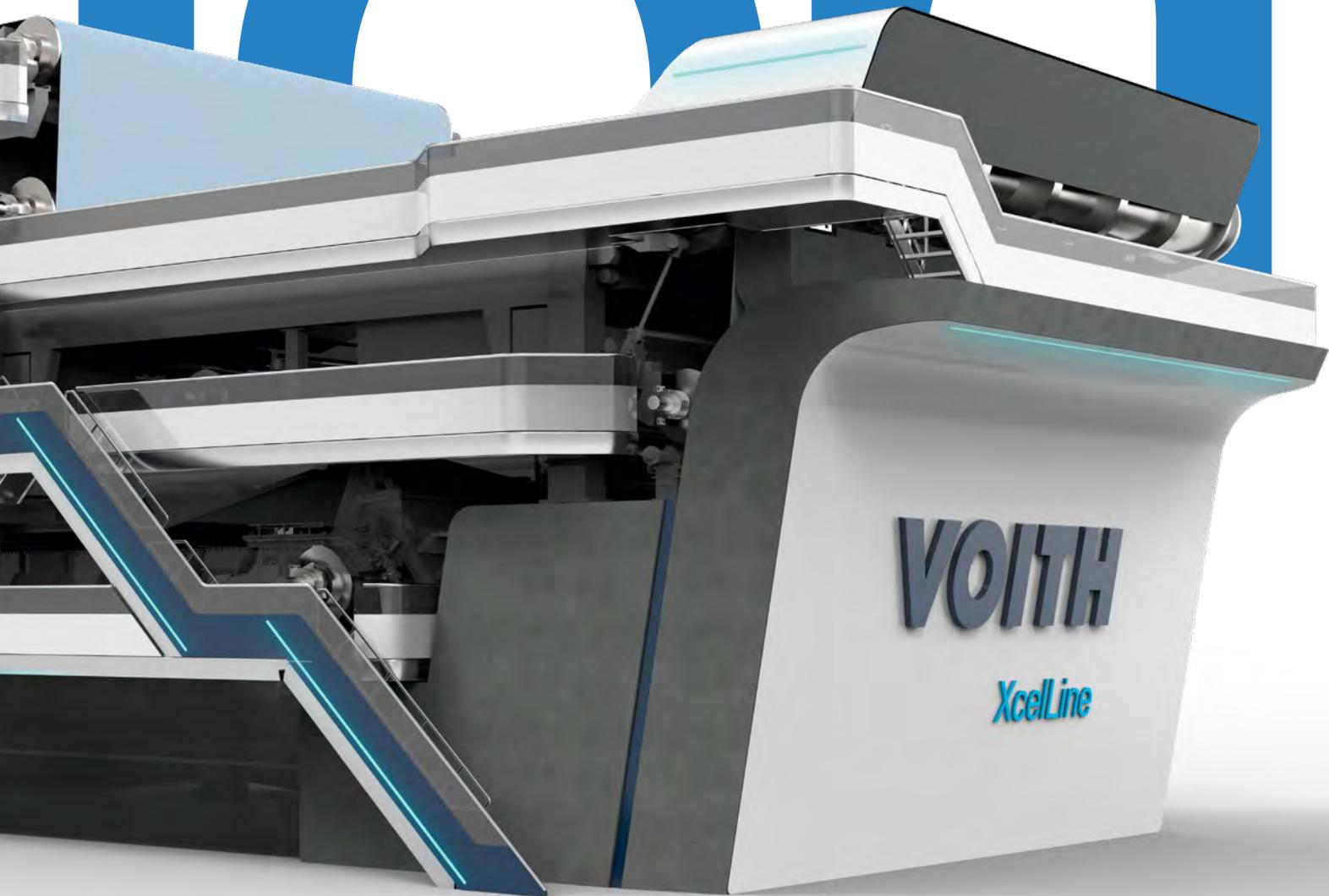
# Voith



Enhancing paper machine design to improve the production process and promote digital transformation – this was the underlying idea behind the Voith design study on the future of paper production.



# Papermaking



Technical innovations drive the development of capital goods and make the production process more efficient, sustainable and safer. This not only includes but particularly applies to the paper industry. The fact that industrial design plays an equally important role in this process is often overlooked, however. Yet it shouldn't be – industrial design is about optimizing the production steps and supporting the digital transformation of paper production, both in terms of the machines and the user interface.

Voith Paper has long recognized its relevance and, in its design study on the paper machine of the future, is presenting a vision that fundamentally redefines the appearance and operation of the systems through an innovative design.

Formulating the specific details of this vision and translating them into day-to-day production operations through innovative solutions – this is what a group of Voith engineers works on each and every day. Katja Benz is part of that team, contributing to the project whose goal is nothing less than developing the paper machine of the future. The spec sheet includes functional, aesthetic, cleanliness and safety requirements. “We want to improve the appearance of the machine, but at the same time optimize its operability and the entire process that goes with it,” the product manager describes. A universal advancement of this magnitude cannot be achieved overnight, however, and is still in its early stages. The approach is to gradually develop a new modular design that can be adapted to all types of paper and machines. It not only encompasses all paper machine sections but actually begins with stock preparation and extends to the winder at the end of the production process.



## About the Employee

As a project manager, Katja Benz is responsible for developing an innovative paper machine design that combines increased functional and aesthetic requirements.



In this process, the team is paying special attention to the human-machine interface. This is because the individual areas do not yet have a consistent design but are frequently isolated solutions. In some cases, switches are still used to select functions and set operating parameters, in other instances, touchpads are already used. As such, standardizing the “operating concept” and equipping it with features, such as smart lights that indicate the operating status of the components is one of the team’s priorities. This creates consistency across the production steps, which plays a particularly important role in the transition to Industry 4.0. If the team wants to leverage the efficiency and speed benefits of digitalization and connectivity in real-world operations, they cannot allow traditional operating concepts to slow them down. For example, instead of just triggering an alarm in the event of errors, the machine can more clearly show the operator what is happening at an earlier stage and then suggest corrective action.

**The Voith design study reveals the future of paper production. From stock preparation to reeling – the innovative design fundamentally redefines the appearance and operation of the system.**



## Design

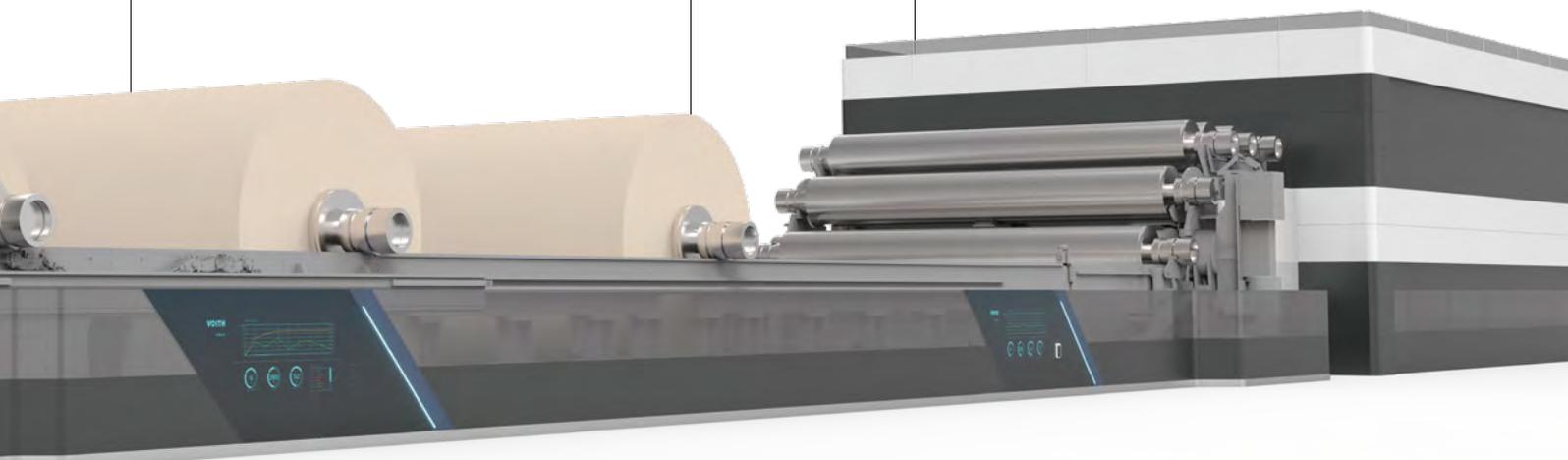
is the appropriate combination of materials to solve a problem.

**Charles Eames,**  
designer  
and architect

But advanced industrial design alone is not enough to optimize the production process. After all, focusing more closely on people and their needs leads to improvements on many levels, including unexpected ones – better design also enhances a company’s employer branding, says Katja Benz. “Our customers in the Chinese market say that they also need the better design in order to offer higher quality jobs to qualified specialists. Making this massive steel object more attractive helps by motivating young people to work with it, and the same is true in Europe.”

In the German town of Sandersdorf-Brehna (in the state of Saxony-Anhalt), the initial implementation of elements of the new paper machine design can already be seen. Progroup AG recently brought one of the world’s most state-of-the-art packaging paper mills into operation here, and Voith supplied all of the production technology and already integrated features into the XcelLine machine that improve occupational safety, among other enhancements. For example, the catwalks on one level were designed to be continuous, all of the access stairs were standardized to a 45-degree angle, and the railings were covered with high-quality mineral glass. Reducing the technical complexity of the catwalk system also has a calming effect on the mill’s overall appearance.

The premiere at Progroup AG represents an important initial milestone for the multi-year design project, with many more to follow. The elements will be rolled out over a long period of time, explains Benz. “We’re starting with new systems and implementing the new design gradually – Sandersdorf-Brehna is only the beginning.”





Voith now serves the paper industry jointly with the Group's new subsidiaries BTG and Toscotec. In this interview, the four lead managers talk about the advantages and how customers benefit.

# Team Building

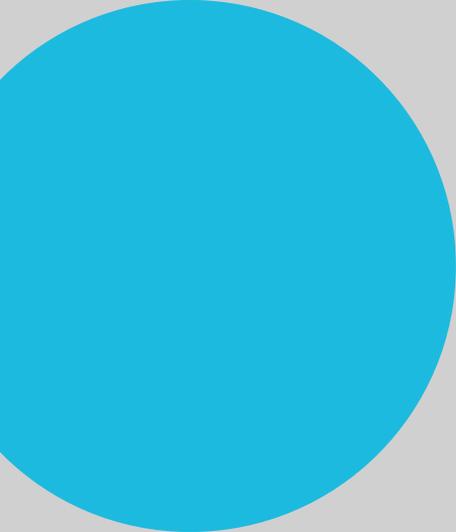
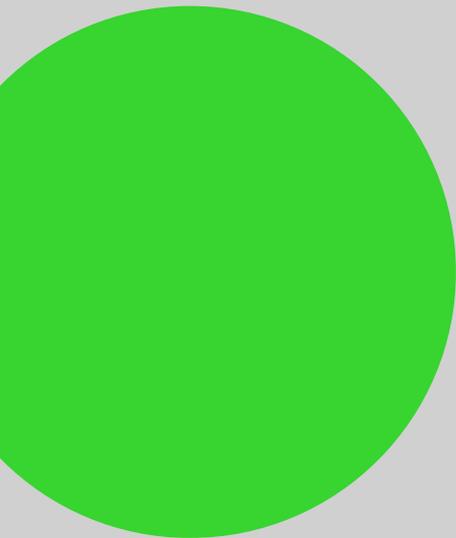
## Toscotec

Toscotec with headquarters in Lucca, Italy, was founded in 1948. Since then, the company has focused on the development and production of paper machines, systems and components for the production of tissue paper, paper and board. Toscotec supplies its customers technology and services ranging from individual components, rebuilds and complete production lines. Outside Italy, the company is represented with locations in China and the U.S.

As CEO, Alessandro Mennucci manages the business and cooperates with Dr. Michael Trefz, President Division Projects, Voith Paper.

### Dr. Michael Trefz

As President of the Projects Division, Dr. Trefz has been in charge of Voith Paper's new lines business since October 2019 and is a member of the Voith Paper Board of Management.



— — —

 **Alessandro Mennucci**

Alessandro Mennucci has been the CEO of Toscotec since 1999. He is responsible for Toscotec's growth strategy and expansion on the international markets with the establishment of two subsidiaries in China and the USA.



**With the successful acquisitions, Voith has formed alliances with renowned paper specialists BTG and Toscotec. What more can you achieve together than you could alone previously?**



**Dr. Abraham:** BTG enriches Voith and supplements our offering for all aspects of paper machine operation and stock preparation, allowing us to be the preferred partner for our customers. The acquisition once again demonstrates our clear commitment to the paper industry.



**Dr. Trefz:** With Toscotec, we are expanding our position as the full-line supplier in the paper industry. With the acquisition, we want to take a further step in strengthening our presence in the important growth market of hygiene papers and offer customers the broadest, most technologically leading portfolio in the tissue, board and paper segments.





**Toscotec has made a name for itself in the tissue segment in particular, where there are overlaps with the Voith portfolio. How do you intend to complement each other in future?**



**Dr. Trefz:** Our goal is to offer our customers the technologically best and most cost-attractive solutions. With the complementary portfolios in board and paper, for example, we can now also serve Voith's customers with machines less than four meters wide. In the tissue segment, Toscotec is taking over the business with new lines and major rebuilds for the whole Voith Group. We supplement the portfolio with our spare and wear parts, digital solutions and services, among other offerings.



**A. Mennucci:** This makes Toscotec the sales channel for new tissue projects within the Voith Group. For the rest of the portfolio, we jointly conduct in-depth product evaluations to be able to offer the market the best solutions. For example, in the future we will be able to offer fabrics and BlueLine stock preparation lines from Voith with our machines and in combination with various products from further companies of the Voith Group even more integrated and effective, in order to achieve the best possible results for our customers.



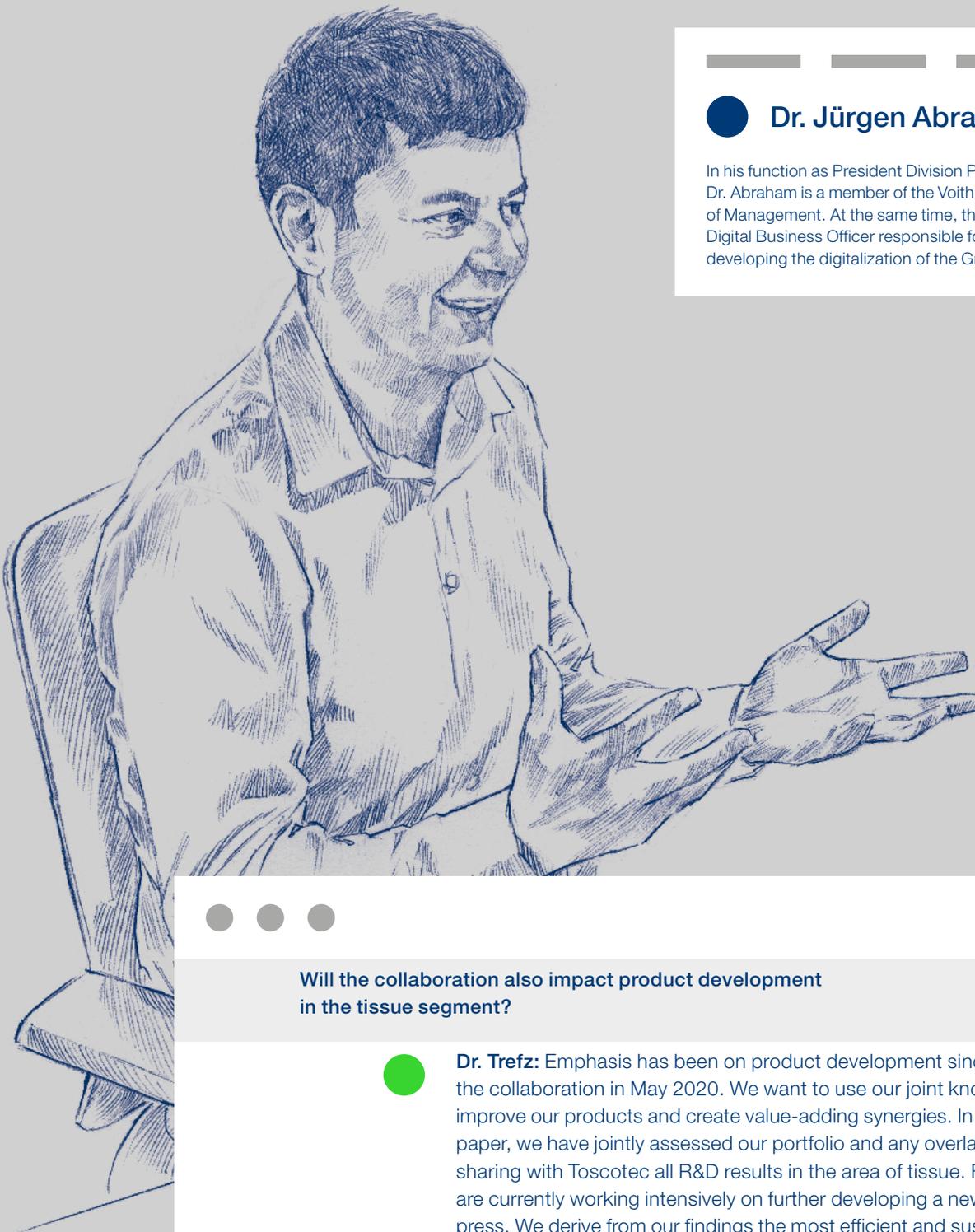
**What is the added value for the customers of both brands as a result of the Toscotec acquisition?**



**Dr. Trefz:** Customers of Voith and Toscotec now have at their disposal two renowned companies with many years of experience in papermaking and diverse portfolios. As a result, they receive the most cost-attractive solutions tailored to their individual needs from a single source. Toscotec is now part of a strong group with a global footprint. This gives customers access to a worldwide network of locations and human resources. The joining of the two companies also provides customers with added investment security.



**A. Mennucci:** Our existing and future customers will benefit from a specialized and agile organization, such as Toscotec, that has the support of a larger organization behind it. This support plays a major role in a variety of areas: The exchange of key technological know-how leads to optimizations in product development and in R&D projects. This allows us to offer customers an extended product portfolio that includes Industry 4.0 technology and to address their specific requirements even more precisely.



## Dr. Jürgen Abraham

In his function as President Division Products & Services Dr. Abraham is a member of the Voith Paper Board of Management. At the same time, the PhD chemist is as Digital Business Officer responsible for further developing the digitalization of the Group Division.

### Will the collaboration also impact product development in the tissue segment?

**Dr. Trefz:** Emphasis has been on product development since the start of the collaboration in May 2020. We want to use our joint knowledge to improve our products and create value-adding synergies. In tissue, board and paper, we have jointly assessed our portfolio and any overlaps and are sharing with Toscotec all R&D results in the area of tissue. For example, we are currently working intensively on further developing a new tissue shoe press. We derive from our findings the most efficient and sustainable solutions for our customers.

**A. Mennucci:** With respect to tissue machines, in the future Toscotec will lead research activities in close cooperation with Voith's R&D groups that are specialists in clothing, roll covers, stock preparation and the approach flow system, among other areas. We have already started a series of projects, for example, in the field of structured tissue. We are also addressing the central topics in paper production. We want to help customers further increase their efficiency and optimize their papermaking plants by converting to completely digital control. Lowering their energy consumption is another goal. ———>

BTG is also a highly specialized supplier to the paper industry. In which segments can the company complement Voith?

**R. Crossman:** By combining our strong market positions and value propositions with those of Voith, we can better serve customers in the tissue, packaging, graphic paper and pulping segments through the interplay of our capabilities.

**Dr. Abraham:** BTG perfectly completes Voith specifically in the field of wear parts for paper machines with its in-house manufacturing capacities. With respect to field instruments in stock preparation, the offerings complement each other through BTG's strength in sensors and Voith's in actuators. BTG's expert, knowledge-driven market access in the areas of coating, creping and data analysis, in particular, is of prime interest to Voith. It puts us in a position to offer our customers holistic solution concepts.

## BTG

The company history of BTG (Bonnier Technology Group) dates back to 1921. Founded in Sweden, the company is today headquartered in Eclépens, Switzerland, and offers industrial customers highly specialized process solutions mainly for packaging, graphic papers and tissue. The portfolio ranges from beds and rods, coating and creping blades to pulp and paper process control sensors and laboratory instruments. In addition, BTG supports the digitalization of the paper industry through data analytics, automation and software. BTG President Rob Crossman works together with Dr. Jürgen Abraham, President Division Products & Services.

Where do you see concrete leverage points for creating added value for customers by linking BTG products with Voith solutions?

**Dr. Abraham:** We have already begun permanently integrating BTG field instruments into stock preparation. Customers profit from this, for one thing, through the interplay of perfectly coordinated products and solutions. They can also rely on the extensive BTG service network. Voith is already today a leading solution provider in the sizing and coating fields. The integration of BTG now gives us the opportunity, starting in the Technology Center, to develop new concepts related to the interaction of roll coating, coating blade and applicator. In this way, customers gain further options for optimizing their production processes.

**R. Crossman:** Exactly. The key is finding solutions that bring sustainable profits to our customers. They buy our products and services in order to get a return on their investment. We are already working closely together because there are some really outstanding capabilities on both sides that, when combined, can unlock enormous potential. We are convinced that in terms of added value and the effects for our customers' business, one plus one will yield three.



**With regard to digital transformation, BTG and Voith have taken different approaches up to now. How can BTG offerings be merged with the Papermaking 4.0 portfolio from Voith to form a consistent strategy for customers of both companies?**



**Dr. Abraham:** Both BTG and Voith have recognized the possibilities of digitalization for our customers. However, we have taken different paths to realize solutions. The BTG approach rests on the company's strengths in data collection, storage and analysis. Voith takes an approach that is based on our papermaking and system control know-how and combines it with the potential offered by artificial intelligence. Our task now consists in optimally merging these two paths so that customers can fully appreciate the digitalization potential.



**R. Crossman:** Despite the different approaches, it can already be seen at an early stage that the two organizations have similar cultures and ideas concerning the 4.0 opportunity and have a similar understanding of how its potential can be tapped for our customers. The important thing is to take the best from each approach and establish it as the go-to-market standard. We have started doing this. Decisions will be made when the voice of our customers confirm the best way to proceed.



## Rob Crossman

Rob Crossman is a customer-focused professional who has spent over 25 years serving the pulp and paper industry. Rob joined BTG 10 years ago and has served in the role as President for more than two years. His focus has been on transforming the organization into a trusted partner in delivering sustainable economic impact to BTG's valued customers.



**With these acquisitions, Voith is continuing its strong commitment to the paper business. Which segments do you expect will offer particular growth opportunities for the Voith/BTG/Toscotec alliance?**



**Dr. Abraham:** In the alliance between Toscotec, Voith and BTG, we are a provider of holistic solutions for tissue lines. And with our established 4.0 solutions in the pulp and paper segment, we can now also serve the installed base of Toscotec.



**Dr. Trefz:** Growth opportunities especially exist where supplies and services from Voith can supplement and upgrade Toscotec's tissue machines. This is the case with consumables and also with the digital product portfolio and the service packages from Voith.



Shanying Paper and Voith managed to commission the production line PM 22 ahead of schedule in the middle of the pandemic lockdown in China. The key to this successful outcome was the efficiency made possible by the full-line supplier approach.

1

Voith supplied the paper machine and the stock preparation, among other equipment

2

The reel section including automatic parent roll handling was also part of the order

Huazhong

Effi ←

across th

There is probably no greater construction effort in the paper industry at the moment than the project that involved starting up a new production line at the epicenter of the COVID-19 pandemic – and doing so ahead of schedule despite all the restrictions in place. But this is what paper manufacturer Shanying Paper was able to do, in partnership with Voith Paper. In Huazhong, in the Chinese province of Hubei, the two companies worked closely together to resolve this herculean task and ensure that the PM 22 went into operation as planned. And they did it successfully. Even though Hubei was essentially paralyzed by a lockdown until the end of March 2020, the packaging paper machine was able to start production.

The successful start-up was preceded by an extensive preparatory phase. As a full-line supplier, Voith not only supplied the complete XcellLine paper machine for the PM 22 but also the BlueLine OCC stock preparation line including key components like the IntensaDrum pulping drum and bagless disc filters. The scope of supply also included the reel section with fully automatic parent roll handling and the automation solutions MCS, DCS and QCS. The fact that the stock preparation line and paper machine were to be installed at the same time put additional constraints on the already tight project schedule.

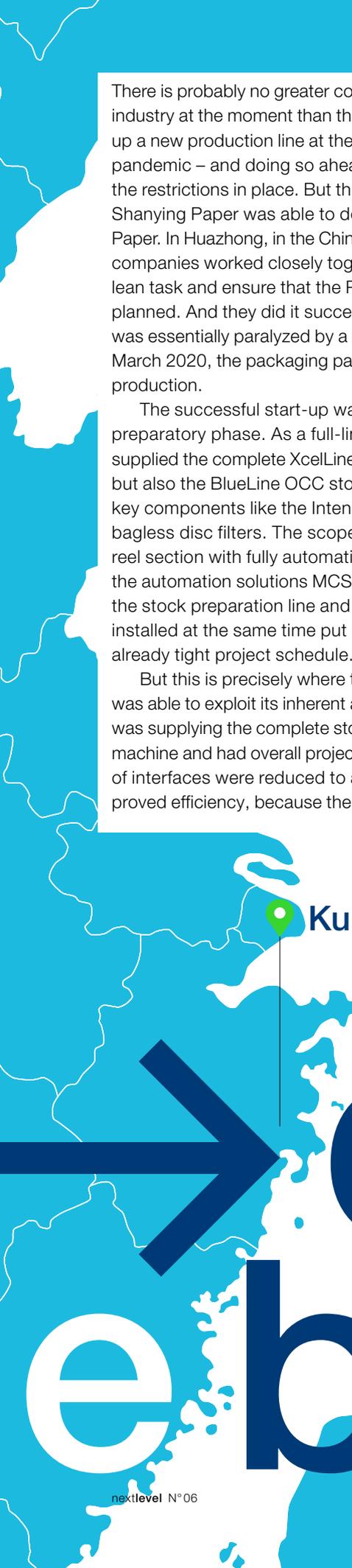
But this is precisely where the full-line supplier concept was able to exploit its inherent advantages. Because Voith was supplying the complete stock preparation line and paper machine and had overall project responsibility, the number of interfaces were reduced to a minimum. This not only improved efficiency, because there was no need for time-

consuming coordination of a large number of different disciplines, but it also ensured fast and reliable delivery, which was especially important given the lockdown conditions.

Together with Shanying, the local Voith team updated the schedule to make up for the backlog caused by the pandemic restrictions. As public transport was not available, employees covered thousands of kilometers in their cars to be on site. And wherever that was not enough, they got help from Voith colleagues worldwide. Via the online service system, Voith experts provided remote support for the project.

By working together, the two companies ultimately achieved a smooth project execution. “During the whole project execution, we have demonstrated the spirit of collaboration and have overcome many difficulties. The installation team was in place before mid-March when the pandemic was still very challenging,” explains Junxian Feng, General Manager of Shanying Huazhong. “With the successful start-up, the teams from Voith and Shanying have shown their strengths in realizing the project.”

Even before the construction of the production line, Shanying Paper had already strategically increased its capacity and its supply chain. The new PM 22 will now help raise the Huazhong production facility to a new level in terms of quality, capacity and sustainability. Zejun Weng, Vice President of Operation, Shanying Huazhong, says: “PM 22 sets new standards in water, fiber and energy consumption. It will help us in reducing the overall operation cost.” Shortly after the start-up, the performance of the PM 22 in terms of speed and capacity has achieved the expectations. “Among all the three production lines in Shanying Huazhong, PM 22 is the one producing the paper grade of highest quality. It is also the best in terms of production capacity and profit. We have reached our target,” says Junxian Feng. Voith will continue to support this transition and will deploy its expertise and local service team to improve Shanying’s competitiveness on an ongoing basis.



Kunshan



efficiency  
board

Virtual world premiere: Paper manufacturer Leipa is improving its education and training with Voith PaperSchool's VR training programs and speeding up maintenance work with the collaboration tool OnCall.Video. The company's digitalization competence is also enhancing its brand as an employer.

# Virtual reality

– real advantages



# y

When the young preventive maintenance technician goes up some stairs in the mill to change the drive belt on an electric motor, he makes a mistake. In his haste, he overlooks a leak in the steam line running right next to him just above his head. With severe consequences: he immediately sustains burns from the escaping hot steam. A serious occupational accident. Actually, it's just a



## Virtual reality training

The VR-supported training is part of Voith PaperSchool. It allows knowledge to be imparted without putting employees at risk or compromising the paper production.

simulation; the employee is not really injured. This scene is not playing out in the mill, but rather in Voith PaperSchool's virtual reality application. It places participants equipped with wireless VR headset and hand controls into a deceptively real simulated machine hall recreated on a 1:1 scale. In it, tasks such as preventive maintenance work on the paper machine can be practiced with maximum realism, but with no risk whatsoever and without any downtime or use of resources.

Paper producer Leipa Georg Leinfelder GmbH recognized the potential. It is the first company in the world to use Voith's VR system to effectively train new recruits, papermakers and maintenance technicians. "The controllers replace the hands. When a person works with their hands, they experience a completely different interaction than they would if they were watching a video or a presentation," explains Voith PaperSchool Manager Michael Neumann. "Hand-eye work generates muscle memory, a longer-lasting form of knowledge transfer and an advantage over classroom training." →



Leipa Manager Steffen Deszpot considers virtual reality to be an efficient form of training with numerous additional benefits for the company.

In addition to these aspects, Steffen Deszpot, Head of Technology at Leipa, also points out the better planning capability. "In my experience, it can be difficult to make bigger groups of trainees available all at the same time for a training course. With the VR solution, on the other hand, employees can complete the training modules assigned to them independently at a time that suits, tailored to their shift or working hours. We see the more flexible use of working hours as a huge win."

Leipa has reconfigured a conference room at the company premises in Schwedt, Brandenburg, Germany, into a virtual reality studio for the high-tech training program. However, the launch, which was scheduled for February 2020, has been delayed due to the COVID-19 pandemic and the associated physical distancing restrictions. OnCall.Video was a savior, bringing the standstill to an end. Since Leipa was also the first industrial customer to use the Voith video communications and collaboration tool with wireless camera glasses, the team could be given remote instruction for the final VR installation tasks in June. "The room was already prepared and the sensors attached," recalls Patrick Dengel, Digital Tools Manager at Voith. "We handled the details via OnCall.Video. For this, the glasses were integrated into the Leipa wireless network, which was used to establish a video and audio connection to the Voith experts in Heidenheim." The remote connection saved several working days as there was no need to travel for an on-site installation. Once the preparations were complete, it didn't take long for the solution to be operational. "Within three hours, we got the system up and running and carried out two test training sessions," says VR specialist Neumann. The two Voith applications come with different digitalization advantages for Leipa. The aim of OnCall.Video is also to be able to call on expertise outside the company to quickly find solutions if there are problems during production. "No manufacturer can have all the experts on site,



## OnCall.Video

The audiovisual communications system provides access to Voith's expert paper knowledge and enables real time analyses via an internet-based video platform.

**Basically, OnCall.Video can instruct everything – our focus is to connect the customer quickly with the experts.**

**Stefan Endras**  
Productmanager OnCall.Video, Voith

which means being able to call on external knowledge is all the more important," emphasizes Voith Manager Dengel. With the VR system, Leipa not only wants to give its employees in-depth training with Voith PaperSchool's training courses for sleeve changes on the shoe press or blade changes on the winder, for example. Rather, the company is looking beyond the pure training benefit. In collaboration with students from the Stralsund University of Applied Sciences, Leipa wants to visualize its digital data streams from the process control systems in multidimensional data spaces, for example, to gain insights that go far beyond the usual statistics. The company also sees real added value in its external presentation and recruitment of employees. The virtual reality solution and OnCall.Video showcase Leipa's digital competence and at the same time enhance its employer brand. "Which papermaker can claim to have the most modern media in use before anyone else?" argues Deszpot. "Industry 4.0 has already arrived here – and we are happy to show it off."



# #SUS TAIN ABLE PAPER MAK ING

Discover the potential of sustainable papermaking.

p. 29 —————> 40

With automatic zero-point adjustment and Papermaking 4.0 functionality, the InfibraDisp sets new standards.

# Dispersion

1

The easy-to-use interface increases user-friendliness.

2

A single drive unit for the toothed filling and feed screw in the InfibraDisp minimizes the customer's installation work.

3

Hydraulic gap adjustment of the toothed filling allows dispersion intensity to be set precisely.

4

The conical feed screw ensures that stock is fed homogeneously into the toothed filling.

**Digitally connected,**

InfibraDisp operates even more efficiently and unlocks new maintenance options.

**In the past, the zero-point setting had to be adjusted manually, but was never clearly defined and reproducible. We've now changed that.**

**Günter Winand**  
Product  
Manager Dispersion  
System, Voith

# 25

**percent**  
increase in strength: The new InfibraDisp generation significantly improves the dispersion result.



# 4.0

The success story continues. In the early 1960s, Voith laid the foundations for waste paper recycling on a large industrial scale with what were, at the time, innovative machine developments. Since then, the percentage of secondary fibers used in papermaking has increased and with it the sustainability of the paper production process. But at the same time, quality is declining – recycling rates and cycles are increasing, resulting in a reduction in the strength potential of the fiber. “In addition, a growing amount of ash, ink residues, stickies and waxes from food wrapping paper increase the contaminant load and require additional cleaning effort,” says Günter Winand, Product Manager Dispersion System at Voith. “This trend will definitely continue.” To counteract this, Voith offers a highly specialized range of products for dispersion. The current disperger filling called The Wall not only separates contaminating particles and printing inks from the fiber in a particularly efficient and gentle manner but also reduces energy, operating, and maintenance costs. In addition, “with the InfibraDisp, we have created a digital connection and made the solution extremely user-friendly,” emphasizes the expert.

## Automatic Zero-Point Adjustment

The simplified handling of the enhanced disperger is particularly important to Winand. This is because the hydraulic gap adjustment now makes it possible to automatically set its zero point for the first time. As a result, the operating personnel no longer need to rely on their own experience. “In the past, the zero-point setting had to be adjusted manually, but was never clearly defined and reproducible. We’ve now changed that,” explains Winand. The required gap width is set automatically with a position sensor providing precise feedback about the gap size. The built-in filling wear monitoring system uses vibration sensors to prevent any plate contact, thereby making operation more reliable. All of the parameters can be adjusted directly on the machine using a touch display. The improved operating concept and optimized gap adjustment have proven their worth in real-world situations, as confirmed by pilot customer Saica in Zaragoza, Spain, where InfibraDisp has been used in the company’s regular production activities since March 2020. “The hydraulic gap adjustment allows us to precisely set the zero point after a plate change with just the touch of a button. This has completely eliminated the need for operator intervention on the disperger itself,” explains Stock Preparation Plants Manager Susana Fernández-Carrión. —→





### Low-Maintenance Design

But other InfibraDisp components have also been reengineered to improve not only the dispersion result – Winand puts the achievable increase in strength at up to 25 percent – but they also reduce operating costs. For instance, the machine no longer operates with two motors but now only has one that simultaneously drives the toothed filling and the easily accessible feed screw. This ensures that stock is fed extremely homogeneously and minimizes performance fluctuations during the dispersion process, resulting in an even more uniform product quality. “The design concept with a single motor powering both the rotor and the feed screw has significantly reduced our space requirements and will ultimately also reduce our maintenance costs,” Fernández-Carrión is convinced.

The new InfibraDisp was preceded by extensive research work at Voith’s Fiber Technology Center (FTC). “We intensively fine-tuned the technological aspects, then worked in detail on the engineering and operator aspects,” recalls Winand. During the tests, the engineers optimized the interaction between machine and filling and identified the ideal operating conditions in terms of stock temperature, back pressure and the positioning of the dilution water connections. The single-motor concept also had to prove itself at the FTC, where feeding and stock transport were extensively tested under real-world conditions.

5

The feed screw of the InfibraDisp is easily accessible.

**Voith’s Fiber Technology Center (FTC) is a unique research facility for paper production unlike any other in the world.**

6

Customer-specific production conditions can be precisely replicated at the Fiber Technology Center.

7

Stock preparation in the testing system.

### Automation Included

The prototype was used to test all features of the digital connection. This enables the now market-ready disperger to exploit the potential of Papermaking 4.0. Saica manager Susana Fernández-Carrión cites efficiency and safety benefits as examples: “The new control unit for measuring wear allows us to improve fitting monitoring throughout its entire life cycle, compare wear between different fitting types or with different types of stock, and detect anomalies even before a planned shutdown.”

But the Papermaking 4.0 features go even further. “InfibraDisp can manage itself autonomously, permanently monitor the service life of the fitting and calculate the remaining operating time. It predicts the next fitting change well in advance and provides recommendations with respect to maintenance,” describes Winand. The product manager plans to push ahead with additional automation capabilities. “We want combine wear detection with the ability to reorder from the Voith Paper online store, so that customers have the option of ordering a new fitting automatically,” Winand says, looking to the future. The concept and its prospects are impressing customers – new InfibraDisp dispergers are scheduled to go into operation in India and China as early as fall 2020 and spring 2021, respectively.



# Sustainability Sustainability Right From the Start

To help customers more efficiently manage stock preparation processes in order to reduce energy consumption and, as a result, their carbon footprint, Voith is expanding its market leadership in this area with new approaches.

A commitment to sustainability starts at the very beginning. Due to the complex interaction of numerous components and systems, stock preparation offers a particularly wide range of potential ways to optimize the papermaking process both financially and environmentally. Thanks to its many years of experience and expertise with OCC and DIP, Voith is now the technological leader in the field of recycled paper stock preparation and is working to further increase energy efficiency in order to reduce papermaking's carbon footprint. "Reducing energy consumption is a key development objective in all of our projects," stresses Voith Product Manager Dr. Antje Voiron.

Only a few numbers are needed to illustrate the potential of this approach. Compared with standard stock preparation, the Voith BlueLine process achieves average energy savings of 25 percent (OCC) or 20 percent (DIP). Applied to the example of an average European packaging paper mill, whose energy mix consists of 67 percent fossil fuels and which processes an OCC volume of 1,700 tons per day, this means that the Voith BlueLine can reduce a standard line's annual CO<sub>2</sub> emissions of 10,800 tons by a whopping 2,700 tons.

In modern recycling systems, stock preparation accounts for around 15 percent of the entire system's carbon emissions, but Dr. Voiron intends to further reduce this figure. This is a major step towards eliminating unnecessary CO<sub>2</sub> emissions, especially in countries in which fossil fuels account for a significant share of the energy mix.

Compared to standard stock preparation systems, the Voith BlueLine achieves significant energy savings:

DIP  
Process

-20  
percent

OCC  
Process

-25  
percent

But the company's approach to sustainability goes even further. In the BlueLine range, the priority isn't only on saving energy and achieving maximum efficiency, but the machines themselves will also play an even more important role in the future. "We will design our machines with an even stronger focus on recycling homogeneously sorted materials and on the service concept for the longest possible operating life," explains

Andreas Heilig, Vice President Product Management Fiber Systems at Voith. In this context, he refers to the "cradle-to-cradle" model of an continuous circular economy. "We take this into account in the development of new machines and even more so when it comes to service and spare parts."

Digitalization also plays a key role in achieving sustainability objectives. Voith will combine mechanical engineering solutions with intelligent control processes to develop groundbreaking concepts, the manager suggests. The goal is to develop an autonomous stock preparation system that optimizes itself without operator intervention to ensure the lowest possible fiber losses and maximum finished stock quality – while at the same time further reducing water and energy requirements and the carbon footprint.

# Packaging



**Alternative to Plastic**  
Name-brand manufacturers are increasingly demanding paper-based packaging solutions for food.

# the Future

Working with Voith, the Koehler Paper Group has developed flexible packaging paper with barrier properties that is also 100% recyclable.



**Sustainable Approach**  
The aim is to replicate the characteristics of plastics with paper without compromising its recyclability.

It's more than just a buzzword – the sustainability megatrend has long encompassed all areas of life and every industry, including the food and beverage industry. Consumer demand for sustainable products is extremely strong, the researchers from Zukunftsinstitut noted. According to their research, more than half of consumers try to take sustainability into account when shopping, and one in 10 even considers this aspect in every purchase they make.

Through their purchasing habits, buyers are influencing the market for packaging solutions, with demand increasing for alternatives to the mostly plastic-based packaging used for food products or confectionery, for example. "Name-brand companies consistently tailor their products to the needs of consumers when it comes to sustainable packaging solutions. In addition, the demand for packaging is growing rapidly in the emerging markets, and in Europe, the Council of the European Union has issued ambitious guidelines regarding recycling targets for packaging," says Eckhard Kallies, head of the FlexTech division at the Koehler Paper Group, providing an overview of the current environment.

Meeting the growing demand for sustainability poses challenges to paper manufacturers, however. On the one hand, the aim is to replace plastic with environmentally friendly and recyclable packaging materials – paper is an ideal candidate. On the other hand, barrier properties such as greaseproofing cannot be achieved with paper alone. This gave Koehler the idea of developing new types of flexible packaging papers, establishing a completely new division in the process. "We are seeing strong demand because the market for innovative and sustainable packaging solutions is booming," says Kallies.

# The Paper

## The Properties



**Protect and Preserve**  
Paper-based food and beverage packaging must perform specific barrier functions.

Steam barrier

Oxygen barrier

Heat sealability

Mineral oil hydrocarbon barrier (MOSH/MOAH)

Aroma barrier

UV protection

Greaseproofing

To implement these solutions, the company turned to Voith early on. Back in 2017, Koehler awarded Voith the contract for production line 8 for its facility in Kehl – one of the world’s most powerful specialty paper machines designed for an annual production volume of up to 120,000 tons of specialty paper, supplemented by the SM 8 offline coating machine. It is equipped with state-of-the-art coating units and features contactless, gentle drying, which simultaneously achieves a high degree of thermal efficiency. The SM 8 enhances the one-sided smooth paper produced by the PM 8 during the coating process by applying functional barrier layers. “These layers are based on water-based polymer dispersions,” explains Voith Product Manager Jens Kolb. “With the help of these coatings, various barrier properties can be added to the paper. From a steam barrier to an aroma barrier, virtually nothing is impossible in this respect.”

The path to this success was a long and winding road, however. Particularly the coating process proved to be a considerable obstacle, as the water-based dispersion is very sensitive to temperature during application of the functional layer. “If the drying curves aren’t exactly right, the coat will still be half liquid. This can lead to deposits jamming the machine,” reports Kolb. “There are many individual process parameters that need to be finely adjusted.”

As a result, Voith and Koehler spent two years researching in close collaboration to ensure that all of the variables were perfectly harmonized. While Voith experimented on the pilot coating machine at its Technology Center, Koehler simultaneously conducted concept trials on a coating machine of its own. By comparing the results, the partners were able to calculate data such

as the necessary temperature and processing speed, for example. “It was a far-reaching collaborative effort,” describes Koehler manager Kallies. “The knowledge we acquired was incorporated into the conceptual design of the current SM 8, as well as with foresight into possible expansion stages – this coating machine is truly one of a kind in the industry.” Jens Kolb agrees. “This production line is a reference project for us,” the Voith process technologist makes clear. “We are expanding our expertise in this direction and can apply it to other products.”

As a result of production line 8, Koehler now believes it is well-positioned to serve the growing market for more sustainable packaging paper solutions. But Koehler manager Kallies considers a world without plastic impossible and encourages people to be realistic. “We can use our flexible packaging papers for a wide range of applications, wherever this is possible. But plastic will continue to have a role to play,” he points out. “You simply need to assess what makes the most sense and where you’re stepping over the limit. The important thing is ensuring that the packaging can be recycled – and this is the case with our solutions.”

## The Structure

### Selectively Enhancing the Layers

The base coat is used to transfer a thin functional layer onto the paper. It consists of plastic or a polymer dispersion.



Base coat  
(functional layer)

Precoat

Base paper

Back coat

Clean forming fabrics, press felts and dryer fabrics enhance paper quality and make production more reliable. The CleanLine product family cleans all sections of a paper machine effectively while simultaneously conserving resources.

# Let the Water



## CleanLine Excell

CleanLine Excell cleans the surface and structure of forming fabrics and press felts more effectively than oscillating high-pressure needle jet showers.



### Reduced Water Consumption

Closely arranged, multidirectional water jets clean in a highly concentrated manner and reduce water consumption.



### Fewer Cleaning Chemicals

The particularly efficient removal of contamination reduces the need for chemical cleaning agents.

Cleanliness is not an end in itself – this is a truism that applies to many industries but plays a particularly important role in paper production. Here, cleanliness not only affects the quality of the final product but also the processes and their sustainability. Whether in the former, press or dryer section, where, for example, contamination from adhesive residues (stickies) reduces quality and efficiency, cleanliness translates into both reliability and resource savings. Without the highest degree of cleanliness, it is impossible to maximize effectiveness and profitability.

Nobody knows this better than Manfred Rosenbach. The service and product manager is responsible for the CleanLine range of cleaning solutions for all sections of the paper machine at Voith. One sentence is all he needs to sum up their economic and environmental potential. “In the former we can conserve water, in the press we can reduce the consumption of cleaning chemicals, and in the dryer section we can keep the dryer fabric much clearer and thereby save heating energy,” Rosenbach points out. “We can truly make a difference in every section of the machine.”

In this context, the difference-makers are highly specialized Voith solutions optimized for the respective section. One such solution, for example, is CleanLine Excell for cleaning forming fabrics and press felts. Unlike high-pressure spray pipes that attempt to remove contaminants

# CleanLine Extract4D

maintains the permeability of the dryer fabric better than conventional systems because it cleans with water jets that operate in four directions.



## Higher Quality

The superior cleaning effect increases paper quality and improves sheet support and tail threading.

# Flow!



## Enhanced Contaminant Removal

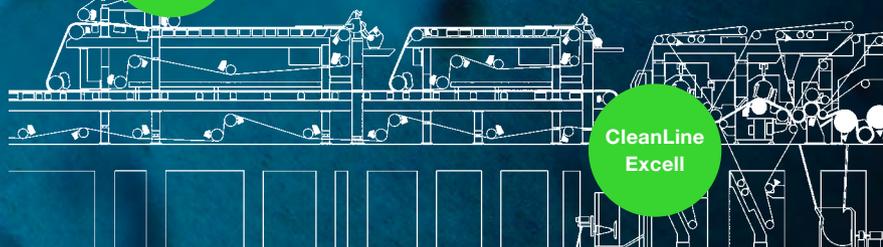
Clean Extract4D removes particles from the surface of the fabric, at the crossover points between the yarns and within the voids of the structure.

using oscillating or fixed-needle jet nozzles, CleanLine Excell uses several closely arranged water jets that spray in one or two directions.

This prevents variations and differences in cleaning performance across the machine width. Instead, the entire width of the fabric is cleaned uniformly, and the cleaning intensity can be increased where necessary, for example in particularly contaminated areas such as the edges. In the process, the fine jets penetrate deep into the fabric or felt to remove contamination particles from the voids. The angle of the water jets is selected based on the application to remove as many contaminants as possible from the surface and from the underlying structure. As a result, CleanLine Excell achieves a uniform conditioning of the entire clothing and consequently improved sheet dewatering and a balanced performance of fabrics and felts. This more effective cleaning results in additional benefits: CleanLine Excell in the former reduces water consumption, and its use in the press section reduces the need for cleaning chemicals. "These are not only environmental or financial benefits," Rosenbach emphasizes, "whenever the use of chemicals can be reduced, it also increases occupational safety."

CleanLine Excell

Cleanliness in All Sections



CleanLine Excell

# CleanLine Extreme

CleanLine Extreme removes contamination from the fabric both during operation and downtimes, thereby helping maintain a high level of production quality in the coater.

The importance of cleanliness can also be seen in the coater. Fabrics that become dirty due to breaks or blade defects can reduce the quality of the finished paper and therefore lead to increased waste. The result is reduced production efficiency. Manual cleaning is often the only way to avoid this, but it requires production to stop. This is why CleanLine Extreme uses a smarter approach – Voith’s solution is able to remove contamination from the fabric both during shut-downs and during operation. “We’re the only one that can clean online and offline,” emphasizes Rosenbach. “It isn’t possible to clean with much water during operation, because the paper surface is extremely sensitive. Yet we manage to clean with extremely little water and to extract the small amount of remaining water very effectively. We can also remove any residual water from the fabric via the built-in drying unit.” As a result, paper-makers benefit in several ways – from improved product quality as well as lower resource consumption and reduced downtime. Making these downtimes more predictable is Rosenbach’s next goal. “By digitizing the CleanLine, we will be able to assist our customers more effectively and quickly in the future – both during normal operations and in the event of issues,” the expert predicts.

**We’re the only one that can clean online and offline.**

Manfred Rosenbach,  
Product & Service Manager  
Paper Machine, Voith

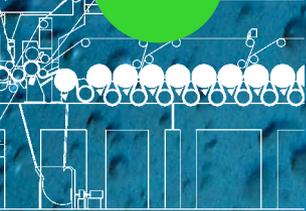
CleanLine Extract4D demonstrates how similar benefits can be achieved in the dryer section. Unlike conventional cleaning systems, it does not rely on uni-directional water jets but on jets that operate in four directions. They specifically eliminate contamination particles on the surface of the fabric, at the crossover points between the yarns, and within the voids of the structure that cannot be removed with conventional cleaning systems and therefore reduce the permeability of the dryer fabric and as such, its effectiveness. This works with all kinds of fabrics – but particularly well with fabrics from Voith. This is because the angles of the CleanLine Extract4D system’s jets are perfectly matched to the fabric structure, further increasing cleaning efficiency. “Papermakers who upgraded their dryer fabric cleaning system to CleanLine Extract4D have all seen a cleaner fabric and better runnability on their machines,” sums up the service and product manager.



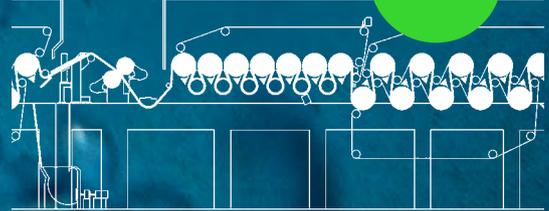
## Less Downtime

Thanks to online cleaning, CleanLine Extreme reduces the number of manual cleaning processes.

## CleanLine Extract4D



## CleanLine Extreme



#EFFE

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Discover the potential of  
efficient papermaking.

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# In Continuous Operation

With increased resistance to compression and improved elasticity for longer running times, the new QualiFlex QRun shoe press sleeve makes board and packaging paper production more reliable and predictable.

# QualiFlex QRun

The working atmosphere inside the shoe press is harsh. Particularly in board and packaging machines, there is a risk of compression where a lump of paper is squeezed through the nip, resulting in increased friction and potentially even damage to the press sleeve. In addition to physical stress, the sleeve is exposed to harsh chemicals.

### Greater Resilience

As a result, our development goal for the new QualiFlex QRun polyurethane press sleeve was to optimize the product properties of the shoe press sleeve against all odds in order to achieve the longest possible run-life. This is because a Voith analysis of the reasons for removing press sleeves had shown that the probability of unscheduled replacement is much higher with packaging paper than graphic paper. "Our R&D team simulated lumps passing through the test machine, analyzed them in detail and, based on the results, improved the product specifically for the market," describes Peter Weichenberger, Business Unit Manager QualiFlex at Voith.

The changes are reflected in improved tensile and impact strength. "In the laboratory, we found that crack growth is significantly lower with QRun," adds Christina Bauer, Global Product Manager Press Rolls. "The combination of superior resistance to cracking and hydrolysis, outstanding impact strength and abrasion resistance, as well as excellent chemical resistance, results in high operational reliability."

### Extended Service Life

Thanks to these properties, QualiFlex QRun now represents the new flagship for board and packaging shoe press sleeves from Voith and complements the company's existing Crest and Crown product range. Following an extremely successful testing phase, during which QualiFlex QRun repeatedly demonstrated its effectiveness in real-world applications, the shoe press sleeve was officially launched at the beginning of 2020. The field tests had shown that the innovative polyurethane provides stability in several dimensions and prevents groove deformation and swelling, which otherwise causes a significant loss of void volume in the area of the paper web. "QualiFlex shoe press sleeves made of patented polyurethane have the most stable grooves with the lowest swelling on the market and thus lead to a uniquely constant dewatering performance over the entire running time," says Weichenberger. This improved dewatering behavior, low abrasion, and the absence of damage or severe swelling extended the service life of the press sleeve for one Asian customer by over 50 percent, for example.



**QualiFlex shoe press sleeves have the most stable grooves on the market and, as a result, the best dewatering performance over their entire lifetime.**

**Peter Weichenberger**  
Business Unit Manager QualiFlex



### Precise Inspection

A Voith employee measures the hardness of a shoe press sleeve.

Voith's expertise as the developer of the shoe press for papermaking and specifically the knowledge gained from the development of QualiFlex QRun is now being applied to further sleeve development. It was, in turn, designed in Heidenheim, in the state of Baden-Württemberg in southern Germany. "This is where our R&D and test bed for testing press sleeves are located," emphasizes Weichenberger. "Because we have a production facility with more than 30 years of experience and a uniform standard, we can guarantee consistent product quality." The new sleeve is intended to transfer the benefits of QRun to tissue machines. Its name says it all – QSoft.

# QSoft

Because the requirements of tissue shoe presses are particularly high, Voith has specially developed a new press sleeve for this application: QualiFlex QSoft. This is because in addition to heat and chemicals, these press sleeves are subject to significant mechanical stress. They are constantly stretched and deformed by the shape of the Yankee cylinder, while their polyurethane material is also subjected to extreme stress due to the high speeds of the tissue machines and the small diameter of the shoe press. In order to combine excellent heat and chemical resistance with outstanding abrasion resistance, the QualiFlex QSoft therefore uses an optimized, exceptionally robust polyurethane. This is how it achieves stable dewatering over the entire running time and ensures that production conditions remain constant. The new press sleeve is available effective immediately.

# Optimization as a

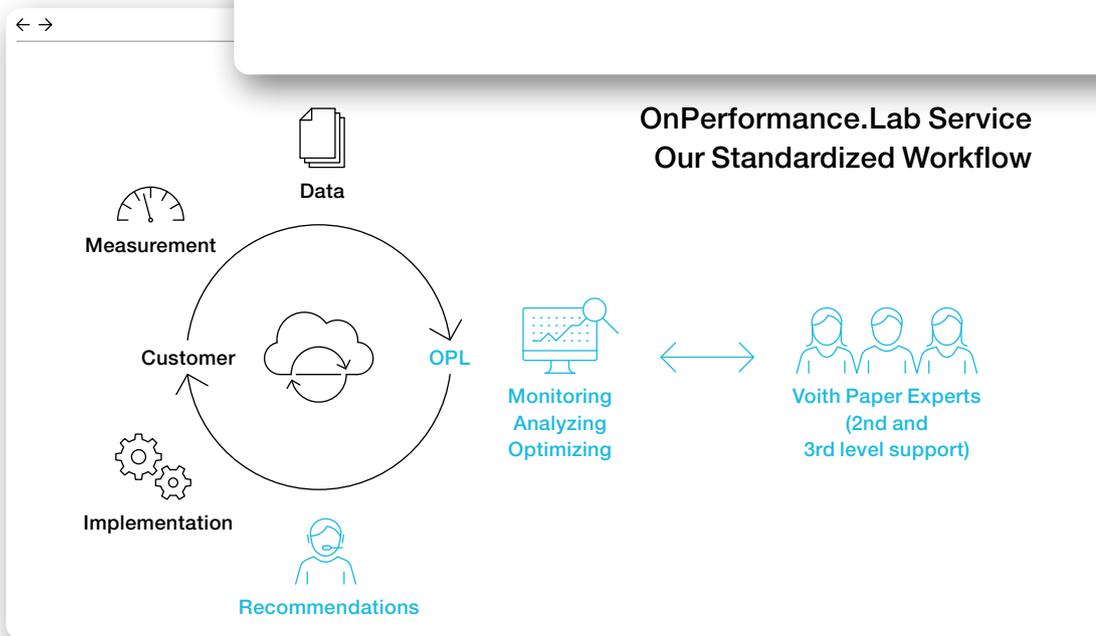
### Continuous Optimization

The OnPerformance.Lab uses software to analyze machine and process data, supplemented by the expertise of Voith's technology experts.



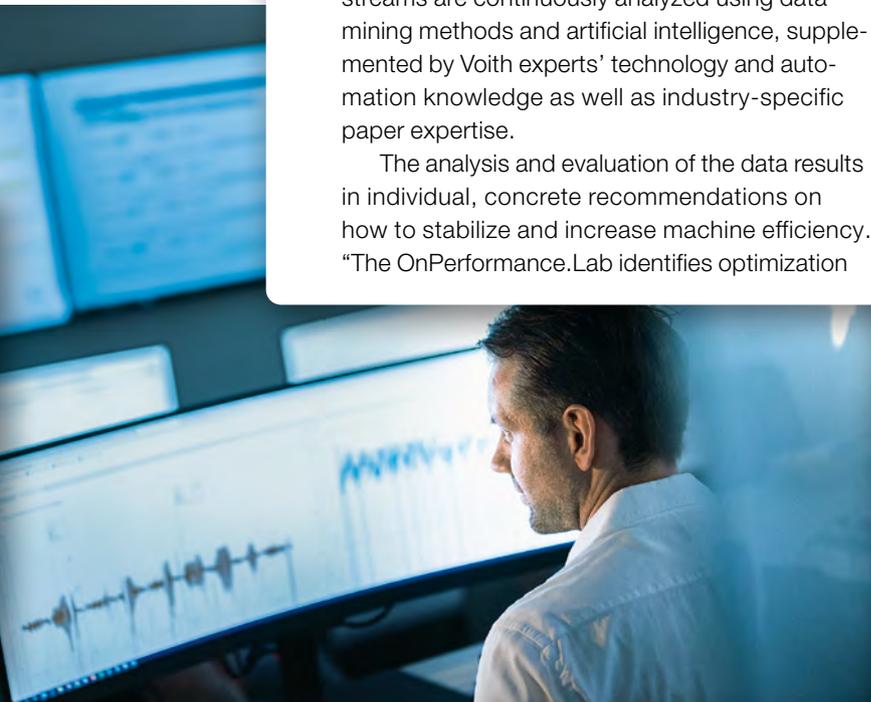
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Taking digitalization one step further: The new OnPerformance.Lab helps papermakers increase the efficiency and availability of their systems. To achieve this, the remote service center combines in-depth process data analysis with Voith's paper expertise to find and exploit potential for improvement.



# Re Se

# on



# remote service

The demands are growing. The paper industry is responding to increasing competitive pressure and more ambitious sustainability targets by digitizing its production facilities and processes to increase performance, efficiency and availability. But this also increases the amount of data generated in all sections – and with it, the difficulty in evaluating this data and using the results to develop targeted measures.

In order to help papermakers through the digital transformation process, Voith has established the OnPerformance.Lab at its corporate headquarters in Heidenheim (in the German state of Baden-Württemberg). Process data from customer machines all over the world comes together at this remote service center. The data streams are continuously analyzed using data mining methods and artificial intelligence, supplemented by Voith experts' technology and automation knowledge as well as industry-specific paper expertise.

The analysis and evaluation of the data results in individual, concrete recommendations on how to stabilize and increase machine efficiency. "The OnPerformance.Lab identifies optimization

potential and works proactively to solve problems," describes Ulrike Welp-Wallenmaier, Senior Manager Business Development at Voith. In this context, she highlights remote support as the most important service. "We monitor processes and see customer issues coming. Our algorithms sound the alarm as soon as any part of the process isn't running optimally."

The OnPerformance.Lab range includes services that help papermakers improve the availability, productivity and efficiency of their machines. These include, for example, the Datalytics service, which safeguards and increases added value through data-based availability and performance optimization. With intelligent visualizations and recommendations, the Smart Monitoring service helps customers optimize the productivity and performance of connected assets and machines. In the case of the Condition Monitoring service, the OnPerformance.Lab is used to derive concrete performance improvements from data-supported condition monitoring.

Customers can individually select the services they wish to take advantage of within the framework of a long-term service contract based on selected KPIs such as fiber consumption, grammage, moisture level and grade-change times. The services are available for the entire production line from stock preparation to winder and can be scaled as required. Customers do not have to invest in any hardware, which lowers the initial cost. All that is required is a VPN or cloud connection, as it serves as an interface to securely transfer machine and process data to the OnPerformance.Lab.

The OnPerformance.Lab will play a key role in the future if companies want to achieve further increases in efficiency through the digital transformation of existing processes. Operations will begin this year, and the expectations are high. "This remote service center will allow us to offer data-based remote services in order to significantly improve our customers' performance," says Peter Eisen, Vice President Digital Product Management at Voith Paper, underlining the company's goal.

A close-up portrait of a man with short dark hair and a mustache, wearing a white shirt and a dark jacket. The background is a solid blue color.

## The new e-learning platform supports companies in all sectors in qualifying their employees for the requirements of Industry 4.0.

Digitalization is not limited to technology. Employees also play a key role in the IT-supported optimization of all business processes. The digital transformation can only succeed if they have the necessary qualifications and continuously develop them. Companies therefore must promote the continuous training and further education of their staff. "A tool is needed to capture, learn, practice and teach the value of new digital technologies and the way they are applied in daily operations in all functions of the company," says Brent Ward, Sales Manager at Voith.

This is exactly where DRIVE (Digital Readiness, Ideation, Velocity and Engagement) comes in. The e-learning platform – developed by Voith in close cooperation with the Fraunhofer Institute – is aimed equally at beginners and advanced users. It teaches teams and individuals the basics of digitalization, while also providing modules with expert interviews for more in-depth content. It also provides support in familiarizing employees with the various topics and promotes the transfer of knowledge among colleagues, for example through message boards. Currently, the software can be used to learn more than 600 important digital applications.

**We have established a sustainable learning concept that we can continually enhance with new features.**

**Siddhartha Mishra**  
Director Projects  
Platforms & Services  
at Voith

# DRIVE digital readiness, innovation, and engagement

DRIVE is not a closed system and is not limited to individual industries. Customers can tailor the platform to their specific needs. As one of the first users, the U.S. paper producer Georgia Pacific, together with Voith, is currently developing individual learning paths for future professions. "What distinguishes DRIVE from other platforms we use is its versatility in creating and delivering our content," explains Ron Norris, Senior Innovation Leader Georgia Pacific Operations. "With DRIVE, we deliver content that provides employees with the context-related information when they need it, and in easily digestible segments."

This flexibility does not end with content and design. The learning platform is available in English, German, Chinese and Portuguese. And it is open in terms of hardware; DRIVE can be used on almost any device – from PC to smartphone and tablet to augmented reality glasses.

# demonstrates digitalization competence

For its entry into the growth market for recycled containerboard, U.S. paper manufacturer Domtar is counting on Voith technology to rebuild a production line and install a new stock preparation system.



Rebuild  
signals a  
new

direction



**Virtual Signing via video conference:**

- 1 Dr. Michael Trefz, President Division Projects Voith Paper
- 2 John Williams, President and CEO of Domtar
- 3 David Buchanan, President Voith Paper North America
- 4 Charlie Floyd, Vice President, Manufacturing Optimization of Domtar

Containerboard offers incredible growth prospects, especially in the U.S., where containerboard represents the largest pulp and paper market in North America, with a current volume of 40 million tons. It is a market that is growing by about 2 percent, or 800,000 tons, every year. Domtar aims to utilize this huge potential by rebuilding a production line at its mill in Kingsport, Tennessee. In doing so, it is relying on Voith expertise for both the rebuild of the existing paper machine and the installation of a new BlueLine stock preparation line.

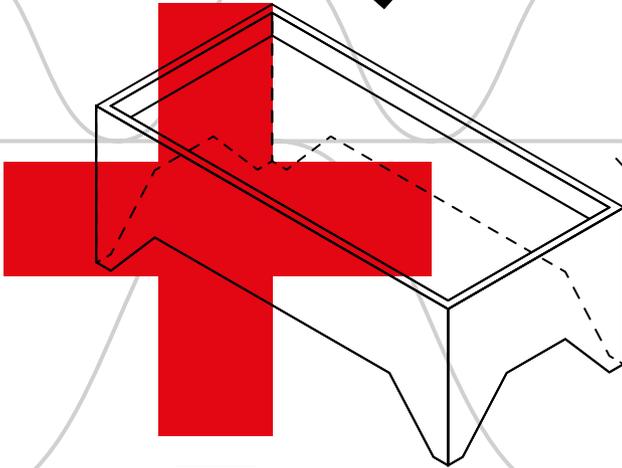
“Voith is an ideal partner for this project, because as a full-line supplier, it is able to cover the entire scope of supply from raw material receipt to finished product,” explains John Williams, President and CEO of Domtar. The paper manufacturer has ambitious goals in conjunction with the conversion. The Kingsport Mill will become North America’s premier lightweight containerboard facility – able to produce and market about 600,000 tons of high-quality, recycled linerboard and corrugated medium annually. That level of capacity will make Kingsport the second-largest recycled containerboard machine in North America. The machine will not only impress in terms of capacity but will also set industry benchmarks for strength and convertibility.

The new BlueLine stock preparation line, including water, sludge and reject handling systems, will play a key role in maximizing efficiency and improving the quality of the finished product. It will help Domtar to process recovered fibers of the highest quality while minimizing water and energy use and, at the same time, improving runnability and system reliability.

The conversion project is not the first time the two companies have worked together. “Domtar and Voith have a longstanding relationship in many areas, but this is the first project of this size, and we are excited to partner with them as they enter the containerboard market,” said David Buchanan, President, Voith Paper North America. Bolstered by the past experience of working together, the project partners have set an accelerated timeline for the installation of the new stock preparation system and the conversion of the machine.

# Q

**Sustainable emergency solution**  
AidBoards made of corrugated cardboard have a better ecobalance than classic camp beds.



# A

## Board to help in disaster relief

**Flexible, robust – and made out of cardboard: With paper-based camp beds, a research project run by the Dresden University of Technology wants to help people in emergency situations like natural disasters. Project Manager Sven Grasselt-Gille explains the purpose and design.**

**When natural disasters occur, emergency shelter is needed. What gave you the idea of developing corrugated cardboard camp beds for this?**

First and foremost, we wanted to design beds for patients in field hospitals. This evolved into the concept of the AidBoard, a disposable camp bed as a transportable kitset made from renewable resources. Corrugated board is very well suited for this purpose.

**What can your AidBoards do better than typical camp beds?**

They can be manufactured cost-effectively in Europe, unlike conventional products from the Far East, which also reduces response time in the event of a disaster. This type of equipment usually has to be disposed of after use, so attempts are often made to burn the rubbish. This also works better with corrugated board camp beds and leaves a much smaller carbon footprint. How do you guarantee their strength when wet? The bed frames are protected at the foot end by a latex top-coat. We also had to rethink having a pure paper solution for the cover and now use an exchangeable textile reinforcement made out of more resistant natural fibers.

**Why don't you use wet-strengthened additives, for example?**

We have focused firmly on using renewable resources. In order to keep the product cost-effective, we experimented with coatings and the like for the areas with a high risk of moisture only. In practice, commonly-used additives and coatings could become interesting, especially if humidity reduces the load-bearing capacity of the AidBoards too much. We are currently analyzing climate tests in this regard.

**Is recycling the AidBoards part of your concept?**

Where possible, AidBoards should be recycled, which was one of the reasons for designing them as a single-material solution. Irrespective of the availability of a recycling system, burning them for medical reasons is an important option. Due to their logistical advantages and renewable materials, AidBoards lower the carbon footprint of camp beds by 86 percent compared to current products, even if they are burned.

**Your research project has now concluded. Have aid organizations already inquired about AidBoards?**

Funding by the German Federal Ministry of Education and Research for almost three years was a strong expression of interest. During this period, we had considerable demand from aid organizations, for example, from the German Red Cross and the Technisches Hilfswerk civil protection organization.

**Are there any plans for industrial production?**

One project partner committed to commercial use early on and founded a company for this purpose. Aside from that, the Dresden University of Technology is continuing with its development and is looking for industry partners. We are continuing to design corrugated board products for a wide range of applications and are also working on the standards for them. We therefore have high hopes for the development of bio-economic approaches that are also increasingly important in the training of our wood and paper engineers.

**We make  
our world  
better**

**with  
paper!**

**VOITH**