P3
Paper Print Packaging

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1./2.2021

→ EMAS

Certified Environmental Management at Kelheim Fibres

→ ANDRITZ

TwinFlo Prime – a Brand-New Development in LC Refining

→ EMOTET & CO.

Risks and Impacts of Malware in Industry

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News powered by Druckspiegel, Paperazzo und ipw + biofibre magazine

If architects built the way some programmers make their programs, a single woodpecker could destroy entire cities.
(Author unknown)

Dear Readers,

there are a number of topics that are often neglected in the relevant trade journals, and for a simple reason: They somehow affect the industry, but not in a specific enough way to deal with them in the given narrow context. To dismiss them as marginal phenomena, however, would be completely wrong; they often go along with effects that may threaten the existence of a company or at least mean serious damage and loss of confidence.

In addition to all the problems that concern us in everyday life, the past few months have also seen a significant increase in cybercrime. We are not only talking about frequent spam attacks, dubious million profits and counterfeit pharmaceuticals, but also about serious malware attacks on production processes in companies. The associated blackmail, because nothing less is at stake here, can bring companies to the limit of their resilience – or even beyond. 96 percent of all German companies have already been the target of a business-damaging attack from the Internet – this is evident from the Forrester Cyber Risk Report 2020. The increased susceptibility arises from the high degree of automation and an increasing convergence between IT and OT. In this issue, we let an expert have his say: Daniel Kapellmann Zafra from FireEye shares his background knowledge and provides information on the systemic causes of the increasing ransomware threats, the dangers that come with it – and fundamental solution paths. In any case, companies in the paper, printing and media industries should seriously deal with this problem – although or precisely because it is not one of their core processes.

Have a great read!

Stefan Breitenfeld

Stefan Breitenfeld
Editor-in-Chief

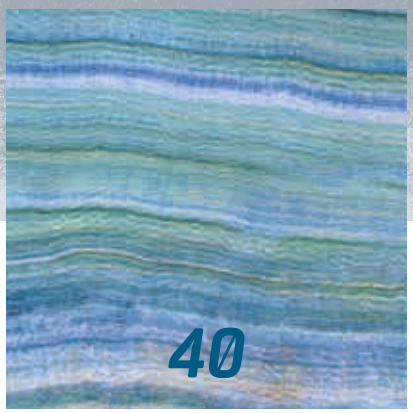
Coverphotos: Maik Brummundt / JJ Ying via Unsplash | Photo: private

P3
Paper Print Packaging
» Paperazzo
» Druckspiegel
» ipw bio-fibre MAGAZINE
1./2.2021

06
Arena
News, People, Facts

16
Focus On
TwinFlow-Prime

28
Interview
Ludwig Allgoewer



40
Special Paper
Trends in the Wallpaper World

42
Kodak
Goodbye Complexity

18
TU Chemnitz
Surround Sound from Speaker Paper

Photos: Texon, Andritz, Heidelberg, Printtextures, Kodak, Jacob Müller

1.
Paperazzo reports about diverse types of paper, discerning finishing and printing processes. It is the trade magazine for paper decisionmakers, print buyers, creative printers, agencies, publishers and producers of branded goods.

2.
Druckspiegel is the leading trade magazine for decision makers in the print and media industry operating in the German-speaking area. It reports about the most important technical and economic developments in the industry.

3.
ipw reports on pulp & paper producers, their suppliers and international activities as well as sustainability. bio-fibre magazine covers new kinds of paperlike materials and biocomposites or bioplastics based on wood fibres.

03 Editorial
06 Arena
10 Morgue
11 Paperthing

The Unusual Print Product

12 José Manuel Ballester Reinterpretes Picasso's Guernica

Research & Innovation

14 Deepening Research and Student Co-Operation
15 Surface Analysis at the Highest Level

Focus On

16 Development in LC Refining

EU Policy Update

17 Better Environmental Impact Than Reusable Packaging

Trends & Practice

18 Image Format With Charisma

Sustainability

20 dvi Survey
22 Green Gluing: Rethinking Sustainability

Management & Marketing

26 Risks and Impacts of Malware in Industry
28 "Everything has to Work Together Perfectly in the Overall Process!"
32 Flint Group Consolidates Flexographic Prepress
34 "We Will Continue to Pursue this Path!"

Concepts & Solutions

36 Certified Environmental Management at Kelheim Fibres
38 Walki Partner With Greycon for Groups new Global IT Solution

Special Paper

39 Metapaper: New Sample Book
40 Trends in the Wallpaper World

Printing Technology

42 Say Goodbye to Complexity!

Education Gap

44 Register Accuracy

Research & Innovation

45 Surface analysis at the highest level
46 Surround Sound From Speaker Paper

Standards

48 Imprint / What's next?
49 Professor Paper
50 Directory

Sie finden uns auch hier: *www.druckspiegel.de* *www.ipwonline.de* *www.paperazzo.de*

Valmet

Container Board Making Line for Shanying Paper

Valmet will supply a new OptiConcept M container board making line with extensive packages of automation and services to Shanying Paper, Guangdong at its Zhaoqing mill in China. The new board making line (PM 53) will produce test liner grades and continue the expanding of Shanying Paper's business in Guangdong area. The start-up of PM 53 is scheduled for the first quarter of 2022.

The new order of PM 53 is following Valmet's OptiConcept M board making line deliveries of PM 52 to the same site, which was announced in October 2020, and Shanying Huazhong PM 21 and PM 23, which have already been started up. In addition to these, Valmet has supplied six other board making lines to Shanying International. \\\

Smurfit Kappa

New Compact Film

Smurfit Kappa Bag-in-Box makes another step towards circular economy and reduces the amount of plastic used to manufacture bags by introducing the new light 60-micron EVOH film – E Compact 60.

The development process for this film took more than a year, and before giving final approval for use, Smurfit Kappa applied its strict qualification criteria in order to guarantee the film's exceptional mechanical and barrier properties, to an even better than market average requirement.

This new solution is based on new PE resin technologies that are more resistant and thus allow for more sustainable packaging without any compromise on productivity and consumer convenience.

Due to this innovation, Smurfit Kappa has achieved a 16 percent bag weight reduction and 12 percent less of CO_2 emissions (estimated for the 3l bag format with the Vitop® Compact tap).

Commenting on the developments, Thierry Minaud, CEO of Smurfit Kappa Bag-in-Box, said: "Bag-in-Box® is an environmentally friendly solution containing less plastic than other liquid product packaging. We are constantly working on our materials and technologies to make our packaging most sustainable. Smurfit Kappa Bag-in-Box has already made significant improvements in the area of plastic weight reduction, and showed 15 percent film thickness decrease in the last 15 years."

"Launch of the Vitop® Compact tap has also contributed positively and enabled 2.7 tons of plastic saving per 1 million bags. Reducing materials goes hand in hand with other environmental benefits: fewer trucks and lower CO_2 emissions, less waste, less storage space." \\\

Körber Tissue

New Chief Sales and Marketing Officer

Mauro Luna has been appointed Chief Sales and Marketing Officer at Körbers Business Area Tissue and will report directly to Chief Executive Officer Oswaldo Cruz. He joined the company in 2019 as Global Head of Sales at the Körber Business Area Tissue, and will now also be in charge of marketing.

The tissue industry is facing unprecedented pressures, accelerated by the global situation this past year; they are changing the way we sell to, relate to, and support customers. The unification of the Sales and Marketing departments under the same leadership and strategy will lead to greater flexibility and efficiency in managing customer requests.

After graduating in Mechanical Engineering at the University of San Paolo in Brazil, Mauro Luna completed his studies by attending a course in Marketing at the University of Berkeley in California and a Master of Business Administration in Brazil. He developed his career in Sales, starting as Sales and Application Engineer with Voith Brazil and, in the following years, worked as Sales Director, Marketing and Business Development with SKF, where he had the opportunity to take the role of Chief Executive Officer at SKF's branch in Peru. His last job was as Commercial Director for Amcor Rigids Plastics. \\\

Forest Owners

Södra is Sweden's Most Sustainable Brand

Södra is Sweden's most sustainable brand in the industry category "forest owners", as shown by the Sustainable Brand Index. On the full list of sustainable brands in Sweden, Södra has climbed almost 50 positions from 81 to 35 compared with the previous year.

"It feels great and gratifying to receive this recognition for our hard work," said Kristina Altner (photo), sustainability manager at Södra. "This study is proof that we are on the right path. We have high ambitions regarding sustainability and want to be part of the transition to a fossil-free society. \\\

Photos: Smurfit Kappa, Valmet, Körber, Södra, Texon, Andritz, Tresu

Andritz

Chip Washing and Refining System for Lelin Group

International technology Group Andritz has received an order from Guangxi Chongzuo Lelin Forestry Development Co. Ltd. to supply a chip washing system and pressurized refining system for its production line near Chongzuo in Guangxi province, China. With a design capacity of 80 bdmt/h, this will be the largest MDF line ever installed worldwide, according to Andritz. \\\

Texon

Sustainable and Vegan-Friendly Leather Alternative

Texon has seen a significant uplift in interest in its paper-based Texon Vogue material over the last five years, which it attributes, in part, to the increasing number of people becoming vegan. Around the world a growing number of people are adopting plant-based diets. The United Nations estimated that in September 2020 there were around 78 million vegans worldwide. This increase is driving demand for vegan-friendly food, but also consumer goods including footwear and bags. According to The Vegan Society, the vegan leather market is set to overtake the animal leather market by 2025 and will be worth nearly $90 billion.

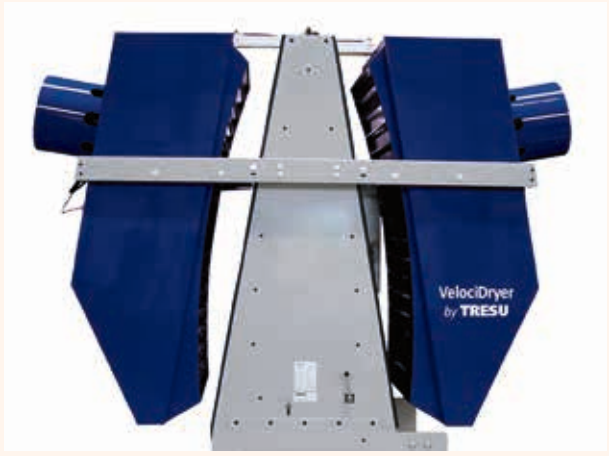
Texon Vogue is a vegan friendly material that is widely recognized as a sustainable, viable alternative to leather. Made from 100 percent natural cellulose fibre, this durable, practical, washable material was first launched in the late 1980s, as Texon T484. Originally developed for the manufacture of jeans labels, the Texon Vogue range has subsequently grown and is now used by many world leading designers and fashion brands to create bags, luggage tags, jacron labels, stationery items, home furnishings and more.

Based on 100 percent FSC cellulose wood pulp, Texon Vogue is produced using efficient, eco-friendly production and finishing methods. Certified to Class 1 Standard 100 by OekoTex, the material is free from harmful substances and has outstanding environmental credentials. \\\

Ahlstrom-Munksjö

Custom-Designed Coating Line

Tresu received an order for a fully customized coating line for formaldehyde-free coating from Ahlstrom-Munksjö in Sweden. This important project is for a special solution made possible by Tresu's knowhow and experience in building high-performance coating lines. Tresu's technology, such as the Veloci-Dryer™, developed and refined through 40 years of engineering, will enable Ahlstrom-Munksjö to manufacture formaldehyde-free balancing and finish foils for furniture, as well as to the building and construction industries.



The Veloci-Dryer™ technology delivers the drying capacity required by Ahlstrom-Munksjö for high-speed production of formaldehyde free coating. In addition, the new coating line will also reduce CO_2 emissions by an estimated 20 percent. The project is expected to increase the plant's manufacturing capacity and allow expansion into new geographical markets.

"This investment will enable us to offer more sustainable coated paper and unbleached pulp products for our customers and extend these capabilities to new customers and market segments worldwide," said Eva Thunholm, vice president, insulation business, Ahlstrom-Munksjö. "I am equally excited that it will contribute to our group target of reducing carbon dioxide emissions and enable us to abandon the use of formaldehyde, which will also improve the safety of our employees."

"We are happy when our technology can help our customers. In this case we are building a complete coating line using our Veloci-Dryer™ technology to solve a specific coating challenge with high demands for the drying capacity requested by Ahlstrom-Munksjö" said Ronni Nielsen, vice president, Tresu Solutions. "We are looking forward to this cooperation and are immensely proud to be a part of a brand-new, sustainable coating solution. Our involvement in a first-mover sustainable project like this is a win-win for all." \\\

Afry

Acquisition of ProTAK

To expand the digital offering for process industries, Afry acquires the Swedish company ProTAK. ProTAK's web-based software for production optimisation supports Afry's strategic ambition within digitalisation and sustainability as well as strengthens the Afry Smart Site digital product portfolio further.

The software is designed for production process continuous improvement and aim to increase production efficiency. It measures the effectiveness of industrial plant's machines to enable analysis and optimisation of the production processes. Together with Afry's production support software Afry Pulse, this will improve the process industry customer production even further. Afry and ProTAK see great potential to create new digital concepts and offerings to meet future needs.

"There is a strong demand for digital solutions within the process industry sector to reach sustainability goals by improved production efficiency. With this co-operation, we can jointly develop our offering further to support our customers even better in this constantly changing environment. We see great potential and synergies by combining the expertise and digital offering from both companies," says David Andersson, Manager of Business Unit Digitalisation, Afry Process Industries in Sweden.

"Becoming part of Afry gives us better conditions to further develop our product and expand our offering also to global clients. We have developed the digital offering and are now ready to take the step to the next level. We look forward to the opportunities we can create together," says Per Gannå, CEO at ProTAK. \\\

SA International

Drivers for HP Latex 700 and 800 Printers

SA International (SAi) has announced that they now offer certified drivers for the new HP Latex 700 and 800 Latex Printers. The Flexi RIP design and print software enables customers to fully utilize the advanced new features of the HP printers, including multi-layer printing. SAi Flexi will also separate layered PDF files into separate pages for printing. With an integrated HP online media library, users can view and download the latest media and print modes directly to their printer, which auto-synchronizes with Flexi creating a seamless workflow. \\\

Avery Dennison

Label-Liner Recycling Program in Europe

As part of its ongoing efforts to help establish a circular economy, Avery Dennison announced the launch of AD Circular, a comprehensive program providing recycling of used paper and filmic label liners in countries across Europe.

Through the program, companies can simply use an online web application to schedule a pickup of used label liners by Avery Dennison to one of its recycling partners. The web app also provides useful data in the form of regularly updated analytics and certificates on the amount of recycled liner material, the amount of CO_2 emissions they've avoided as a result, and more. Collection and transport of used liners through AD Circular will comply with EU regulations, and the costs will be comparable to existing waste disposal services.

"Companies in Europe consumed some 470 kilotons of label liners in 2019, yet just over a third were recycled," noted Burak Sahbaz, senior director marketing & sustainability, citing statistics from AWA, a label industry consulting firm. "Landfilling or incinerating that many liners, and using all that material only once, is not environmentally sustainable, and runs contrary to consumer expectations and the spirit of European regulations establishing a circular economy. By working in collaboration with recyclers, our peer companies, and the brands that use our materials, we believe AD Circular is a big step forward in reducing and eventually eliminating label waste."

AD Circular will launch in eight countries during the first half of 2021, including France, Spain, Belgium, Poland, Denmark, Sweden, Germany, and the UK. The program will then launch in other European countries in the latter half of the year. Mr. Sahbaz said the program's ultimate goal is by 2025 to recycle 75 percent of the label waste Avery Dennnison brings to the European market. Recycling 1 kilogram of liner avoids the emission of 2.28 kilograms of carbon dioxide, he noted. \\\

Photos: SAi, Afry, Avery Dennison, SIG, Heidelberg, Voith

Heidelberg

Print Site Contract for Williams Printing

U.S. printer Williams Printing (WPI) recently built a 20,000-square-foot production facility in Rural Hall, North Carolina. Rather than relocate its older equipment to its new plant, WPI decided to invest in a complete, updated solution from Heidelberger Druckmaschinen AG (Heidelberg). This covers everything from prepress and press to postpress, with a new Suprasetter 106, volume-based Prinect Production Manager software, a Speedmaster CX 75-5+L complete with Saphira consumables, a Versafire EP digital printing system, and a POLAR jogger and stacker. \\\

Voith

Paper Webshop Enters North East Asian Market

Since the middle of last year, the Korean paper manufacturer Moorim P&P has been using the Voith Paper Webshop to order spare and wear parts online and thus is the first customer from NEA using the e-commerce solution from Voith. Paper machines have tens of thousands of technical components, and parts ordering from an open catalog can often be very time-consuming and is a significant cost factor. The advantages of ordering around 130,000 directly available components easily around the clock, seven days a week, and meeting the regional needs, has driven Moorim P&P the Webshop's 100th customer globally.

Voith's e-commerce platform offers an easy way to purchase replacement parts to reduce order lead time. It provides all information about a machine part, from the original delivery to the order history and operating instructions, to be viewed at a glance. Besides, the seamless integration of the Webshop into the customer's ERP system allows ordering and order processing to be realized effectively without system interruptions. In this way, it significantly reduces administration effort. Order history and tracking are rendered transparent, the ordering process is easier to plan, simplified for all participants, and can be customized.

Ever since its launch in 2017, the Voith Paper Webshop has been a success and worldwide more than 120 paper industry companies are using this e-commerce tool from Voith's digital portfolio. The platform is an elaboration of Voith's Papermaking 4.0 portfolio – providing all-around service with intelligent solutions that meet the customers' requirements.

With Moorim P&P, the Voith Paper Webshop successfully entered the local market. Further customers from Asia are already planning to use the Webshop and the platform is now available in Japanese language. The localization and customization of the platform meets the individual customer requirements and further opens new market opportunities. \\\

Responsible Sourcing

SIG Joins AIM-Progress

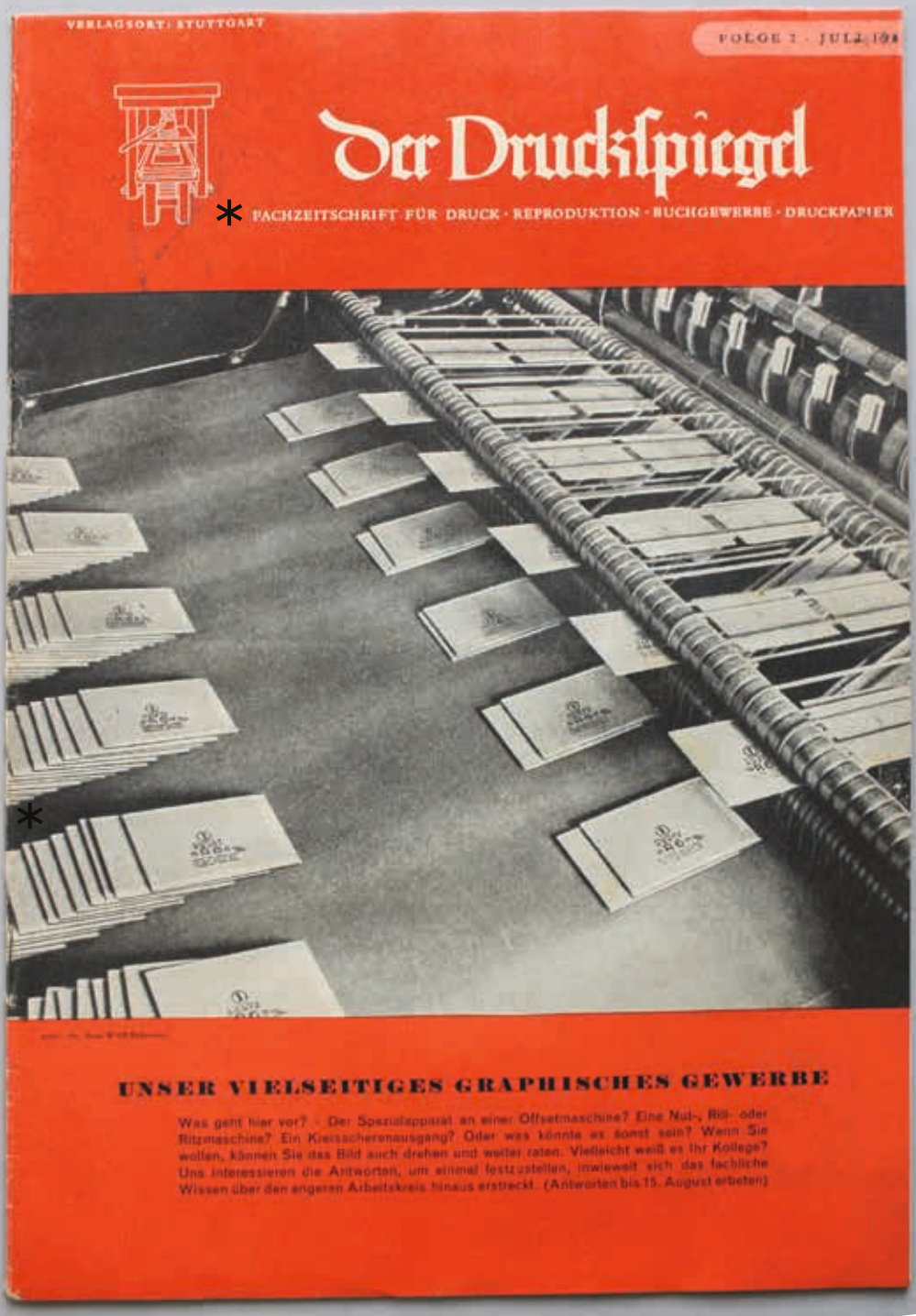
SIG has announced that it is the first in the beverage carton industry to become a member of AIM-Progress, a global forum of leading fast moving consumer goods (FMCG) manufacturers and common suppliers, assembled to enable and promote responsible sourcing practices and sustainable supply chains. "Sourcing responsibly is central to our Way Beyond Good ambition to deliver positive impacts for people and the planet," said Samuel Sigrist, SIG CEO. "By joining AIM-Progress, we are opening up new opportunities to build strong partnerships with customers. Together, we will lead the way in ensuring respect for human rights and driving positive impacts through the value chain."

Responsible sourcing has been a key pillar of SIG's net positive ambition to go Way Beyond Good for society and the environment since the outset. This commitment is closely aligned with AIM-Progress' focus on collaborating for positive impact through responsible sourcing, making membership a natural fit.

The goal of AIM-Progress is to positively impact people's lives and ensure respect for human rights, while delivering value to its members and their supply chains. A priority is to build members' and suppliers' capability to adopt and implement the UN Guiding Principles for Business and Human Rights. With solutions from SIG, customers can clearly demonstrate that their packaging comes from responsible sources. \\\

FLASH BACK

We do open our morgue and look back … here another issue of Druckspiegel from 1947.



* „Fachzeitschrift für Druck, Reproduktion, Buchgewerbe, Druckpapier"
(Photo: Dr. Paul Wolff Tritschler)

Photo: Maik Brummundt

SCRATCH LOVE
Cats love the scratchfurniture from corrugated cardboard, hand-made in Berlin.
www.cat-on.com

Paperthings

Photo: Cat-on

1

Estudios Durero & Durst

José Manuel Ballester Reinterpretes Picasso's Guernica

A world-famous painting reworked by celebrated Spanish photographer and artist José Manuel Ballester and printed by Durst was the star attraction at a special exhibition.

For the first time, a modified Guernica - originally painted by artist Pablo Picasso - has been printed full-size using advanced digital printing and production technologies from Durst.

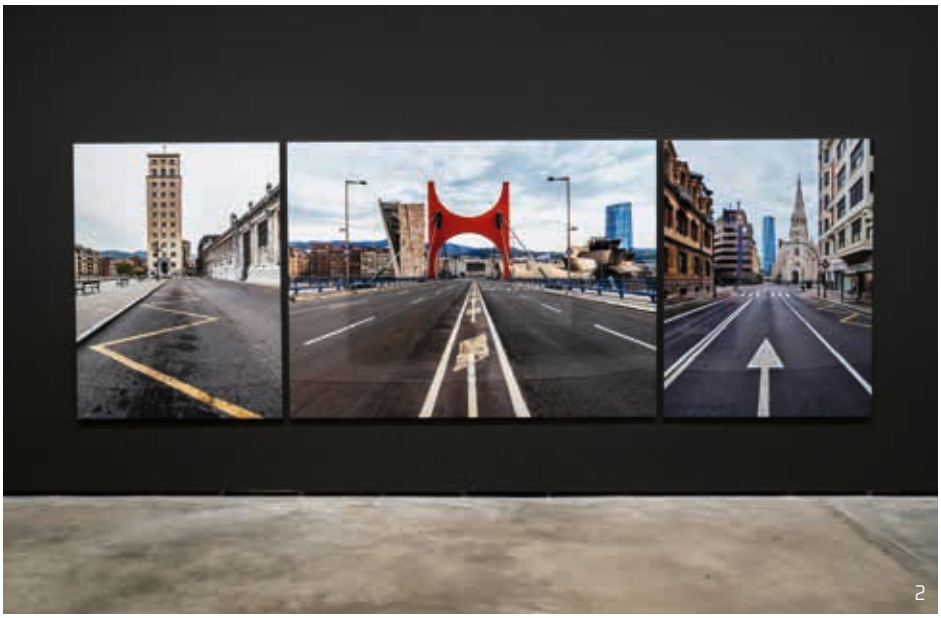
Mr. Ballester has achieved international recognition for his special art of interpreting famous paintings by eliminating humans and animals. Guernica is a 1937 oil painting on canvas recognized as one of the best-known works of Picasso, who died in 1973. It is regarded by many art critics as one of the most moving and powerful anti-war paintings in history.

Mr. Ballester's work, "Around Guernica, 2009/2020", is an emptied version of Picasso's painting that conveys an updated look at the historical event and human tragedy. It was a centerpiece at the exhibition, "2020/03/15 José Manuel Ballester", in the Guggenheim Museum Bilbao, showing Bilbao city during the lockdown. The exhibition also included a selection of large-format photographs that reflect Bilbao's deserted streets and spaces.

With "Around Guernica", Ballester adds a new artwork to the project that began more than 10 years ago, when he decided to investigate the architectural and natural spaces that surround the stories of some of the most important works in history, such as "The Meninas" or "The Garden of Earthly Delights". During the lockdown last spring, the artist received special permission to move around the deserted city of Bilbao and capture incredible landscapes and images never seen before.

These images were the first step of a project in collaboration with Estudios Durero and the Guggenheim Museum Bilbao, which culminated in a photographic exhibition, publication of a book, and the first reproduction and exhibition of "Around Guernica" to the public. In this way, Ballester adds an artwork to the Hidden Spaces project, which includes some of the transcendental and universal themes for the human being. Along with his proposal "May 3, 2008", "Around Guernica, 2009/2020" addresses the nonsense of human violence and wars, but on this occasion, Ballester maintains a "living" element: the flower that was already shown in the original painting, and it symbolizes hope, also for these difficult times that we have had to live.

Photos: Durst



1 José Manuel Ballester with the reworked Picasso Guernica printed by Durst to give 'true arts value'.

2 Images of Bilbao during lockdown at the exhibition captured by José Manuel Ballester.

3 Another image at the exhibition captured by José Manuel Ballester.

In this context, The Guggenheim Museum Bilbao approached long-standing Durst customer Estudios Durero, a company that "imagines, creates and develops new forms of graphic production", to print the reworked Picasso on a unique, hand-woven linen material with special white coating supplied by the museum, especially for the assignment. It had a total dimension of 3.5 x 7.8 meters.

Estudios Durero and Mr. Ballester spent a day in the Customer Experience Center at the Durst headquarters in Brixen, Italy, with the goal to print the Picasso Guernica interpretation on a Durst Rho 512 six-color machine. And they only had one chance – the available material was sufficient for only one print run, which meant no test print on the final material was possible.

"It has been a true honor for us and for Durst to develop this special project together with José Manuel Ballester and the Guggenheim Museum Bilbao," said the owner of Estudios Durero, Ander Soriano. "No other company could have done it. In Picasso's original work and in Ballester's reinterpretation, the painting only uses a very wide range of grays and a very high resolution in all its shades, so the print quality must be exceptionally high to offer a true value to its reproduction. And that would have been impossible without the Durst Rho 512 6 C."

With reference to Durst, Mr. Ballester said: "In order to launch this project, in this context, we have had many collaborators. Having the best technology to make this possible was a privilege."

Rafael Carbonell, Managing Director, Durst Iberica, said: "Estudios Durero has been a loyal customer and it was a real honor for Durst to support the Guggenheim Museum Bilbao in this special project. When you are printing only black, gray, and white, the quality needs to be exceptionally high to give arts its true value."

Christian Harder, Durst Group's Head of Graphics, said: "In conjunction with Durst Iberica, we were extremely proud and delighted to welcome Mr. Ballester and Mr. Soriano to our global headquarters where they were able to witness first hand our world-class facilities and technology. The unique linen materials were specially prepared for this art print. In reality that meant one chance, no test printing. And the results speak for themselves. The visitors to the museum exhibition have been amazed at the outstanding print quality." |||

Anne Toppinen, Director of HELSUS Institute for Sustainable Science (on the left), Ilkka Hämälä, President and CEO of Metsä Group, and Sari Lindblom, Rector, Univeristy of Helsinki, announce the partnership agreement at Tiedekulma.

Metsä Group

Deepening Research and Student Co-Operation

Metsä Group and the University of Helsinki have entered into a partnership agreement for co-operation in academic research and teaching of developing and responsible forest industry. The aim is to effectively bring together the latest scientific knowledge and business needs.

bio-fibre MAGAZINE

The objectives of the co-operation are to ensure future skills and the employability of experts, to solve technological and sustainable development related challenges, and to promote sustainable forestry by supporting the production and application of new research data.

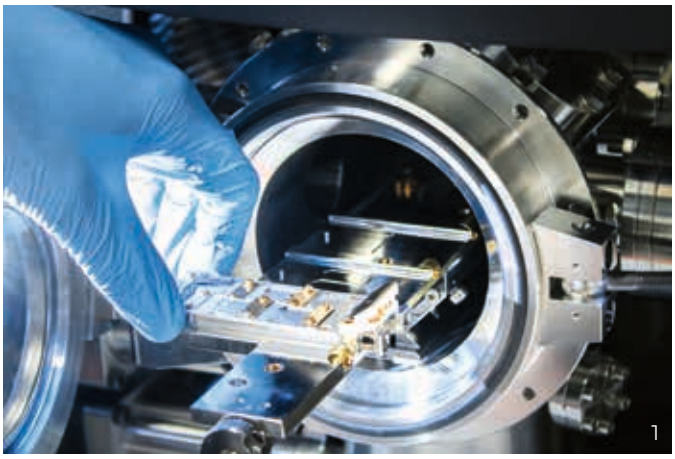
"We want to work together to develop solutions for the sustainable use of renewable resources. In the spirit of continuous learning, we will strengthen our skills and abilities and better integrate students into our co-operation," comments Ilkka Hämälä, President and CEO of Metsä Group.

Through active co-operation, students' thesis and internship opportunities at Metsä Group will be improved and co-operation related to teaching between the university and Metsä Group's experts will be deepened. Training opportunities related to Metsä Group's personnel's development are also being considered as part of the partnership.

Research collaboration is carried out on a long-term and coordinated basis as separate project entities. Research in the framework of the collaboration will focus on sustainable forestry, ionic fluids and circular chemistry, as well as food packaging.

"Together with Metsä Group, we want to create new knowledge, strengthen our expertise and train future experts who support our society's ability to solve sustainability challenges. The conclusion of the agreement is part of the university's new strategy, which states that the university wants to be a pioneer in responsibility and sustainability and to promote business cooperation and innovation. Long-term business partnerships are a good tool here," says Sari Lindblom, Rector of the University of Helsinki. |||

Photo: Veikko Somerpuro



1 With most modern techniques for the production and analysis of functionalized surfaces, Fraunhofer IAP supports customers and partners from a wide range of industries in the development of products.

2 Dr. Andreas Holländer, expert in surface analysis and functionalization at Fraunhofer IAP.

Polymer Research

Surface Analysis at the Highest Level

Only a few atomic layers determine whether a surface is water-repellent, printable, paintable, adhesive or antibacterial. The surface of many products is therefore specifically modified.

Thanks to a new X-ray photoelectron spectrometer, the Fraunhofer Institute for Applied Polymer Research IAP can now analyze surfaces even more precisely, which is helpful when developing a process or determing sources of failures. Companies and partners benefit not only from the new analytical capabilities at Fraunhofer IAP, but also from the extensive expertise in material development, which facilitates the interpretation of data and the tuning of a manufacturing process.

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A label does not adhere well, the glued joints on furniture fail, varnish comes off the substrate or a product has unwanted stains – when this happens, the failure analysis begins for the manufacturer. However, it affects production and costs money and time. That's why it is important to identify defects quickly and find targeted solutions. Often, there are impurities on the surface, the source of which must be identified; but deviations in the material composition on the surface, of components, or even unwanted chemical reactions due to external influences can also be the cause of a defect. In order to understand the interrelationships and mechanisms that lead to these defects, high-performance analytical tools must be used on the one hand, but in-depth knowledge of materials and the production process must be available on the other. The surface experts at Fraunhofer IAP are masters of both.

Effective combination: Analytical competence meets knowledge of materials

A special expertise at the Fraunhofer IAP is the chemical functionalization of surfaces. It is an indispensable basis for many products. Knowledge of the structure of the uppermost atomic layers is a prerequisite for the development of materials, products and technologies, and ultimately also for identifying defects.

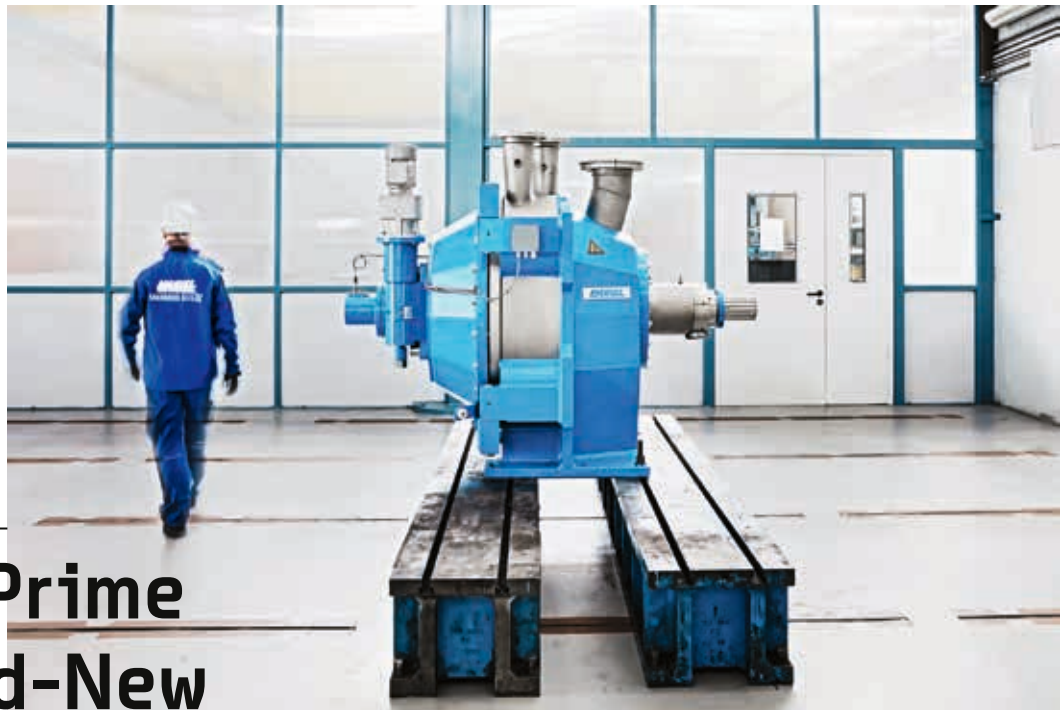
Among other things, the researchers are using a new, state-of-the-art X-ray photoelectron spectroscopy (XPS) instrument - an extremely powerful tool for analyzing surfaces. The method, also known as electron spectroscopy for chemical analysis (ESCA), now enables Fraunhofer IAP to provide an even better quality of chemical structure analysis of surfaces than before, thus reaching a new level in research and development as well as in troubleshooting.

"When our customers and partners address us about the development of new products, we combine all of our expertise to master what are often very complex challenges", says Dr. Andreas Holländer, an expert in surface analysis and functionalization at Fraunhofer IAP. "Our advantage here is that we combine a wide range of analysis techniques with a comprehensive understanding of materials, across all departments of the Fraunhofer IAP. This allows us to deliver a particularly well-founded range of solutions, even for complicatedapplications. Troubleshooting, but also the development and optimization of a manufacturing process, is always part of our solution package", says Holländer.

Institute Director Professor Alexander Böker adds: "Surface functionalization and analysis is one of our core competencies. Coupled with the versatile expertise of Fraunhofer IAP scientists in polymer research, biology, interfacial chemistry, surface and process engineering, this results in a cross-institute problem-solving pool from which companies in a wide range of industries benefit - from the packaging industry to the electronics sector to medical technology." ||| **Julia Consten**

[1] Overall equipment effectiveness (Anm. d. Red.)

Photos: Fraunhofer IAP



Andritz TwinFlo Prime LC refiner.

Andritz

TwinFlo Prime – a Brand-New Development in LC Refining

International technology Group Anritz has launched the latest innovation in low-consistency refining – the TwinFlo Prime refiner, combining concentrated performance in a very compact design.

The TwinFlo Prime builds on the success of more than 2,000 LC refining plants from Andritz operating all over the world. The newly developed LC refiner combines the well-proven basic principles of the current Andritz TwinFlo refiner with the higher energy input possible, reduced maintenance needs, and increased refiner plate lifetime.

The Andritz TwinFlo Prime features the following innovations:

- **Fixed connection between rotor and shaft.** Both components move together in axial direction. There are no impediments to axial movement in the process area because this movement is transferred to the coupling via the bearing unit.
- **Hydrodynamic, water-lubricated plain bearing.** This bearing technology makes the extremely compact design of the new LC refiner possible and enables the rotor and shaft to float freely in axial direction. This leads to a 30 percent reduction in refiner length and a gain of up to 25 percent in energy input – with the resulting higher performance – compared to the current TwinFlo refiner.
- **Reduced wear on refiner plates.** Optimum pulp flow to each refining zone eliminates uneven wear on refiner plates and provides longer plate lifetime as well as reduced maintenance costs.
- **Advanced operating conditions.** The new LC refiner is environmentally friendly, operating without oil, and features a special damping device to ensure excellent refining results as well as safe operation.
- **Versatile in application.** The TwinFlo Prime is suited to all LC refining applications regardless of the raw materials and process set-up used.

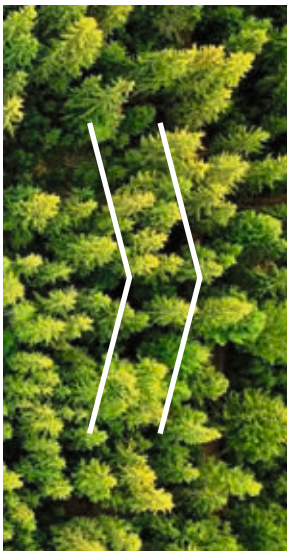
Markus Pichler, Vice President of the Mechanical Pulping, Paper, Fiber and Recycling Division at Andritz: "The challenges and demands of our customers have always been at the forefront of our research and development work. That's why we are especially proud to present our new LC refiner, which offers extensive solutions to meet these demands. I am convinced that the new TwinFlo Prime is the right way to achieve our customers' high performance goals."

Information on the TwinFlo Prime is available at: andritz.com/tf-prime. |||

Andritz Pulp & Paper

Andritz Pulp & Paper provides equipment, systems, complete plants and services for the production of all types of pulp, paper, board and tissue. The technologies and services focus on maximum utilization of raw materials, increased production efficiency and sustainability as well as lower overall operating costs. Boilers for power generation, flue gas cleaning systems, plants for the production of nonwovens and panelboard (MDF), as well as recycling and shredding solutions for various waste materials also form a part of this business area. State-of-the-art IIoT technologies as part of Metris digitalization solutions complete the comprehensive product offering.

Photo: Croce



New study

Paper-Based Single-Use Packaging: Better Environmental Impact Than Reusable Packaging

A new Life Cycle Assessment (LCA) study[1], conducted by engineering consultancy Ramboll for the European Paper Packaging Alliance (EPPA) demonstrates the significant environmental benefits of single-use products compared to re-use systems particularly in saving carbon emission and freshwater consumption.

The LCA compares the environmental impact of paper-based single use packaging with the footprint of reusable tableware in Quick Service Restaurants across Europe. The study takes into account a comprehensive use of 24 different food and beverage containers in Quick Service Restaurants namely cold/hot cup, salad bowl with lid, wrap/plate/clamshell/cover, ice cream cup, cutlery set, fry bag/basket fry carton.

According to the baseline scenario, the polypropylene-based multi-use system is responsible for generating over 2.5 times more CO_2 emissions and using 3.6 times more freshwater than the paper-based single-use system. The reason for this is that multi-use tableware requires significant amounts of energy and water to be washed, sanitized and dried.

"When looking at different materials and value chains, sustainability requires a comprehensive and open-minded approach. Politicians and industry leaders need to take decisions based on scientific insights rather than beliefs and assumptions. It might seem counterintuitive at first, but the Ramboll study clearly shows that some sustainable single-use products made of paper are indeed better for the environment than reusable plastic ones. We hope that this study will help the European Commission to prepare fact-based policy measures in 2021, namely in the framework of the expected Sustainable Products Initiative," commented, Ignazio Capuano, Cepi Chairman and CEO of Burgo group Spa.

"We know that climate change is the greatest challenge of our times, and that we all have a responsibility to minimize our climate impact effectively, starting today. Water scarcity is an issue of growing global importance together with deep decarbonization to achieve climate neutrality by 2050. The European paper industry has a unique role to play in the fight against climate change by offering immediate and affordable solutions. Already today, there are 4.5 million tons of single use plastics items that can be replaced by paper-based alternatives with an immediate positive impact for the climate," added Cepi Director General, Jori Ringman.

The European Union should help create new markets for bio-based products such as paper and board packaging, and ensure that there is a steady supply of sustainably sourced raw materials, like high quality paper for recycling and fresh fibre to put on the market recyclable paper-based products on the market (read our Cepi 2030 Industry Manifesto[2]).

Fibre-based packaging is already the most collected and recycled packaging material in Europe. And the industry wants to do even better, with the 4evergreen coalition, an alliance of over 50 companies representing the entire fibre-based packaging value chain. The alliance is working on increasing the recycling rates of fibre-based packaging to 90 Percent by 2030. |||

[1] https://www.eppa-eu.org/uploads/Bestanden/RAMBOLL_RAPPORT_FINALE_VERSION.pdf

[2] https://cepi.us3.list-manage.com/track/click?u=5a816d81828eafe600030126b&id=645cb99082&e=a8a1e3cfb6

Photo: Cepi

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Halbe in the Square

Image Format With Charisma

Square framed pictures have not only enjoyed great popularity since Instagram & Co. Renowned painters like Gustav Klimt liked to immortalize their expressive paintings on square canvases. The square image format also shaped photography in the last century.

Well-known professional photographers were passionate about taking square photos with Rolleiflex or Hasselblad cameras. And nowadays, smartphone users upload square images to social networks.

In general, square images stand for a high quality and detailed imagery. A square picture frame can underline the charisma of a picture and at the same time emphasize the dynamic of the picture. In addition, square-framed pictures offer greater design freedom when hanging. At Halbe frames, they know about the harmonious effect of square works of art.

Square – the special picture format

Even if pictures are often presented in a rectangular shape, the square plays an important role in art. Kasimir Malewitsch's "Black Square" is an icon and the beginning of non-representational, abstract art. The Russian painter Mark Rothko even made the square the focus of his pictures. Gustav Klimt also loved this harmonious format. In 1909 he completed one of his important works, „The Kiss", on a 180 x 180 cm canvas.

The square image format also played a formative role in photography. The initial spark came in 1929 with the two-eyed Rolleiflex, which, with its negative format of 6x6 cm, exposed 12 pictures on a roll film. Well-known photographers preferred medium format photography, as the square image format allowed them to select an image section at a later date. The 1972 study by Dr. Edwin H. Land contributed to the development of the Polaroid SX-70. Today the square

Fotos: Halbe

1 Two rows square wall ideas.

2 Square black and white photography over sideboard.

3 Triptychon of the photographer Gian Giovanoli.

pictures with the characteristic white base are the epitome of instant photography.

But Instagram has also given the square format wings. The two Stanford graduates Kevin Systrom and Mike Krieger tinkered with a photo service for smartphone users in the spring of 2010. The name Instagram should be reminiscent of the Telegram and instant cameras. The square image format was quickly established. Today, over one billion users use Instagram and share their most beautiful square photos every day.

Square framing underlines the message of the picture

To this day, square works of art stand for high quality imagery. Due to the balanced geometric shape, the pictures appear calmer and invite the viewer to linger. A square frame with a passepartout can also underline the radiance of a portrait or landscape format picture. By consciously choosing the format, the main message of the picture comes to the fore. Square art objects look anything but boring. The harmonious format is often deliberately in contrast to the image dynamics and thus pulls the viewer under its spell.

Perfect picture staging through square framing

Common image formats have always been oriented horizontally, as this perspective corresponds to the human field of vision and the viewing habits that humans have learned for thousands of years. Orientation and stability are important factors for a quick capture of image content. A square basic grid is helpful for an orderly effect. In general, a square frame is suitable for any art object. Landscape-format works of art look fantastic with a passepartout design according to the rules of the golden ratio, i.e. the picture is deliberately placed high up in the passepartout.

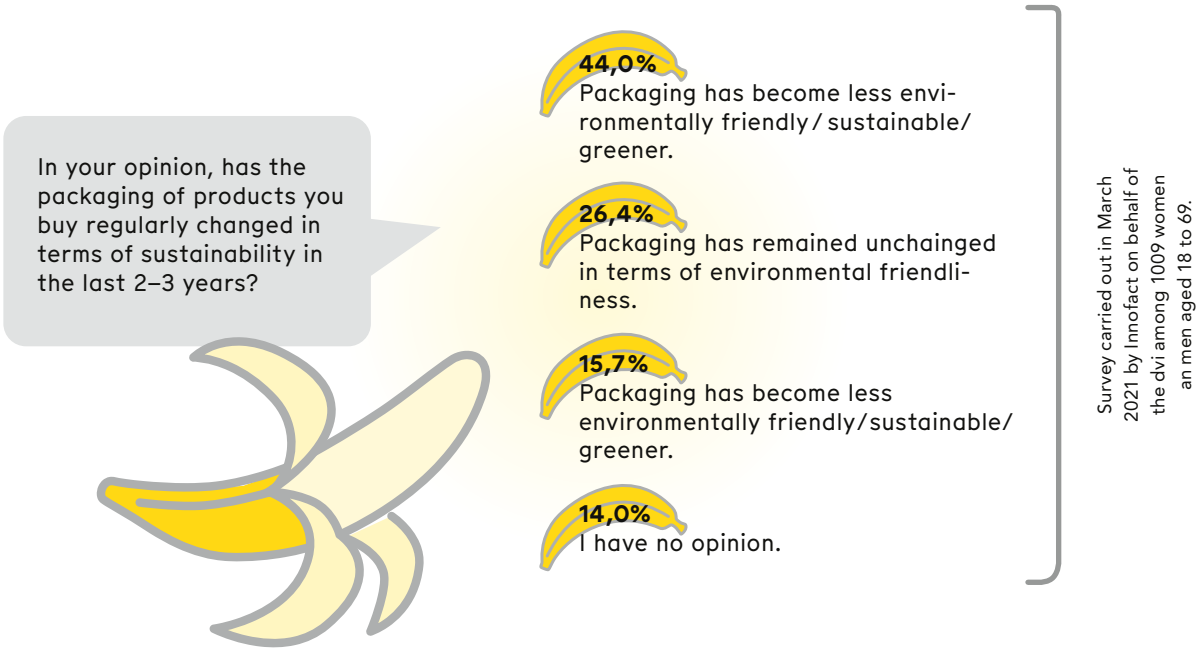
Square pictures offer a variety of hanging options

Choosing a picture is just as exciting as the task of finding a suitable place for it. Pictures are a crucial element of the interior design of residential and commercial spaces. They make rooms comfortable, give them their own character and create the desired aha effect. The proportion of a room as well as the interior play an essential role in the hanging of a picture. Square art objects are much easier to stage on a wall than rectangular formats because they fit in harmoniously in a lot more places in a room. In addition, every row and grid hanging of square pictures radiates something special.

The bar: the character of the image presentation

Choosing the right bar should be carefully considered. In general, picture bars should never be too wide or too powerful and compete with the picture. A light-looking, bright picture is quickly crushed if the bar is too massive. On the other hand, it looks classy when it is held with a narrow, discreet bar. Halbe-Rahmen offers a variety of different aluminum and natural wood strips for this purpose. Each frame is cut to the millimeter by the professionals up to a size of 200 x 300 cm. |||

www.halbe-rahmen.de



dvi Survey

Packaging is More Sustainable Than Ever Before

The latest results of a representative population survey commissioned by the German Packaging Institute (Deutsches Verpackungsinstitut e.V. [dvi]) show that the multitude of innovations in the field of sustainable packaging in recent years are being well received by consumers.

Nearly half of respondents – 44 percent – perceive clear progress in environmental friendliness of packaging, and only 15.7% see it as having regressed. Moreover, three out of four respondents, 74.6 percent, confirm that this progress has been achieved either with no compromise in functionality and convenience – or even enhancing it. Even so, the dvi recommends further measures to implement the circular economy in packaging, and use of objective life cycle assessments to evaluate sustainability.

"The packaging industry and its products are systemically important. Hygiene, health and safety of supply for the population have top priority, particularly in these times of pandemic," says Kim Cheng, Managing Director of the German Packaging Institute. "That's why there has been no lockdown within the industry. Staff are doing an outstanding job under these immensely difficult pandemic conditions. And even in these times, they don't let up one little bit on the accomplishments and expectations on their products. The industry's innovative work continues unabated, particularly with regard to the sustainability of packaging. We therefore wanted to know how the work is being viewed in people's minds, and to what extent. What do our citizens say about the evolution in packaging in terms of sustainability, functionality and convenience?"

Sustainability, functionality and packaging effort

44.0 percent of respondents say that, in their experience, packaging has become more sustainable in the last 2–3 years. 26.4 percent see no change. Only 15.7 percent see a regression in terms of environmental friendliness. 14.0 percent have no opinion on the development.

That progress in environmental friendliness does not come at the expense of functionality and convenience, said 49.8 percent of those surveyed. 24.8 percent even see significant progress in terms of hygiene, product protection, safety and convenient handling. Only 14.9 percent see a regression in this area. 10.6 percent cannot assess the development.

Kim Cheng is pleased that "the numerous and varied sustainable innovations of the industry in recent years are being recognised by consumers. The advances range from material and energy savings, to the use of modified or new materials, to improved processes and technologies, and intelligent designs for recycling." The dvi managing director sees it as crucial that "for all the environmental progress we have made, we have not lost sight of the core functions of packaging. Packaging is becoming more sustainable, and at the same time getting ever better at fulfilling its purpose. It ensures hygiene, protects goods from damage and spoilage and makes them durable, transportable and safe to use."

Infographic: Maik Brummundt / Image/Source: German Packaging Institute (dvi)

Need for action in circular economy and life cycle assessments

"We need to be especially responsible with packaging, not least because we simply can't do without it," says Cheng. "Used packaging should therefore not become a burden once it has done its job. On the contrary, it must be collected, sorted and recycled. That is why we must focus our sustainability work on the recyclability of packaging. Recycling is what it's all about. But we also need an objective and generally valid model for assessing packaging's sustainability. There is no way around life cycle assessments here. With this in mind, we have formulated four recommendations for action."

Life cycle assessments

Kim Cheng: "Politicians and NGOs alike must make their decisions and demands on an ecological factual basis. Image-driven commitment to a particular material or type of packaging is counter- productive. Headline politics won't get us anywhere. A proper life cycle assessment must include, for example: the material used in production; the amount and type of energy used in production as well as in recycling; the weight and volume of the packaging as a factor in transport; the transport routes within the value chain; and the use of water or chemicals for production or cleaning in the case of reusable packaging – and this for several life cycles of the packaging if necessary. These life cycle assessments must ultimately be driven by the Federal Environment Agency. Politicians must not shy away from their responsibility here. They must decide on the factors that are critical to assess sustainability and to what degree."

Increase use of recycled material

Kim Cheng: "The use of recycled material is central. When it comes to plastics in particular, we can only fully close the loop if the material is not only collected and recycled, but the recyclate is also used for new packaging. The circle can only be closed when there is a functioning market for recyclate. This area in particular needs sustained political commitment. There are various models for promoting the use of recycled materials. There will be no one solution that takes all interests into account. Nevertheless, it is vital that there is a solution. We need a clear route map that gives planning certainty, guarantees quality and product safety of the recyclate and significantly increases the amount of recyclate used."

Development of the infrastructure

Kim Cheng: "The circular economy infrastructure needs to be further developed. It does us little good if packaging is recyclable in theory, but recycling does not happen. We need greater capacity and we need innovative processes to be able to recycle materials that have not previously been recyclable. The companies in the industry are playing their part, for example through new technologies or invisible codes that identify the respective materials of a package and make efficient and seamless sorting possible. The EU also wants to make the circular economy a driver for job and economic growth as part of its Green Deal. We support that. It's important to keep on making demands, of course – but encouragement is just as important!"

Getting consumers on board

Kim Cheng: "The circular economy can only function as a team made up of business, political and consumer players. Consumers are a crucial element. It's only what they dispose of properly in the collection systems that eventually reaches the recycling plants. Their task must be made as easy as possible by clearly indicating on packaging how it is to be disposed of. It must also be possible to easily separate the different material components in packaging – ideally while it is still in the private household. Successful implementation of the circular economy relies on consumers finding it convenient to properly dispose of their packaging." |||

Green Gluing

Rethinking Sustainability

A world-famous painting reworked by celebrated Spanish "Green gluing" or "sustainable gluing" currently are buzzwords in the packaging industry. But what does sustainability mean? Not all of the UN's Sustainable Development Goals or the Product Environmental Footprint (PEF) criteria can be fulfilled to the same extent.

With the company's GlueCalc app, packaging manufacturers and end-of-line solution providers can enter just a few parameters to quickly and easily calculate on an order-by-order basis how much they can reduce glue consumption and CO_2 emissions by switching from line to dot application.

The objective is to find the best-possible compromise. In the public debate, however, some criteria are emphasised more than others and are weighted differently depending on respective interests. This leads to uncertainty and in some instances to contradictory assertions. Baumer hhs General Manager Percy Dengler and Business Development Head Thomas Walther shed some light on critical aspects of the issue.

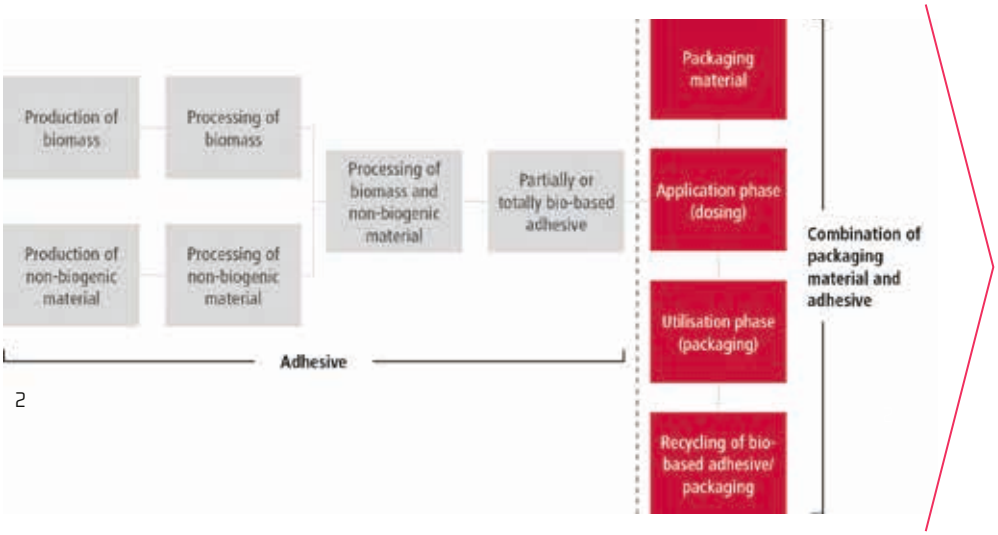
How is Baumer hhs addressing the subject of sustainability?

Percy Dengler: At Baumer hhs, in its role as a packaging industry partner for industrial gluing applications, we ask ourselves the following questions, among others: How do we, our customers and our industry partners define the term "sustainability"? What impact does gluing have on the sustainability of packaging? Gluing is a core step of packaging production, but just one link in the value chain. From our perspective, the UN Sustainable Development Goal of "partnership" is among the most important, because working in partnership is the only way to establish the basic conditions for real sustainability. And that goes for packaging production, too. For this reason, we closely coordinate research activities with industry partners and customers to identify potentials for improving sustainability in packaging production. There's no question about it: Sustainable gluing is the future.

Who do you collaborate with?

Thomas Walther: The Europe-wide 4evergreen initiative, for example, aims to ensure that fibre-based packaging makes a greater contribution to a circular, sustainable economy, while minimising impacts on the climate and environment. As a founding member, we are actively involved in achieving this goal. Other members of 4evergreen include Nestlé, Danone, Procter & Gamble, Westrock, AR Packaging, as well as numerous paper and paperboard manufacturers and recycling businesses. In other words, this alliance brings together organisations along the entire value chain. Baumer hhs is also active worldwide in bilateral collaboration projects with adhesive

Photos: Baumer hhs GmbH



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As one part of its comprehensive approach to sustainability, Baumer hhs is working with its industry partners to at least partially replace nonrenewable raw materials in adhesive manufacturing with sustainable, biobased raw materials and to promote packaging recycling. Evaluation of these raw materials is based on the economic, social and ecological criteria defined in the UN's 2030 Agenda for Sustainable Development.

manufactures and customers. Our company is open to any partner interested in advancing sustainability.

Percy Dengler: We pursue the "rethink" approach, which means first deciding what is the right thing to do, and then doing it right. We want to rethink adhesive application. We are examining the subject comprehensively, and right now are in intense discussion on different levels with customers, industry partners and research institutions. As this shows, we are not "greenwashing" the issue by any means.

What are the most important aspects of your comprehensive approach?

Percy Dengler: The answer to the question of how industrial gluing can support the efforts of the packaging industry to increase sustainability is highly complex. A lot of things that appear to be sustainable at first glance, prove to be critical in the overall balance. You can only evaluate the sustainability of packaging if you take its entire life cycle into account. Unfortunately, the public debate often is dominated by isolated aspects that narrow the focus down to isolated sustainability criteria, which serve only the interests of isolated suppliers.

Changing the course of industrial gluing starts with developing bio-based, sustainable adhesives, developing a functioning circular economy, and further optimising and/or minimising glue consumption. Beyond that, we want to give our customers even more targeted support, helping them achieve maximum energy efficiency and avoid waste in their gluing processes. We have a long tradition of designing our equipment and solutions for optimised glue consumption, maximum energy efficiency and waste reduction. But we still see potential for further improvement. Conversely, bio-based adhesives and the development of a functioning circular economy are comparatively new issues for us. With this in mind, our aim is to scrutinise the entire value chain and critically question our own actions time and again.

What exactly are bio-based adhesives?

Thomas Walther: Today's adhesives generally contain additives made of non-renewable fossil raw materials. One example is polymers, which are made from petroleum. In view of the growing global population and the worldwide rise in the demand for packaging, the packaging sector is called upon to resolve the conflict between growth and resource scarcity and to significantly improve the environmental footprint of its products and processes. Bio-based adhesives made from renewable raw materials can help.

What renewable raw materials are you referring to?

Thomas Walther: Examples include starch-based raw materials, natural resins, natural rubber and natural latex. From Baumer hhs's point of view, however, it would be better to focus at least to some extent on biomass, meaning waste products from other processes or farming.

For example?

Thomas Walther: We see interesting potential in crop residues from grain production and other farming sectors, as well as in lignin, which is generated in large quantities in the paper and wood industries, ultimately as a waste product. Lignin is a carbon compound. Because of its specific properties, it has the potential to replace synthetic additives used in adhesives manufacturing.

What criteria determine whether a type of biomass is suitable for industrial adhesives?

Thomas Walther: There are many factors involved. For instance, adhesives made from biomass have to display the same application properties as conventional adhesives, so they don't adversely affect packaging production by causing reduced output or higher reject rates, and thus more waste. Otherwise, sustainability would only exist on paper. Researchers therefore have to include the application proper-

Baumer hhs is a founding member of the European-wide 4evergreen initiative, which aims to ensure that fibre-based packaging makes a greater contribution to a circular, sustainable economy.

ties in their analysis of bio-based adhesives from the outset. Baumer hhs does use starch-based adhesives in selected industrial segments. But they are not yet suitable for the high-speed machines used in packaging production. In a lot of cases, some of their properties simply are inadequate, for example they display low application quality, long setting times and insufficient gap filling. We conduct in-house research into the application and bonding properties of bio-based adhesives, and we are an active partner in research alliances.

Doesn't starch come under the category of food?

Thomas Walther: Yes it does. So even when using sustainable raw materials, we have to weigh conflicting goals. Rising demand for starch could force up the price of specific food products. Rising demand for natural rubber could lead to clearing of the rainforest to make way for rubber plantations. Not only that, the cost of harvesting and transport, including the associated CO_2 emissions, would have to be taken into account for adhesives based on natural rubber. Social issues would have to be another part of the analysis. Does a plantation economy threaten the supply of agricultural products to the local population? Does a plantation economy benefit the local population or just a few large landowners?

Percy Dengler: The basic conditions required to produce biomass are one factor that determines their sustainability. Working with our partners in industry, we base our evaluation of these raw materials on the economic, social and ecological criteria defined in the UN's 2030 Agenda for Sustainable Development. We draw up a life cycle assessment (LCA) to assess their entire impact, including potential for goals that conflict with other areas. In other words, we take an in-depth look at this complex issue in order to achieve real sustainability in automated adhesive application.

Why is Baumer hhs, a manufacturer of industrial gluing solutions, working so intensively on sustainable adhesives?

Percy Dengler: Vigorous knowledge transfer between Baumer hhs and its partners in industry and research is a fundamental prerequisite for developing solutions that support industrial gluing with bio-based adhesives. Sustainability must go hand-in-hand with the demanding requirements the packaging industry and other sectors have when it comes to productivity, quality, reliability, flexibility and cost-efficiency. To ensure that it does, Baumer hhs works closely with adhesive manufacturers and research partners to develop adhesives. Our extensive know-how in industrial gluing is used to develop sustainable adhesives, and we in turn use the expertise of adhesive manufacturers to develop our gluing solutions. We adapt our equipment wherever necessary to achieve the necessary levels of productivity, quality, reliability, flexibility and cost-efficiency for our customers' processes. The entire process must be geared towards sustainability if it is to earn the label "green gluing".

Food packaging is associated with yet another important aspect: Some bio-based adhesives contain additives. The possibility of harmful substances migrating into the food has to be ruled out.

What is your opinion of regulatory measures such as the EU's Plastics Strategy which, in line with the "polluter pays" principle, introduces extended producer responsibility for the environmental impact of packaging?

Percy Dengler: Baumer hhs welcomes such measures because they spur on progress. The market is putting pressure on the packaging industry to improve the reputation of its products. The industry has to make the manufacturing process for these products as eco-friendly as possible. And the packaging itself has to be as eco-friendly as possible. With our sustainability strategy, we want to support our customers as effectively as we can in their efforts to produce eco-friendly packaging. Eco-friendly packaging secures jobs in the packaging industry and in supplier companies.

And regulatory measures promote innovation. For example, in a very short time, we have received a surprising number of inquiries for machines capable of applying glue to produce paper-based straws and cups, which increasingly are replacing their single-use counterparts made of plastic.

Photos: Baumer hhs GmbH

Percy Dengler, General Manager, Baumer hhs.

Thomas Walther, Business Development Head, Baumer hhs.

How does biomass rate when it comes to cost-efficiency?

Percy Dengler: Adhesives made from biomass have to achieve a price/performance ratio comparable to that of conventional adhesives. In other words, adhesive manufacturing needs biomass that can be produced and made available in sufficient quantities. The petroleum-based raw materials used in the production of conventional adhesives are subject to price fluctuations, which would be largely eliminated in the case of sustainable adhesives. That would be another advantage of bio-based adhesives.

Do adhesives made from biomass offer advantages in terms of recycling?

Thomas Walther: Some manufacturers even advertise their bio-adhesives as being compostable. From Baumer hhs's standpoint, however, the goal must not be to compost paper-based packaging, i.e. return it to the environment. Our goal is to recycle it, to establish a functioning circular economy in which packaging materials are automatically recycled, and in this way to minimise the impact of packaging on the environment. Conventional adhesives can have a negative influence on the recycling of paper-based packaging. This is particularly true of hot melt adhesives. End-of-line packaging specialists, for example, try to replace them with cold glues, which are easier to recycle.

Today, more and more hot melt adhesives based on biomass are appearing on the market. In view of sustainable gluing, it basically is a welcome trend. But here too, it's important to analyse their impact on the recycling process. Regardless of what they are made from, hot melt adhesives have one thing in common: In waste paper processing and recycled paper manufacturing, they have a tendency to form sticky impurities, which can impair the quality of recycled paper grades and lead to costly disruptions in papermaking machines. Baumer hhs has already had some good experience with hot melt adhesives made at least in part from biomass. But there are still some unresolved issues.

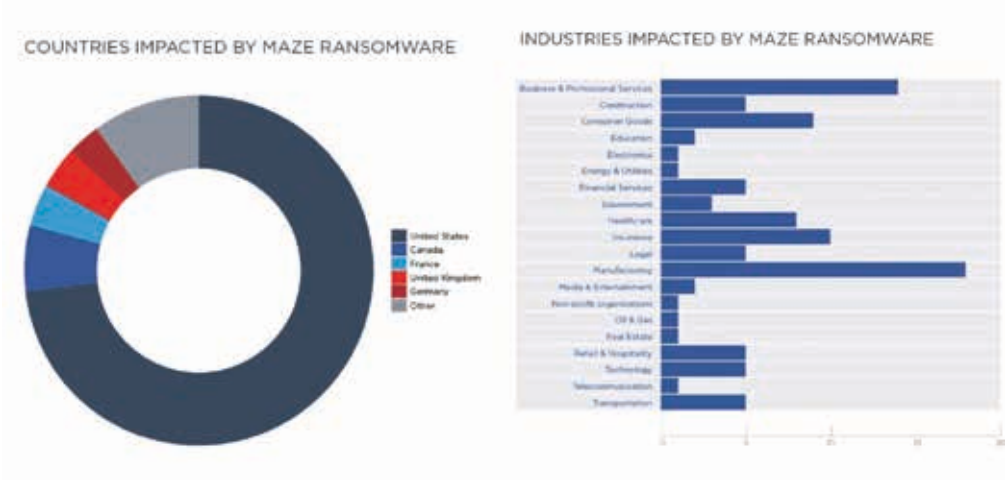
The easier it is to recycle packaging, the less it costs to recycle it. Put another way, good recyclability improves the cost-efficiency of the packaging. What is more, good recyclability increases the rate of recovery of valuable fibre and helps meet the recovery targets of the EU's Circular Economy Action Plan.

A while back you launched the GlueCalc smartphone app on the market, which packaging producers can use to minimise or optimise glue consumption. Isn't minimising resource consumption the general goal in packaging production?

Percy Dengler: Yes, it is, and the industry is working on a broad front to achieve it. With GlueCalc, packaging manufacturers and end-of-line solution providers can just enter a few parameters to quickly and easily calculate on an order-by-order basis how much they can reduce glue consumption and CO_2 emissions by switching from line to dot application. Many of our customers have reduced their glue consumption and CO_2 emissions by 50% and more this way, which also means that the packaging they produce introduces less adhesive into the recycling process.

Our electromagnetic adhesive application heads offer the precision required to apply small dots of glue. What is more, they have a very long service life compared to electropneumatic heads. And that's an important point: With electromagnetic application heads, there is no risk of high wear offsetting the ecological and economic advantages gained by cutting glue consumption.

In addition, the reliability of the equipment minimises waste in packaging production. And this is where our quality assurance systems come into play. They ensure our customers deliver 100% defect-free packaging products to their own customers. In short, to produce sustainable packaging – including automated adhesive application – all the various factors have to work hand-in-hand. |||



Maze: Impact by country and industry.

Emotet & Co.

Risks and Impacts of Malware in Industry

Viruses and worms are no longer just targeting financial and business systems. In recent years, it has been increasingly observed that malware was used to compromise production processes and earn money with it. This is achieved by manipulating or delaying data flows.

The processes and supply chains in industrial manufacturing are based on huge amounts of data. Systems for managing business processes such as customer orders or stocks provide the data for automation systems that are used to maintain production. The number of such systems is steadily increasing, since producing more products for more customers requires increased efficiency, which is achieved through extensive automation in data transmission and processing as well as in production itself. In view of the rapid processes that are largely beyond human intervention, even minor manipulations of the data can lead to considerable financial damage. In extreme cases, hackers can use these manipulations as part of a more complex attack in order to endanger the existence of the company or even human life.

Maximum damage in production technology

According to a study by Forrester[1], 96 percent of all German companies have been the target of a business-damaging attack from the Internet. For many years, ransomware attacks have mainly targeted individuals and businesses with financial or personal information. But in the meantime hackers have recognized that they can use the same methods to stop or delay production processes and thus also achieve a financial gain in production technology[2]. To do this, they attack systems that interact directly or indirectly with operating technology: engineering workstations, human-machine interfaces, data storage and systems for supervisory control and data acquisition (SCADA). Around 18 percent of the organizations affected by the "Maze"[3] ransomware last year can be attributed to manufacturing companies; they are thus the most severely affected industry. Not surprisingly, if you have extortionate intentions, you won't care what kind of processes you interrupt as long as you benefit from them.

IT / OT integration as a gateway for hackers

There are many reasons for the high number of cases in which criminal hackers target manufacturing companies. Among other things, they are related to changes in the technologies and infrastructure used by companies. Information technology (IT) and operational technology (OT), which are used to control and monitor production systems, have been converging for a number of years. Due to the increased IT/OT integration, new gateways for potential security threats have emerged. The impact depends on the methods the hackers use to break into their victim's network and at what stage in the production and supply chain the malware is accessing. Depending on the situation, either throughput and production quality are already suffering, or the goods do not reach the customer on time or to the agreed extent.

Photos: FireEye

> "The clients for such campaigns are various criminal groups that have used Emotet as malware-as-a-service"

Daniel Kapellmann Zafra, Analysis Manager, Mandiant Threat Intelligence, FireEye.

The disruption can either be traced back to an obstruction of the IT, i.e. the flow of data to the production processes is disturbed or interrupted, or the error occurs in the OT, where the production systems are simply not prepared for unexpected interventions by malware or other external influences. Errors in processes supported by OT can have a particularly negative impact on production and, under very specific circumstances, even lead to damage to the infrastructure or injuries to employees.

Ransomware threatens manufacturing

One of the greatest threats currently facing manufacturing companies is ransomware, a form of malware. Financially motivated hackers often seek access to corporate networks in the manufacturing industry using methods such as social engineering or phishing attacks. Once the attackers have access, they move through the network, overriding the security mechanisms and encrypting all files they find. At the end of the day, the victim receives a ransom demand, which has to be fulfilled in order to get the encrypted data released. It also happens that the hackers post confidential or personal data on public websites in order to blackmail their victims. Examples that have made headlines lately include WannaCry, LockerGoga, Ryuk, Maze, and Egregor, among others.

The hackers use various tools to gain access to the networks of their victims and to prepare the attack. A very well-known tool is the Emotet malware, which was recently destroyed in an international campaign. "The clients for such campaigns are various criminal groups that have used Emotet as malware-as-a-service," reports Kimberley Goody, Senior Manager of Cybercrime Analysis and Threat Intelligence Expert at FireEye.

Whether the smashing of Emotet will have a long-term calming effect on the ransomware scene depends above all on whether the actual masterminds have been arrested. "In the past, hacking groups kept rebuilding their botnets," Goody noted. There are now partnerships between Emotet and other malware campaigns such as Trickbot, Qakbot and Silentnight, from which new spamming attacks could be launched.

The SOC is often overwhelmed

The Security Operations Centers (SOC) already established in many companies can hardly cope with the growing flood of malware. The main culprit is the increasing complexity, because the hackers use different types of tools - from disguised malware to open source or commercially available software. In addition, the Covid pandemic has banned many security experts to working from home. According to a study by the Ponemon Institute[4], commissioned by FireEye, this has a negative impact on the performance of the SOC in every second company.

The SOC teams are all highly paid specialists who are heavily wooed on the job market because demand is constantly increasing. This leads to a high fluctuation in the teams. At the same time, the tasks are becoming more and more demanding, which is why the effect that the work of the SOC has on company security diminishes. 51 percent of the participants in the Ponemon study stated that the return on investment (ROI) in the SOC was getting worse instead of better.

Solutions to the dilemma

The security experts in the companies are often busy with manual routine work, which further reduces their efficiency. New technology such as XDR systems (Extended Detection and Response) can largely relieve them of this. A whitepaper by Mandiant Threat Intelligence[5] offers useful tips specifically for dealing with ransomware.

According to the Ponemon Institute, the cost of a cyber attack to those affected already averages 3.86 million dollars – and the trend is rising. So it makes sense to consult the know-how of external specialists in order to check your own security mechanisms or – if the worst comes to the worst - to limit the damage. In any case, manufacturing companies shouldn't take the growing malware threat lightly. ||| **Daniel Kapellmann Zafra**

[1] https://de.tenable.com/analyst-research/forrester-cyber-risk-report-2020

[2] https://www.fireeye.com/blog/threat-research/2020/02/ransomware-against-machine-learning-to-disrupt-industrial-production.html

[3] https://www.fireeye.com/blog/threat-research/2020/05/tactics-techniques-procedures-associated-with-maze-ransomware-incidents.html

[4] https://respond-software.com/resources/reports-ebooks/second-economics-of-the-soc/

[5] https://www.fireeye.com/content/dam/fireeye-www/current-threats/pdfs/wp-ransomware-protection-and-containment-strategies.pdf

Smart Print Shop

“Everything has to Work Together Perfectly in the Overall Process!”

With the push to stop end-to-end operating philosophy, Heidelberg has taken significant steps in developing what is known as Smart Print Shop. We spoke to Ludwig Allgoewer, Head of Marketing and Sales at Heidelberger Druckmaschinen AG, about customer requests, autonomous processes, future-oriented concepts and overall system efficiency.

Ludwig Allgoewer, Head of Marketing and Sales at Heidelberg.

Under the motto “Unfold your potential”, Heidelberg has brought the potential of process digitization to the fore. How do you see the German print and media industry in terms of digitization in an international comparison and what solutions can Heidelberg offer the industry?

Traditionally, the German printing industry is very open to innovations compared to other markets or markets that have a lower degree of industrialization. Due to the competitive situation, the degree of automation is high. Nevertheless, there is of course still great potential in Germany with regard to the digitization of all value-adding processes beyond the company.

Heidelberg offers its customers in packaging, labels, and commercial printing the Smart Print Shop, which, as a world premiere since autumn last year, has enabled end-to-end autonomous print production in its highest expansion stage, including prepress and postpress. The size of the print shop does not matter. The modular offer is aimed at small and medium-sized print shops as well as large companies. In addition, customers can decide whether they have a conventional transactional business relationship with Heidelberg or opt for one of the

Photos: Heidelberg

Push to stop / end to end production.

numerous contract or subscription offers, the payment of which is based on the output or benefit that the customer achieves.

"Push to stop end-to-end" – is that more than just a catchphrase? What does it mean in detail?

In a global survey of over 1,000 customers, we determined which four key topics describe the challenges in the printing industry: These are increasing complexity, the shortage of skilled workers, competitive pressure and the expansion of the value chain with digital platforms.

In response to this, we developed the new operating philosophy "Push to Stop" and thus initiated a paradigm shift in industrial print production. If processes were previously started actively by the operator, in the future this will be done by the machine itself. The operator only interrupts the autonomously running process chain when necessary. The effectiveness of print production can thus be raised to a level not previously achieved, the processes can be planned, and the error rate drops through continuous process monitoring.

With "Push to Stop" and the Speedmaster machines of Generation 2020, OEE – the overall equipment effectiveness – is sustainably increased. Thanks to a large number of intelligent assistants and even artificial intelligence, the Speedmaster machines process the pending print jobs autonomously. This with the optimal and shortest changeover sequence, which means the highest net productivity. The operator receives a modern workplace, is supported in every job and can concentrate on the most important control tasks.

Is the digitization and automation of the overall process, à la Heidelberg, aimed at all printers, or are there limits due to the process organization? Many print shops highlight their individual solution competence in their portfolio, for example through special finishes, materials or shapes. Where does Push to stop end-to-end reach its limits?

The purpose of digitization and networking is to increase productivity in the industry without additional staff. Above all, automated and intelligently networked processes can double the productivity of print shops by 2030. Useful information for both customers and Heidelberg can be extracted from the multitude of available data. In other words, generate smart data from big data.

This affects all printing companies more or less. With our innovative solutions, we are able to advise our customers individually and comprehensively so that the right overall concept for their business model is worked out. In addition, the Speedmaster 2020 generation models all include the Push to Stop functionality and the Prinect cloud interface as standard – from the Speedmaster SX 52 to the Speedmaster XL 106. Our Prinect workflow is also scalable. The customer only pays for the functionalities that he currently needs and can have more functionalities activated via the cloud if there is further demand and growth.

A completely autonomous process sounds like the end of the flagpole. What comes after end-to-end, apart from optimizations in detail?

In order to achieve a possible 50 percent OEE and more sustainably, everything in the overall process must work together perfectly. This includes the standardization and qualification of consumables, process calibration, self-learning systems, but also intelligent maintenance concepts. Combined with our application technology know-how, our steadily growing portfolio of consumables and our innovative service concepts, "Push to Stop" is just the starting point and will increasingly implement the Smart Print Shop.

Will your customers one day print out their own prefabricated Heidelberg systems using a 3D printer?

No, I can't imagine that.

An essential part of the system: the Prinect Press Center.

Plate to Unit at the Innovation Week in October 2020.

For some time now, maintaining customer relationships has only been possible under difficult conditions. Have the digital formats met your expectations or do innovations sell worse without – often expensive – face-to-face events?

The corona pandemic has turned a lot upside down and also set things in motion that we could never have imagined, e.g. a completely virtual customer event like the Innovation Week last October, where – after the failed drupa – we have professionally presente – almost our entire range of services online. We had several thousand registrations from over 100 countries, several hundred agreed one-on-one meetings with decision-makers and around 100,000 videos that were clicked on. The level of qualified customer contacts was roughly comparable to an international trade fair and the feedback from the participants was very positive.

Nevertheless: The printing industry is also a family industry in which personal contact between customer and manufacturer is extremely important because it creates and strengthens trust. And an industry in which haptics play a major role. Therefore, as soon as the situation allows, we will again hold customer events as face-to-face events. In the future, we will therefore see a mix of face-to-face and virtual events. And I think that's a good development.

Final question: Last spring, we spoke to Rainer Hundsdörfer about the unsatisfactory development and valuation of the Heidelberg share, among other things. In the last few weeks, however, significant increases have been seen – the price has more than doubled. What do you attribute this to in an economically difficult time?

On the one hand, the capital market is honoring our transformation program, which we launched shortly before the start of the Covid pandemic, i.e. our consistent focus on the core business and cutting off the losers. We have drastically reduced debt and improved free cash flow. We have also confirmed the forecast for the full year and raised the margin target. We have done our homework financially and balance sheet related. There are now also signs of recovery in the markets that are important to us in China and Europe.

On the other hand, our activities in the field of electromobility, especially the announced doubling of our capacities in wallbox production, arouse the imagination of investors. After all, Heidelberg is one of the market leaders in Germany with its wallbox for fast and uncomplicated charging in the private sector. The annual growth rates in this area are over 20 percent. This is an exciting development, obviously also for the capital market.

Mr. Allgoewer, thank you very much for the interview! |||

Photos: Heidelberg

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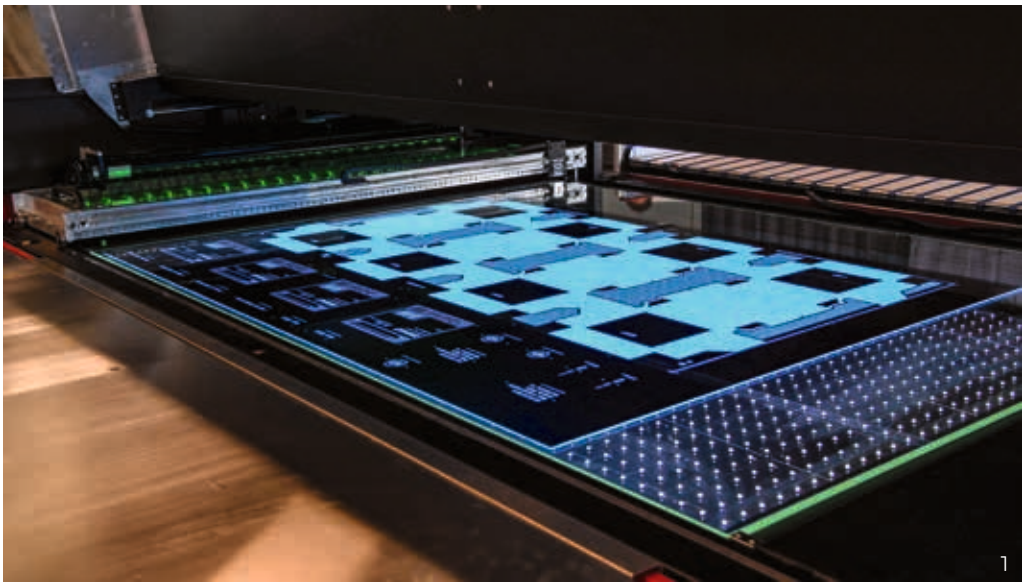


XSYS

Flint Group Consolidates Flexographic Prepress

As the new year kicked off, Flint Group made an important announcement for the flexographic industry. Over the years, both organically and through acquisitions, the company has amassed a great deal of knowledge and expertise about flexo-graphic prepress, from using innovative materials and technologies to create flexographic plates, to processors with a minimal environmental footprint, to software solutions that help automate and control the entire flexographic prepress process.

Now all of these resources are consolidated under one umbrella in a new Flint Group division called XSYS that combines Flint Group Flexographic with Xeikon Prepress.

During the press conference launching the new division, its President, Dagmar Schmidt, stated, "XSYS is an established brand associated with Flint Group. And it perfectly fits with our strategy and our existing product brands – ThermoFlexX, nyloflex, Xpress and other brands – plus Systems – leading to our new name: XSYS. It combines the knowledge of Xeikon in selling equipment and software with the expertise of Flint's flexographic sales team and expertise in plates. With a complete portfolio and a distinctive name, we want to inspire not only our customers, but also our colleagues. Understanding, Flexibility and Consistency are our core values and also our promise to customers and partners. Our values are what sets us apart from competitors as a proactive, future-oriented company.

Photos: XSYS / Flint Group

3

4

1 Flint Group Flexographic and Xeikon Prepress are now XSYS.

2 XSYS: Print Solid. Stay Flexible.

3 Flexographic printing plates are part of the new division's portfolio.

4 The Xeikon ThermoFlexX 60 flexo imaging system.

Our customers can count on us and on the quality of our products and services. At the same time, we are able to offer our customers flexibility and freedom in their decision-making – a key requirement in today's world and even more so in the future. So it's not so much 'dusting off an old name' as it is leveraging a known Flint Group brand and modernizing it to fit the needs of today and tomorrow."

New slogans, new structure

To do that, the company added two taglines. The first is Print Solid. Stay Flexible. It is designed to convey the company's dedication to bringing vibrant and innovative solutions to the market. The second is Be Brilliant. As Schmidt explains, "This reflects our belief that the world needs brilliance. Brilliant ideas and developments to meet the challenges of the future. Brilliant people who have the courage and will to do the right thing. Our story started with a brilliant idea, and brilliant ideas are what keep us going."

That is a lot to live up to! To be honest, many of us have wondered for some time why these groups were separate. Schmidt noted that they have been working closely together for some time, but formalizing the organization in this way breathes new life into the effort and streamlines the organization to deliver even more innovation more quickly. The new organization is also likely to free up and make more efficient other corporate resources, such as Flint Group Digital Printing Solutions, which formerly housed Xeikon Prepress.

At the inception of XSYS, the senior leadership team will consist of Dagmar Schmidt as the president of the division supported by Eva Freudenthaler, Friedrich von Rechteren (see interview), Martin Cadek, Katja Stuhr and Uwe Stebani, names that are familiar to many of us.

During the press conference, the senior leadership team also praised the work the groups did bringing Catena+ to market, a fully automated and fully integrated plate processing solution that can be sold bundled with Flint Group plates. It includes a wash-out unit, drying, light finishing and stacking for a complete process. Schmidt noted that not only has the company placed more than 19 Catena modules, but it also received a technology innovation award for Catena+, validating its belief that this is "indeed a unique market position".

XSYS will consist of three subdivisions serving the flexographic and letterpress markets: Prepress, Plates and Sleeves. Each will have its own P&L and revenue targets, but all will work closely together.

For more information about the new XSYS division of the Flint Group, please visit www.xsysglobal.com or contact info@xsysglobal.com. |||

Interview

“We Will Continue to Pursue This Path!”

Flint Group Flexographic and Xeikon Prepress are called XSYS by now and “bring together what belongs together”. We spoke to Friedrich von Rechteren, Vice President Flexo-graphic Products, Flint Group, about the motivation behind this step and what the slogan “Everything from a single source” will mean for the company’s customers in the future.

Flint Group Flexographic & Xeikon PrePress become XSYS. In economically difficult pandemic times, is this action a “bonus”, as it were, or a step that is necessary right now from an operational point of view?

The merger is not only based on economic synergies, but primarily pursues the goal of being able to offer our customers even better, holistic solutions: In prepress, consisting of plate and equipment including the associated service. With printers also including sleeves and adapters. The amalgamation of the areas under one management in sales and technical service means that customers can be advised and supported more quickly and comprehensively. The merger will optimize decision-making processes and accelerate holistic product developments for the prepress market.

The new business area should bring together “what belongs together” and use existing synergies. Which synergy effects does the Flint Group hope to achieve in detail and which steps, for example in the organizational structure, are still necessary to actually leverage these synergies?

The plate and prepress equipment sales and service teams are fully integrated on a regional and global level without losing focus and expertise. Overall, we are increasing the “clout” of our sales force, and the merger gives us a better understanding of the challenges faced by our customers. We look at them from different angles, so that we can then solve them together. The device service is also integrated into existing structures and thus offers our customers a comprehensive service program for all plate developing devices, including lasers.

Xeikon Prepress was part of the Flint Group even before the merger. “Everything from a single source” is actually nothing new for customers – especially with ongoing contracts - is it? With which arguments does XSYS want to score points regarding the portfolio?

So far, all products have been represented under the umbrella of the Flint Group and there has always been cooperation in sales and technology. Nevertheless, there were inefficiencies due to the different organizational affiliations, which led to slowed decision-making processes. With the merger of the sales and service teams, our customers benefit from faster and more coordinated

Photos: XSYS / Flint Group

1 Flint Group consolidates flexographic prepress.

2 Friedrich von Rechteren, Vice President Flexographic Products, Flint Group.

3 The new division brings together what belongs together.

4 XSYS offers holistic system solutions for prepress.

decision-making channels as well as comprehensive product advice from a single source.

This will also have a positive effect on existing and future developments in our product and service portfolios. Here I am thinking above all of software solutions that further support and integrate the complete automation of the plate production, which is being carried out for the first time by our Catena system. Intelligent solutions with the associated software already help us to offer preventive service without having to be physically on site. Our current and future solutions are also unique when it comes to installing equipment; In the past few weeks, for example, we have carried out complex installations, such as that of a laser, without a technician being physically on site with the customer. All of this saves time and money and increases the productivity of customers who use our equipment. In any case, we are consistently pursuing the goal of increasing the printing quality of our customers through our plates and equipment technology and increasing competitiveness through optimized production processes and minimizing downtimes.

With regard to the existing portfolio, our new website and our product brochures provide a simple but comprehensive overview of the market segments that we serve, as well as the associated products and systems. This has not been the case before. We have integrated tools such as a product or market segment selector, helping our customers to find the right solution or the right product quickly and easily. On our new virtual platform, we also offer extensive material and animations about our products and services and create the opportunity for our existing and potential customers to get in touch with us quickly and easily.

Final question: How is the new business area to be strategically developed over the next few years?

XSYS offers holistic system solutions for prepress and also does this for the printer via the sleeves in connection with our sister divisions. This is what sets us apart from our competitors in the market. We will continue to pursue this path of integrating and combining individual products into a holistic solution.

Thank you very much for the conversation. |||

Interview

EMAS: Certified Environmental Management at Kelheim Fibres

As the first manufacturer of viscose fibers, Kelheim Fibers GmbH has set up, validated and certified an EMAS environmental management system that goes beyond ISO 14001. We spoke to Theresa Schreiner, project manager at Kelheim Fibres, about the path to certification in pandemic times and the expectations associated with it.

Ms. Schreiner, why did Kelheim Fibres decide in favor of such certification in an economically difficult pandemic environment?

The decision for EMAS validation had already been made and is part of our long-term strategic direction. The pandemic has not changed that, on the contrary: transparency, reliable supply chains and sustainability are more important than ever.

Sustainability is firmly anchored in our corporate philosophy. We make tailor-made fibres for end products that enable a healthy lifestyle and at the same time preserve the environment for future generations. This not only means that our fibres are made from renewable raw materials and are biodegradable, it also means that the production process is environmentally friendly and conserves resources.

Appropriate certification helps us to communicate this to the outside world as well. There is a whole range of environmental labels for this purpose, especially for individual products. However, since we are a relatively small company, we had to weigh up the effort and costs and therefore decided on a – but the strictest and most comprehensive – certification of the production process.

The implementation was made a little more difficult by the pandemic – as everywhere, many colleagues work from their home office and there is only a minimum staffing on site, so we first had to create the technical prerequisites to get everyone involved "around the table". In the meantime, however, it works very well and the EMAS validation has only been postponed by a few weeks.

What advantages does the EMAS certificate offer compared to a „conventional" certification according to EN ISO 14001?

As already said, EMAS is the most comprehensive certification in this area. It is not just about individual products, but about the entire environmental performance of a company.

EMAS includes ISO 14001 and goes beyond – in that EMAS demands more transparency: All data and measured values are disclosed and we have to clearly state our environmental goals. This has to happen annually as part of the environmental statement. In this way, not only the

Images: Fotografschaft (1); Rainer Schneck (2); Kelheim Fibres GmbH / one4two GmbH (3); Stefan Kiefer (4)

auditor can understand where we stand and whether we are achieving our goals – every authority, every customer, every neighbor, simply everyone who is interested can do that.

Incidentally, EMAS also includes a confirmation from the responsible authorities that there is no evidence of any legal violations in the environmental area by the company. This offers us a certain legal certainty and also goes beyond ISO 14001.

What requirements did Kelheim Fibres GmbH have to meet for this? Was the to-do list large or expensive or was the company already on the right track "anyway"?

We manufacture viscose fibres in a very environmentally friendly way and we are always working on further optimizing our processes and our use of resources, so we had already met the requirements in terms of content. But we had to collect all the data in a meaningful structure and set our environmental goals even more specifically and with clear target values. After all, it's not about individual measures, but about a system for the entire company.

We looked at all the work processes and the interfaces between the departments, everything should work together in a meaningful way. In addition, all employees were trained on EMAS, for example in the form of lectures, workshops and online learning tools.

Were there best practices that the company could use as a guide? How was the implementation proceeded?

We are the first viscose fibre manufacturer with EMAS validation, which is why we are a pioneer and could not "copy" a lot within the industry. But of course there are many other EMAS companies in related industries that have served as a good example.

We looked at these examples and derived our own system from them. We have based our goals on BREF, the state of the art, but also on other labels such as the Nordic Swan or the EU Ecolabel. Even if we already meet the values, we have looked where we see potential to undercut the specified values even further.

How do the employees feel about the system?

We are always very proud of the fact that, as a small and traditional company, we are flexible and open to new ideas. Our spirit of innovation is the reason why we compete with significantly larger manufacturers. This was also shown with the introduction of EMAS. Of course, at the beginning there were a few fears that the own workload could increase. However, these fears were quickly dispelled in the training courses: For the vast majority of employees, EMAS does not change their day-to-day work. And on the other hand there is a lot of positive feedback from employees who, through this project and the first publication of many figures and measured values, have now, according to their own statements, got a better view of „the big picture" beyond their own department horizon.

How did the certification audit work and what expectations does Kelheim Fibres associate with the certificate?

The first audit took place online for two days due to the pandemic. That was the theoretical part, so to speak, in which the structure of our entire system was queried: Who does what and how – and where and how is it documented?

For the final audit in November, one auditor was on site in Kelheim for a whole week, and another auditor was added for just under two days. During this week, all departments were audited on site and examined whether the theory was also being implemented in practice. At the same time, our environmental statement was thoroughly examined and the data sources of the published values checked.

With the OK of the auditors and the confirmation by the authorities, the IHK enters the company in the EMAS register and issues the certificate.

The EMAS certificate will help us to communicate our good environmental performance better and more credibly. For more and more customers, the aspect of sustainability is a decisive purchase criterion – with the EMAS certificate and the associated publication of our data, we have a unique selling point here that sets us apart from other viscose fibre manufacturers.

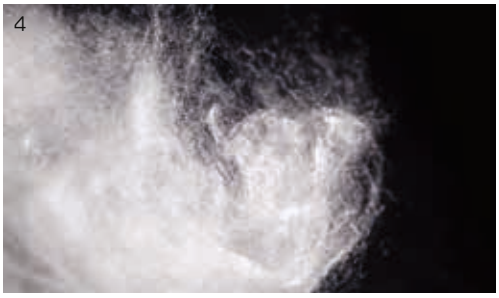
Ms. Schreiner, thank you very much for talking to us! |||

1 Theresa Schreiner, EMAS project manager, Kelheim Fibres GmbH.

2 Aerial view of the Kelheim Fibres production facility.

3 Wood chips.

4 Viscose special fibres made by Kelheim.



On site: The Walki Valkeakoski plant, Finland.

IT Infrastructure

Walki Partner With Greycon for Groups new Global IT Solution

Walki begins the next phase of a group-wide business transformation which includes the modernisation of the group Global IT infrastructure, including MES, Trim Optimisation, and Planning & Scheduling provided by Greycon.

The goal of this transformation," states Wolfgang Thissen, VP Executive and CFO at Walki, "is to implement standardised business processes with the support of a modern and reliable system across Walki's global network of plants and sales offices, enabling the future growth of our business."

As a result of the conversion, a central ERP will be set up to digitalise all Walki business processes across multiple locations. Greycon was selected as the partner to deliver the MES solution (Manufacturing Execution System), Trim Optimisation and Planning & Scheduling to the group. Walki had four main objectives they required from the chosen partner:

- The ability to improve overall operational efficiency
- Support flexibility throughout the supply chain
- A system which allows fast and efficient fact-based decision making, and
  Enhanced systems usability.

To ensure Walki's objectives were met, Greycon recommended combining all three of their solutions, opt-Studio® for Planning & Scheduling; X-Trim® for Trim Optimisation, and GreyconMill™ for production tracking, an all-encompassing and modern MES solution integrated with the selected ERP system by Walki.

"We are very pleased to be selected as partners to Walki, as it gives us scope to show the full capabilities of our solutions, a challenge we readily accept," explains Abder Guezour, Managing Director of Greycon. "As an industry specialist with in-depth experience in planning, optimisation and manufacturing execution solutions for paper, plastic film, packaging and converting industries, and with global presence, we see ourselves as excellently prepared and look forward to assisting Walki achieve their objectives."

"This project is a unique opportunity for Walki," added Hannu Pääkkönen, ICT Director/Program Manager at Walki. "With the implementation of the Greycon solution, not only will we be able to better serve our customers, we will also benefit from a fully integrated solution, capturing important business data that will enable us to make informed decisions. At the same time, this transparency will create a platform for future growth, greater visibility and digitalisation across the entire global organisation."|||

Photo: Walki

Metapaper

New Sample Book

Metapaper, the European e-commerce platform for paper and print, presents a new sample book. Designed by the Hamburg-based design agency Factor and produced by Pirk Musterkartentechnik, it contains all current and new Metapaper papers.

Impressions of the new Selector sample book by Metapaper.

The following papers are new additions in the Selector sample book:

- All ecoFIBRE products that are based on alternative fiber materials such as hemp, straw, factory waste or recycled fibers.
- All COLORS in 120 g/m² and 300 g/m², the "first hybrid color system worldwide".
- Two new white papers: a 100 % recycled newsprint in 80 g/m² for individual newspapers and a PHOTO paper in 190 g/m² for high-quality photo and lay-flat books.

All papers in the sample book can be ordered in the Metapaper shop in small quantities without surcharge, up to large quantities from the various paper mills that work exclusively with Metapaper. The new sample book can be ordered free of charge from the Metapaper online shop (www.metapaper.io).

Olaf Stein, Creative Director of Metapaper: "It is important to us that everyone who is interested in high-quality paper is able to obtain our sample book free of charge. The idea of Metapaper was and is that we offer a compact, high-quality collection with which designers can implement 99 % of all their projects – and that only as much paper has to be ordered for a print project as is actually needed – even if only 20 Arc." |||

Photos: Metapaper


Colored sea of flowers.


Colored wooden boards.

Printtextures

Trends in the Wallpaper World

The wallpaper market is booming. In recent months, many people have taken the home office and limited leisure time activities as an opportunity to bring a breath of fresh air into their own four walls. At the moment, extravagant and unusual wallpapers are particularly in demand.

As a provider of high-resolution textures, Printtextures is in close contact with wallpaper manufacturers from all over the world and can derive both specific trends and the future direction of the wallpaper world from this network.

Wallpaper can visually separate areas such as the work corner in the living room, the bedroom or the hallway from other living areas. In addition to the feel-good factor, wall designs can also create a professional setting for the home office and support a "change of scenery" with restrained patterns without having to go to the office. Even with video conferences, wallpaper in the background often makes a good impression – and can of course express your own individuality. If the Frankfurt-based "Zukunftsinstitute" is right, individualization is "a dominant megatrend of the still young 21st century". And of course the design of the living space plays a decisive role in this. The following trends have been identified at Printtextures.

Closeness to nature

Motifs relating to nature are particularly popular at the moment. The selection includes tropical leaves, exotic woods and artistically expressive motifs, but also oriental flora in light pastel colors or black and white optics – everything is included, from palm trees to jungle bushes to birch and entire forest motifs. A more feminine look, on the other hand, can be created with floral wallpapers. In place of wild jungle motifs, delicate flower tendrils and blossoms appear here. Vintage wallpapers in pale colors like dusty pink are also favorites.

Floral designs not only form a reliable basis for many furnishing styles, they also bring harmony into your own four walls. In addition, floral decors in fresh shades of green bring a certain simplicity to everyday life.

Geometric pattern

Simple and modern, but still a stylish eye-catcher: This is how geometric wallpaper patterns present themselves. Harmony can arise not only through natural motifs, but through geometric shapes as well. Such patterns ensure balance with their symmetry. Single-colored and linear pieces of furniture are particularly suitable to be placed in front of geometric wallpaper. The patterns seem restless at first, but symmetry and clear lines create a tidy look. The details loosen up the atmosphere of an otherwise rather simple room.

Marble, stone and iron

Pattern wallpapers in the look of stone and concrete were already popular last year. Their simplicity often gives rooms a higher quality look.

Photos: Printtextures

However, the trend is now for unusual stone patterns in different colors. Tonalite, quartz, marble, serizzo, titanium, porphyry, travertine, azul do macaubas, azul da bahia or onyx: stone patterns are increasingly interpreted in a modern way, for example with slightly surreal color casts in pink, blue or orange. The still simple patterns underline minimalism and fit perfectly into a Scandinavian interior. Together with light furniture, such designs look noble and set an accent in otherwise rather inconspicuous rooms. The industrial style also derives its expressiveness primarily from concrete and stone wallpapers.

Elegance and extravagance

With a view to this year's trends, according to Printtextures, modern and elegant, but also retro wallpapers are in demand. Elegance can be achieved, for example, with wallpaper with a simple marble look, monochrome wallpaper or designs with rusty metal. Scanned surfaces of rusty sheet metal can create a very classy look - such designs are particularly popular in hotels and designer rooms, mostly in combination with dark, metallic furniture. The retro style, on the other hand, comes into its own with vintage patterns in various colors. These include baroque wallpapers or various fabric patterns.

Of course, you can also combine and consciously create style inconsistencies: A simple wallpaper in gray can – according to the experts – be refined very well with metallic details such as rose gold accessories. Such color combinations also look good on extravagant patterns with ornate lines and baroque style. Concrete look, on the other hand, is characterized by its universal compatibility with exciting optical highlights. Real eye-catchers can be created especially in combination with retro furniture. Rooms equipped with simple furniture, on the other hand, appear rather clean. In such cases, care must be taken to ensure that the overall appearance is not too sterile and cold.

Trend color: shades of blue

Regardless of the topic, the trend color currently remains unchanged, as all shades of blue are represented in both wall paints and wallpapers. It is not for nothing that "Classic Blue" was chosen by the Pantone Color Institute as Color of the Year 2020. Light blue looks inviting and happy, whereas deep blue exudes calm and security. Smaller rooms in particular benefit from light blue designs. A very modern impression can be achieved, especially in combination with straight furniture in simple colors.

Printtextures

Printtextures produces the image material behind the wallpapers. The company only supplies image material of the highest quality and for this purpose works with absolute high-tech solutions in the scanner area as well as high-quality craftsmanship. The use of resources is correspondingly large, but the constantly growing wallpaper industry is also setting new standards in terms of quality. |||

www.print-textures.com


Trendy: Blue stone motifs.


Wood look.


Granite, red.


Stone wall.

Kodak

Say Goodbye to Complexity!

Printing as an industry has a broad history of technology innovation, but it also has a history of complex manual processes and production bottlenecks. Selling the job is only the beginning of a long series of steps that touch every part of both the business and production infrastructures.

By Todd Bigger, President, Software, Service and Support, Kodak.

Prinergy On Demand.

The touchpoints begin with capturing job specifications to ensure that the substrates, inks, and other raw materials are available. The steps encompassed by resource planning continue to grow in importance while the pace of change in the available software tools is faster than ever.

Kodak Prinergy Workflow customers use these processes every day to bring work onboard, prepare it for print, and ship it to their customers. In parallel, they need to capture more data to ensure that all work is invoiced, manage change orders, and ensure the cost of goods sold doesn't outpace what they can charge. The good news is that for twenty years, Prinergy users have been at the forefront of building automated workflows that give them an efficiency edge. Rules-based automation, paired with the on-going development of planning, press management, and data exchange capabilities keeps Prinergy relevant in the highly competitive workflow market.

Kodak knows that growing any print business is hard work. It takes strategy, planning, and a drive for every ounce of efficiency. That is why in 2019, Kodak brought the Prinergy platform to the cloud. The Kodak Prinergy On Demand platform was the first step in developing a cloud-based ecosystem designed to help printers not only run production efficiently but also run the business efficiently. Prinergy On Demand is built on the robust Microsoft Azure infrastructure. It is proof that powerful automation can be efficient, provide the data that improves cost management, and be cloud-based.

Cloud-based integration

Just as the Kodak Prinergy Workflow platform has been built on years of helping printers define workflows that optimize print production using Rules-based Automation (RBA) and powerful planning tools. The new Kodak Prinergy On Demand Business Solutions expand the ecosystem with a set of integrated partnerships that will make the business of printing more efficient. The proven track records of Microsoft Dynamics for business management, PrintVis for Print MIS, and Vpress for Web-to-Print, paired with Prinergy On Demand, brings to market the first smart, cloud-enabled, print manufacturing environment that eliminates the gap between the business and the execution of print.

Many printers already use the popular Microsoft Dynamics Business Central applications to develop analytics, manage customer relationship data, and manage their supply chains. Prinergy On Demand Business Solutions brings the power of Microsoft Dynamics to Prinergy On Demand by linking the full suite of Dynamics 365 business solutions to the Prinergy On Demand platform making it more efficient to run the business.

Already a part of the Microsoft Dynamics platform, PrintVis is the new Prinergy On Demand partner for the complete suite of ERP and MIS functions. Even if you have some of these functions in place, it will be worth reviewing how the twenty years of PrintVis experience in diverse print environments brings innovation to the platform. With PrintVis, you have a complete view of the shop floor for smarter planning and scheduling. The estimating and quoting functions use data from the inventory function for the most accurate job costing. The job ticketing function ensures that every job is logged and tracked from onboarding to delivery and links the process back to the business systems to ensure accurate invoicing.

Prinergy partner Vpress brings the onboarding and client-facing solution to the platform. Industry experts agree that onboarding the job is a common bottleneck, and web-to-print solutions should be in every shop to streamline the process. Leveraging their almost 20 years of implementing scalable solutions, the Vpress Coreprint platform enables integration with a world-class web-to-print suite. Vpress also brings an easy e-commerce solution to Prinergy On Demand Business Solutions customers. Not just a storefront, but the supporting pieces that include a library of variable data print templates, all with complete integration and visibility to business and production.

Streamlining workflows

Printers with islands of automation know the time and effort it takes to work with multiple vendors and integrators. Prinergy On Demand Business Solutions can leverage that investment to bring a deeper level of integration to your processes at whatever pace you need. For printers with mostly manual processes, there may be a temptation to create your own solution, but those who have built islands of automation know the disruption that working with multiple vendors requires. The most cost effective and time-saving path to automation is to work with a highly disciplined Kodak workflow team. They can build a plan that automates the available tools to meet your business needs, adding analytics and visibility to the current and full workflow need. No need to manage schedules from multiple vendors or to be the arbiter when disputes arise. The Kodak team streamlines the engagement, manages the complexity, and keeps your team informed every step of the way.

The business of printing is in the process of a seismic change. To compete in the evolving print market, printing companies must grab every opportunity for automation, efficiency, and end-to-end operational transparency. That is what Prinergy On Demand Business Solutions bring to the market. No matter where you are on your workflow journey, Kodak brings you the first accessible and affordable platform as a Service built to grow your business. Say goodbye to complexity. Say hello to Prinergy On Demand Business Solutions.

For further information on how Prinergy On Demand Business Solutions can help your business, visit www.kodak.com/go/prinergy. |||

Todd Bigger, President, Software, Services & Support, Kodak.

What Does it Mean?

Register Accuracy

The register accuracy describes the position of the color separations in relation to one another in multi-color printing. Michael Weber explains the term.

Example: Exaggerated offset of the color separations in four-color printing.

The register accuracy can be easily explained by means of four-color printing: In order to obtain a print image in four-color printing, a sheet of paper runs through several successive inking units, with one color being applied to the sheet for each inking unit (in four-color printing, cyan, magenta, yellow and black). The colors are printed step by step directly on top of each other and thus result in the finished print image.

In order to obtain an exact print image, the register in the printing machine is aligned for this. This is done optically using fiducials or using digital web monitoring. The register accuracy, also known as register fluctuation, describes the resulting offset of the superimposed colors during printing. In order to keep the register accuracy as high as possible, the printing press requires the highest level of precision. This is the only way to achieve the best possible accuracy of fit of the individual color prints for a sharp print image. If the offset of the color separations is too great, the print image appears blurred and readjustment must be made.

Depending on the printing process (with the exception of digital printing), register fluctuations cannot be avoided as these are caused by the machine. With a high level of register accuracy, these can be kept very low (they are, for example, +/- 0.15 millimeters) so that they do not affect the quality of a print image. ||| **Michael Weber, Head of Corporate Strategy + Marketing, THIMM Group GmbH + Co. KG**

Image: THIMM Group GmbH + Co. KG

TU Bergakademie Freiberg

Inexpensive Inkjet Inks for the Electronics Industry

The NaPaGen team around (from left) Dr. Maik Gerwig, Bedia Jüttner, Frederic Güth and Nadja Lumme.

Young scientists from the Freiberg start-up "NaPaGen" will in future be able to use an innovative production system to produce high-purity precious metal nanoparticles. This produces inks of improved quality for inkjet printing of electronic components and applications for smart systems as well as for vehicle and aircraft construction.

Precious metal nanoparticles form the material basis of conductive inkjet inks in printed electronics. Their composition is decisive for the quality of the inks used industrially. However, the shape and size of the nanoparticles in the inks can vary from batch to batch, as the production of nanoparticles is difficult to control. The quality of the currently available inks varies accordingly. This is where the four young scientists headed by NaPaGen project manager Nadja Lumme come in: "We have transferred the synthesis of the nanoparticles from a classic batch process, in which chemicals are manually mixed, into an automated and continuously operating system. This allows us to specifically influence the synthesis and control the properties of the nanoparticles. The innovative production system also improves the quality of the nanoparticles. They are reproducible and production costs can be saved by automating the closed system. This combination leads to high-quality nanoparticle suspensions and inks on customer request."

Application in wearables, smart systems as well as in vehicle and aircraft construction

The printed electronics market has grown enormously in recent years and is becoming increasingly complex. It now includes smart systems and wearables as well as the mobility and entertainment industries. The market for printed sensors alone is forecast by IDTechEx at 4.5 billion US dollars in 2030. Many small and large companies take the plunge into printing conductor tracks and the like in order to improve existing applications or to generate new ones. The more sustainable use of materials will also play an important role in the industry in the future.

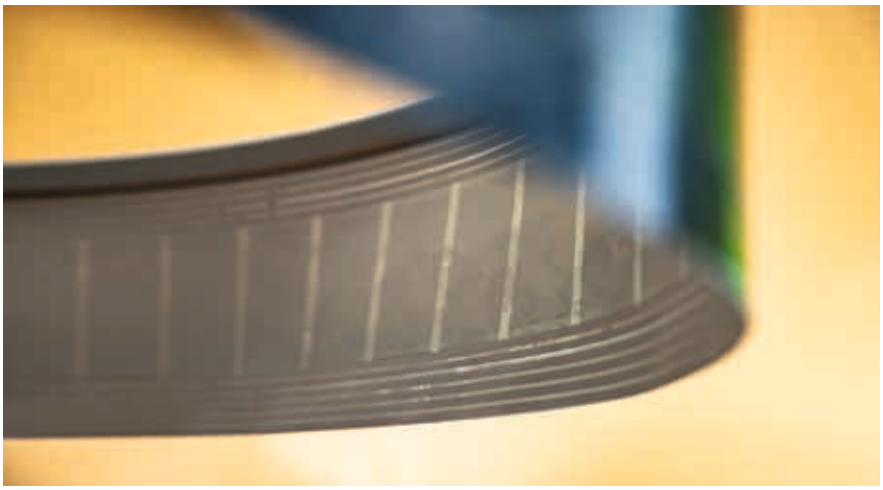
Interdisciplinary EXIST research transfer brings together young researchers from four courses

Nadja Lumme's NaPaGen team is interdisciplinary. The alumna of the TU Bergakademie studied applied natural sciences until 2016 and started her research in the field of nanoparticle synthesis at the Institute for Electronics and Sensor Materials as part of a state innovation grant. The other three founders also completed their Masters at TU Freiberg. Frederic Güth completed his master's degree in electronics and sensor materials in 2014, Bedia Jüttner graduated with a master's degree in business administration in 2015, and Maik Gerwig studied chemistry until 2014, before successfully defending his dissertation last year.

It is no coincidence that the budding start-up should also be based in Freiberg: "We really appreciate Freiberg as a location for science. As a small but fine university, the paths between students, doctoral candidates, post-docs and professors are short and direct. Over the years, a great network has developed that ultimately brought the four of us from different areas together. Of course, we owe our studies at the TU Bergakademie Freiberg primarily for our specialist knowledge, without which we would not be able to set up a spin-off on such a demanding scientific playground, "says Nadja Lumme.

The start-up will be financed until September 2022 as part of an EXIST grant from the Federal Ministry for Economic Affairs and Energy. The start-up network SAXEED of the TU Bergakademie Freiberg supports and accompanies the founders since the application was submitted over the entire duration of the project with weekly meetings, a structured workshop program and step-by-step pitch days with expert feedback. |||

The printed loudspeakers, which are almost invisibly embedded in the paper web, can only be seen in strong backlight.



Printed loudspeakers create a surprising jungle illusion: The printed electronics embedded in a paper web enable 360° surround sound. Varvara Bachul from the Institute for Print and Media Technology at Chemnitz University of Technology analyzes the course of the sound that is generated within the T-RING. The tones come from 56 printed individual loudspeakers, which are connected to seven segments on the four-meter-long circular path.

TU Chemnitz

Surround Sound From Speaker Paper

If the Institute for Print and Media Technology at Chemnitz University of Technology has its way, many loudspeakers of the future will not only be paper thin, but will also make that paper sound impressive.

This is a reality in the laboratories of the Chemnitz researchers, because in 2015 they developed the award-winning "T-Book" – a large-format illustrated book equipped with printed electronics. If you turn a page, it begins to sound through an invisible loudspeaker inside the sheet of paper.

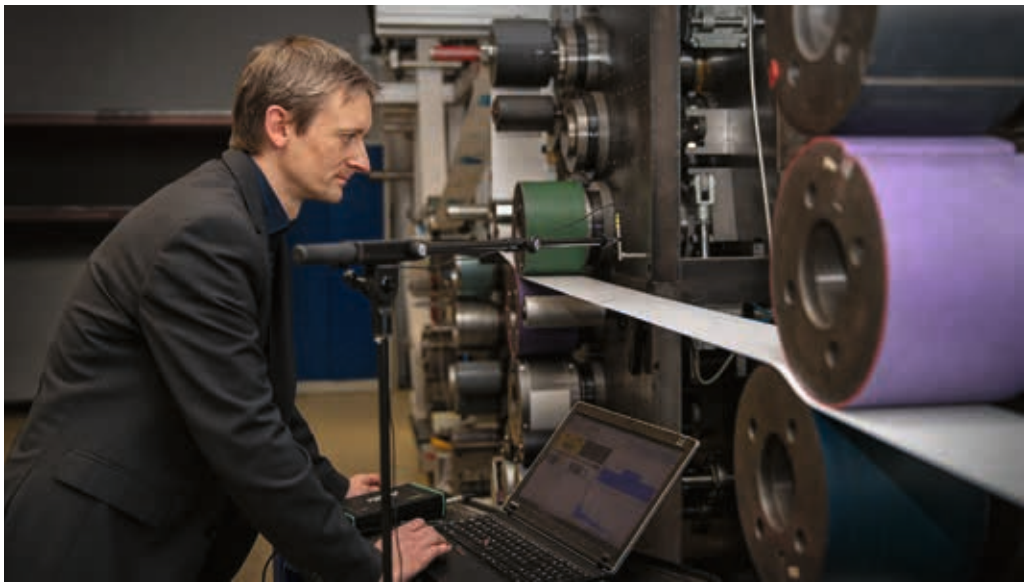
"The T-Book was and is a milestone in the development of printed electronics, but the development continues", says Prof. Dr. Arved C. Hübler, under whose leadership this technology trend, which is growing in importance worldwide, has been driven for more than 20 years.

From single sheet production to roll-to-roll printing

Five years ago, the sonorous paper loudspeakers from Chemnitz were still manufactured in a semi-automatic single sheet production. Normal paper or foils are printed with two layers of a conductive organic polymer as electrodes. In between there is a piezoelectric layer as an active element, which causes the paper or film to vibrate. Loud and clear, the sound is generated by the displacement of air. Both sides of the speaker paper can be printed in color. Since this was only possible in individual sheets in limited formats, the efficiency of this relatively slow manufacturing process is very low. That is why the researchers at the Institute for Print and Media Technology have been looking for a new way since May 2017 – towards cost-effective mass production.

The aim of their most recent project, "Roll-printed loudspeaker paper" (T-Paper for short) was therefore to transfer sheet production to roll

Photos: Jacob Müller



A novelty of the Chemnitz innovation is the acoustic inline characterization: Project manager Dr. Georg C. Schmidt acoustically checks the completely printed paper loudspeaker track on a roll-to-roll printing machine and can thus assess its quality.

production. "Researchers from the fields of print media technology, chemistry, physics, acoustics, electrical engineering and economics, who come from six nations, have developed a continuous, highly productive and safe roll production of loudspeaker tracks", reports project manager Georg C. Schmidt. The roll-to-roll (R2R) printing process was not only used for this, but inline technologies were also developed for further process steps, such as the lamination of functional layers. "This is how electronics can be embedded in the paper – invisible and protected," says Hübler. In addition, an inline polarization of the piezoelectric polymer layers was successful for the first time and complete inline process monitoring of the printed functional layers was possible. The final project results were published in January 2021 in the renowned specialist journal "Advanced Materials".

> "Inexpensive infotainment solutions are now possible in museums, at trade fairs and in the advertising industry."

Long and light paper speaker tracks for museums, advertising and Industry 4.0

The potential of speaker paper was expanded to include other areas of application in the T-Paper project. This means that meter-long loudspeaker installations can now be produced in the form of a track or a circle ("T-RING"). "In our T-RING prototype, a four-meter-long track with 56 individual speakers was connected to seven segments and shaped into a circle, which makes a 360° surround sound installation possible," says Schmidt. The loudspeaker track including the printed wiring only weighs 150 grams and consists of 90 percent conventional paper that can be printed in color on both sides. "In this way, inexpensive infotainment solutions are now possible in museums, at trade fairs and in the advertising industry. In public buildings, for example, a very homogeneous sound system for long stretches such as corridors is possible. But the process technology itself could also be of interest for other areas, for example for the production of inline measuring systems for Industry 4.0," says the project manager, looking to the future.

The "T-Paper" project was funded by the Federal Ministry of Education and Research from 2017 to 2020 with 1.37 million euros as part of the "Validation of the technological and societal innovation potential of scientific research - VIP +".

Multimedia

A classification of the research results on the subject of "printed loudspeakers" in the "T-Paper" project by Dr. Georg C. Schmidt is available in the series "Statements from Research". The video can be found on the Chemnitz University of Technology YouTube channel: https://www.youtube.com/watch?v=SojLNZB1-8g.

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- virtual.drupa: Looking back

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Professor Paper

PTS Heidenau

High-Quality Full-Colour Inkjet Printing

To support the packaging market, PTS has invested in a high-quality full color inkjet printing system in order to have a possibility to perform material testing and analysis. Because of the wide variety of substrates in the packaging environment, such as corrugated board and cardboard, which are also frequently used in the food sector, a system with water-based inks was the first choice.

After looking at the different solutions, the HP C250 from DJM proved to be the optimal choice. The C250 print module is a full color HP-based inkjet printing system, using the HP's latest TIJ4.0 printhead techno- logy, similar to the large Web-Press systems of the T-1100 and C500 class, and can be used flexibly on a laboratory scale. The C250 print module has a printing width of 4.25 inches (108 mm) and at a speed of up to 75 m/min at a resolution of 600 x 600 dpi.

For the application of PTS, DJM designed a complete solution where the C250 print module is installed on top of a linear transport system. With this configuration, PTS can quickly and easily produce test prints on a range of different substrates, enabling the assessment of material behaviour, optimisation of materials, within research and customer projects, and development of new surface solutions.

The system is fully controlled by DJM's Kameleon controller software, allowing PTS to run with different file types. The C250 has short setup times due to the integrated printhead service station, allowing for automa- ted cleaning. Especially the fast execution of test procedures at practice-relevant speeds was required by PTS could be provided by DJM.

The full color inkjet printing system at PTS Heidenau.

The investment in the system was made possible by the INNO-KOM investment grant funded by the Federal Ministry for Economic Affairs and Energy (BMWi). The printing system is already being used in ongoing research projects at PTS, i.e. in IGF research project IGF 20425 BR, which deals with dimensional stability and curling behaviour of graphic and packaging papers. In the project IGF 21164 BG, the product properties of highly opaque coatings for inkjet printing are to be optimised through the use and targeted adaptation of the structure of the silica particle collective and their performance is tested and optimised using the new printing system.

In addition, the system is also available to customers and partners for their own developments and optimisations. |||

Cut out and collect now!

Illustration: Maik Brummundt / Photo: PTS

Aluminium Cones

Automation

Coating Machines

Coating Machines / Curtain Coating Stations

Rolls & Covers

Safety Chuck

Vacuum Systems

Vales

Waste Disposal for the Paper, Printing and Corrugated Board Industry

The Conductor Johannes Kreisler in House Dress
Drawn between January and February 1815 by E.T.A. Hoffmann (1776–1822). Pen drawing in brown and opaque colors, by hand, one sheet of paper; 11.9 x 12.3 cm. Presumably as a supplement to the letter of February 28, 1815 from E.T.A. Hoffmann sent from Berlin to Carl Friedrich Kunz in Bamberg. Probably in 1820 in exchange to Joseph Heller, Bamberg. Arrived with Joseph Heller's collection in the Bamberg Royal Library, today's Bamberg State Library.