TissueVAG

This issue is distributed to Tissue Paper Mills and Tissue Converters in America (North, Centre, South), Asia + bonus countries



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Tissue MAG

NOVEMBER 2022

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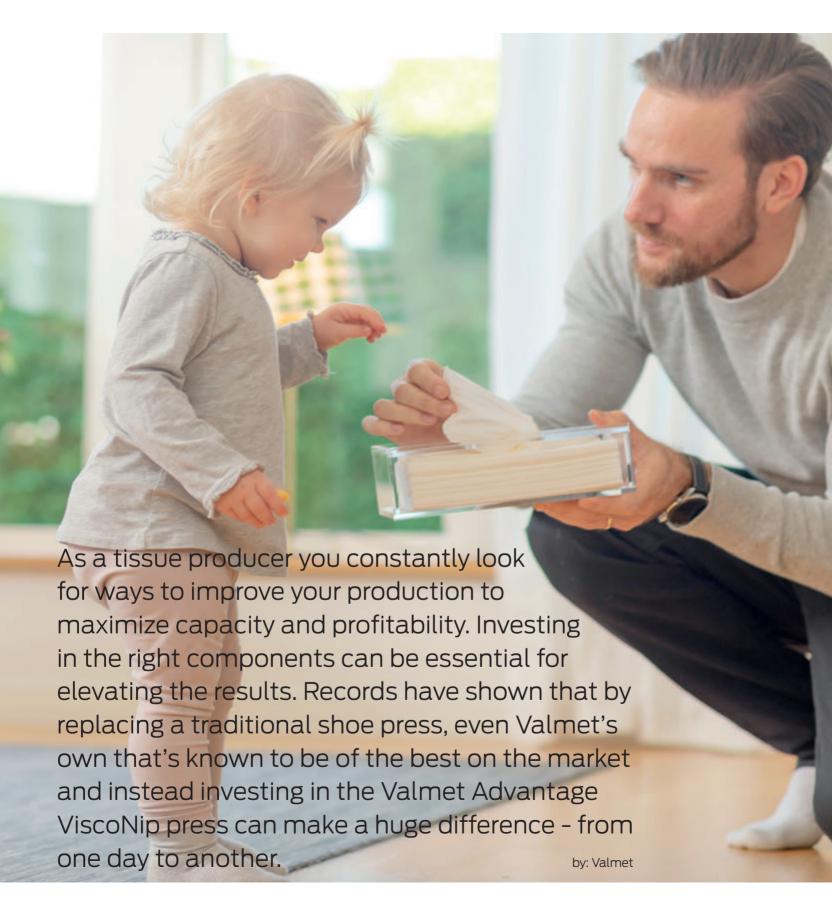
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DELIVER INSTANT RESULTS BY REPLACING A TRADITIONAL SHOE **PRESS WITH VALMET'S** ADVANTAGE **VISCONIP PRESS**

ine Hygienic Holding is a long-term partner with Valmet dating back to 1988. Over the years, tissue machines have been installed at their mills in Egypt, Jordan and Abu Dhabi. A Valmet Advantage DCT200 equipped with a Symbelt, a traditional shoe press, was started up in Egypt in 2005. The machine with its shoe press performed according to expectations but after some years the Fine mill learned about the next generation of Valmet pressing technology, the ViscoNip press. They observed how **VALMET** had done several rebuilds in the market replacing traditional shoe presses, offered by all producers, with the unique

Valmet Advantage ViscoNip press. Hence, they started wondering about the concrete differences between a traditional shoe press and a ViscoNip press and what that could mean for them. As their own mill in Abu Dhabi installed a Valmet Advantage DCT 200TS machine, Fine's fourth from Valmet, they could evaluate the significant improvements in detail and the decision was taken to make the replacement. When we speak to Eng. Khalid Banat,

Egypt Operation Manager at Fine's mill in Al Bardi, Egypt, the message is clear: the results from installing the Valmet Advantage ViscoNip press is really amazing as speed has increased 150-200 m/min overnight without any vibrations,





Fine Hygienic Holding

ine Hygienic Holding is a leading company in the hygiene industry and one of Nuqul Group's companies, founded in 1952 and has grown over the years to become a leading group embracing a number of ventures in the Middle East and North Africa. Fine Hygienic Holding is the sole company that uses SteriPro sterilizing technology, a unique sterilization process that eliminates germs. The company is keen on introducing high quality products in local and international markets.



breaks, snaps or uniformity problems and is now running very smooth at 2000 m/min".

Valmet Advantage ViscoNip Press

But these are not the only improvements. Even though they are now using lower nip loads of 90-100 KN compared to 115 KN with the SymBelt, the energy consumption has decreased. Further, the flexibility in the ViscoNip. with its polyurethan press body that is soft against the Yankee, gives better uniformity and thereby better results in terms of quality. These benefits are visible in the next step of the process: the converting line. Prior to the replacement they were also suffering from very high noise at speed above 1800 m/min due to vibration between belt, shoe press and the Yankee. This is not the case today. Knowing what they know now, they wish they had done this change many years ago. The traditional shoe press demands quite a lot of skills and experience in order to meet production performance and quality requirements in a DCT machine. Those levels and beyond can now be achievable with the flexible ViscoNip provided by Valmet. •

VALMET

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Your ideas, our solutions



Our packaging lines are designed with your needs in mind. Product management, available spaces and the operation of your business are the elements that guide our team in developing the most efficient layout and solutions for you.

Each machine in the line has been created to be user-friendly. Discover a more efficient way to work thanks to an intuitive interface and technologies developed to make your production smarter.





FUTURA SUPER 20

Chief Sales Officer Sergio Tonarelli reports on Futura at 20. by: Futura SpA



n 20 years **FUTURA** has become the technology leader in the segment, through innovation which has accelerated our ability to deliver superior results and performance in partnership with our customers. This has been boosted with the acquisition of Plusline with which in recent years we have been integrated for technological development, combining converting and packaging in a single line, to ensure production process simplification. The benefits for the customer include automation, process continuity, performance, product quality, safety and space optimization.

Automation agenda

Futura has been working for years to create a fully automated intelligent

factory in which the process is continuous, with the highest standards for operator safety. With Andromeda, in 2015, we launched the first automatic parent reel handling system on a converting line. The Andromeda system also manages the placement and cleaning of the spent parent reel core while the machine remains in operation. In addition we have fully automated the replacement of embossing rolls and performance of maintenance operations. Our goal is to have one technical supervisor for packaging and converting, responsible for checking the proper functioning of a totally automated, self-correcting process. It is a more rewarding, qualified, safer and gender neutral role.

On this theme, with Camallo, we have automated the most labor intensive

area of the converting line and made easier the handling of coreboard reels. eliminating human intervention in a touchless, faster and safer process. Camallo can handle up to 16 coreboard reels and adapts to any core size. The log saw's new automatic blade change and sharpening system further guarantees higher safety standards through optimization and the elimination of manual operations. The new sharpening system sets new global standards for blade life.

The Together revolution

All the technologies described ensure greater speed and reduced downtime. But perhaps the most obvious optimization example is Together. created by Futura and Plusline to revolutionize the end of the line by





consumer. "Easy tail" is applicable to any Futura rewinder. Further, our JOI embosser, and its Hydro-bond technology, has eliminated glue and other chemical agents from the product, making the embosser area cleaner and consequently safer. For the consumer, this guarantees perfect adhesion of the plies with the use of water alone, for a more hygienic, soft and ecologicallysound finished product.

Innovation and sustainability

We have increasingly applied our innovative instincts to sustainability. We intend to contribute to the achievement of the United Nations Sustainable Development Goals (SDGs) by focusing on innovation, process efficiency, a short, credible, certified supply chain, use of eco-friendly raw materials,



66 Create **new horizons**. That's the power of the twentieth



integrating converting and packaging, from reel to shelf-ready, packaged rolls. The result is unprecedented process continuity, simplified production flow and a compact layout saving up to 65% of the space occupied per packaging line.

Benefits for the final customer

Our new patented "Easy tail" system is designed to apply a gentle coat of glue to the final sheet, directly on the paper, with unprecedented precision and control. This guarantees a significant quality improvement for the final

products with a longer life cycle and reduction of the proportion of waste which requires disposal. And last but not least, better working

conditions for employees.

Twenty years on

Our technological solutions simplify the work of operators, increase their safety, and guarantee entrepreneurs cost optimization through process automation. The journey so far has been made possible only through partnership with our customers. With them, in this exciting technological era, we anticipate each new horizon with a renewed sense of possibility. We innovate not to break records, but to improve people's lives. •



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Precision engineered solutions created and designed for the paper supply chain



FPZ: side channel blowers

FPZ designs and manufactures side channel blowers for the compression and suction treatment of air and technical gases, supporting the paper and tissue industries in the processes of paper transformation. For over 20 years FPZ has been collaborating with a company specialized in the production of high pressure wet systems, offering blower models in aluminum alloy equipped with efficiency class IE3 electric motor for the suction of incandescent dust during the paper cutting. The sparks are sucked by the blower and turned into inert by a water filter. The work environment is at explosive risk and FPZ machines are ideal for supporting the process by having ATEX certification. For another important customer FPZ supplies blowers to suck chip, dust and scraps deriving from processing in paper mills, allowing to keep the rolls of the machinery clean. Thanks to FPZ's customized solutions. customers can reduce the amount of waste and produce high quality products. Despite working in harsh conditions, a 3-year warranty is offered for the side channel blowers. For an important international customer FPZ has specifically studied and manufactured a blower capable of operating in particularly severe environmental and operating conditions. The application involves the suction of residues from the manufacturing process of the paper sector, of fabrics (with a high presence of high-strength fibers) that are deposited on large rolls whose surface is kept at very high temperature and washed with iets of pressurized water.

Doseuro: metering pumps

Doseuro is the business unit specialized in pumps and systems for dosing chemical, acid or basic products. In paper mills the pumps are used to remove pollutants, colloids, fibers, chlorides and sulphates from the water while the agitators are used in the treatment of cellulose inside the tanks containing water to keep the crumbled wood floating.

The *JustSwitchOn* panel is a new pre-engineered system designed to provide a complete dosing solution, ensure a good quality of the final product and good cost savings thanks to the maximum dosage accuracy. JSO systems include rugged PP frames for single or dual metering pumps and inlet and outlet discharge piping. The JSO panel is an excellent pre-configured



Thanks to over 40 years of experience in the design and manufacturing of fluid handling technologies, FPZ solutions are a point of reference in several market sectors, with over 200 different industrial applications and thousands of machines installed all over the world. FPZ offers the best Italian technologies to produce, transform, pack and handle tissue products, such as kitchen rolls, toilet paper, tissues and napkins for the professional sectors. bv: FPZ SpA





solution, easy to install and ready to use. Another product that guarantees considerable economic savings over time is the new RAPIDA 2.0 pump which, through the customizable 6-button digital control panel, allows to measure the real consumption of chemical products and change the pump settings immediately. Alternatively, it can be controlled by a proportional remote signal. "Quickly and Easily" is RAPIDA's motto! The pump consists of a three-phase asynchronous electric motor together with an inverter board and it is designed to allow the motor speed to be changed according to requirements. It also features a timing working mode that allows to delay the start and define a specific working period, a customized management of the acceleration and deceleration ramp, a partial counter of the working hours.

Arivent - industrial fans

Arivent produces centrifugal fans, generally used for the transport of clean, dusty, corrosive and abrasive air & gas and axial fans for both civil and industrial applications. Thanks to them it is possible to recover the volatile organic substances and the emissions generated by the printing and lamination processes.

The air flow generated by the centrifugal fans



66 Our methodology is a sample of our endless endeavour towards the improvement of products and processes 99

▲ JSO panel pre-engineered system.

▼Silent, robust and high efficiency Arivent fans.

carries the solvents and the "VOCs" to the catalytic blast chillers where the former are treated to be reused as ink in printing processes and the latter eliminated. Finally, the fans can be used in suction to remove chips and dust from the work environment.

According to the customer's request, fans with ATEX certification can be supplied.

RW centrifugal fans with 75kw motors are ideal for transporting paper and cardboard trimmings from processing cutters through a series of pipelines. The impellers are made of RAEX

> wear-resistant steel, equipped with replaceable knives in W1.2379 steel capable of shredding the paper and cardboard trimmings that arrive as production waste. This waste is then compacted and will be reconverted and put back into the production cycle. •



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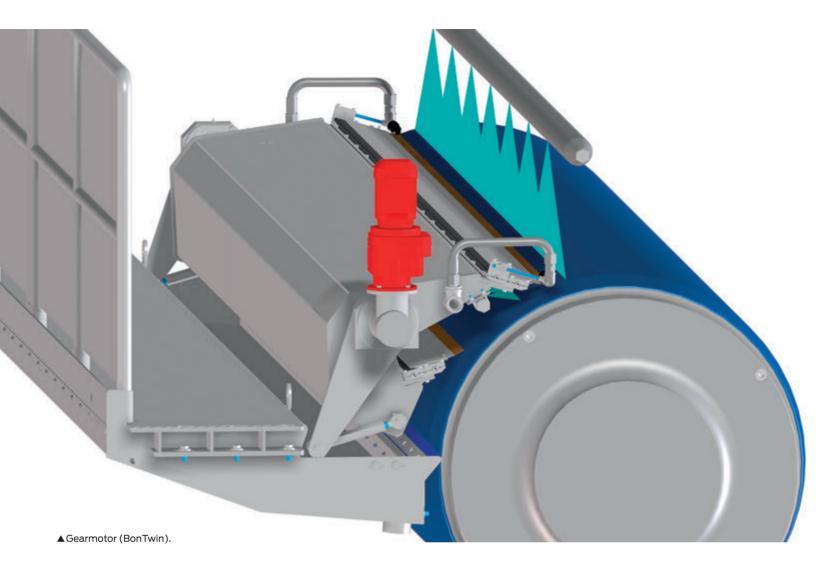
Every detail has been meticulously designed for

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he most commonly known tool, the blade, is manufactured in composite or metal materials and must have mechanical and wear resistance characteristics such as to find the right compromise between life of the blade itself and the safeguard of the cylinder on which it works. **ANDRITZ BONETTI** (AB) offers a service that starts with advice on the best materials to use and the best solutions. to adopt and ends with the maintenance of the complete doctoring system.

AB favors the use of blades made of composite materials - mainly glass fibers, carbon fibers and combinations of the two - which guarantee mechanical characteristics often comparable to those of metallic blades. Today, AB blades include all the qualities and materials currently used in modern paper making.

An example of AB's research for the best is Leopard, a blade with considerable rigidity in cross direction and wear resistance superior to other materials on the market.

AB has developed doctor blades in fiberglass -BR Abrasive - with additives that minimize the risk of sparking on dryers: these blades help keep the cylinders clean with persistent stickies and are appreciated by the most demanding paper makers.

Blade is in fact the part of the doctoring system in contact with the cylinder and it is often required performance that is impossible to achieve if the other components are not in full efficiency. When designing and manufacturing the doctor body or beam one must take into account all the elements involved: each of these factors differ from machine to machine and requires the attention of an engineering doctor



ANDRITZ BONETTI doctoring the world

The primary purposes of doctoring are the cleaning of the cylinders of the machine and the paper take off in some crucial positions.

by: ANDRITZ Bonetti SpA

specialist to ensure the minimum possible deflection and the lack of vibrations. AB doctors are always box-shaped to better guarantee the solidity of the structure. The design of some systems may include a tray, sometimes heated, to collect debris out of internal wire rolls, upper rolls in the press section, suction rolls. Doctor bodies are tailor made for each specific position of the paper machine. While the rigid blade holder such as Bonfirm a/o Super requires only perfect profiling, the flexible blade holder must be carefully maintained by taking care of periodic cleaning and alignment.

On flexible blade holders, the hoses must be replaced with the frequency indicated by the manufacturer: they must not get hard and must not lose air pressure to ensure uniform load of the blade over its length. AB suggests its Bon70, Bon 140 and Bon 250 tubes, each with a





temperature resistance suitable for the different positions of the paper machine.

Stationary doctors cannot guarantee the result of cutting the material off the roll face, nor to avoid hard particles to stick into the blade tip and cause lines of dirt or even damage the surface of the cylinder. Electromechanical oscillators are the most common ones. Their maintenance is often neglected and frequently one can find stuck oscillators with burnt motors or worn excentrics.

AB has developed a pneumatic oscillator (BonMatic) that requires a single air supply line and no external control panel. It offers considerable thrust, able to satisfy the oscillation needs of the most demanding doctoring and creping systems. Air consumption is minimal even if BonMatic is used on each doctor of the whole dryer section. Ease of use, compact dimensions and minimal maintenance make the BonMatic one of the most successful components supplied.

AB mainly uses self-aligning ball bearings with just a simple periodic greasing, they offer unparalleled durability and precision, so much so that they are adopted as a

standard by major OEMs.
Lubrication often helps the cleaning action and surely extends the life of the doctor blades. AB suggests the use of showers. The Hi pressure ones are oscillated with BonSync, an electronic drive which, through its control panel, allows the finest adjustments. In conclusion,

the above confirms the importance of relying on a specialist to guarantee the best possible doctoring: the blade cannot solve all the

problems of cleaning the cylinders or detaching the paper by itself if all the components of the

system are not in perfect conditions. It is clear

6 An experienced and **proven partner** to the global tissue machine industry







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The long-standing partnership between Task Consumer Products and IMA TMC: a successful history





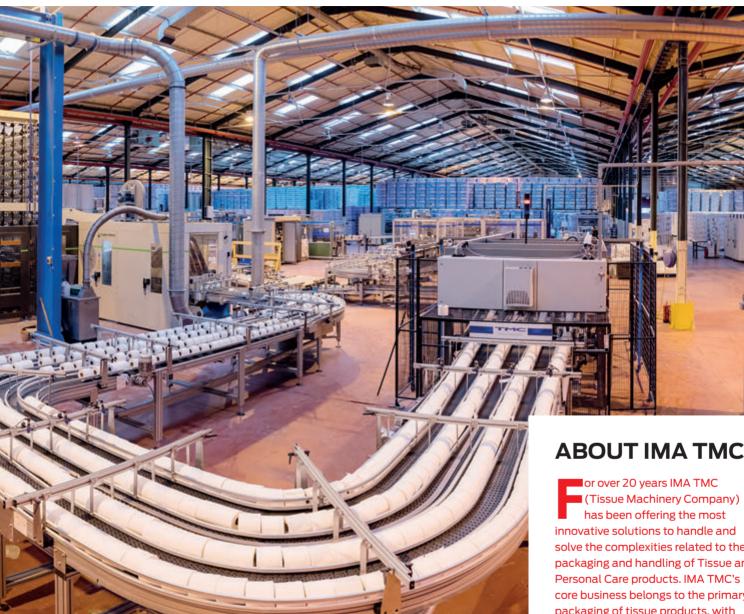
ased in Wolverhampton,
Task Consumer Products
Limited is a manufacturer
of consumer goods
and away from
home products. Task
manufactures high quality and
innovative toilet tissue and kitchen
towel products for the retail and
wholesale market, also becoming a
recognised key supplier to the Away
from Home market.

Task Consumer Products has invested over £30 Million GBP since 2014 to increase its converting capacity to over 100,000 tonnes and continued to develop and invest in its "Little Duck" brand in the UK market: the fastest growing brand in 2020 (*Kantar data*). The business has grown to become the largest independent converter in the UK, with further expansion plans on the horizon as it prepares to add more converting capacity in a new state-

of-the-art facility and with short-term plans develop other markets within the tissue sector. It currently operates 5 fully automated consumer lines and one AFH line.

The link between TASK and IMA TMC is long-standing: the recent supply has replaced some 20-year-old machines from the Italian Supplier. There are two new complete consumer lines supplied by IMA TMC, consisting of the UNIVERSA wrapper in combination





with the CINQUE bundler. UNIVERSA is the automatic wrapping machine for bathroom tissue and household towel rolls that joins the maximum flexibility and versatility with high production performance and ease of use. Combined to the converters of tissue products. UNIVERSA can wrap single. double, and triple layer packs at high speed up to 200 packs per minute. The line is completed by the tissue bundler Cinque: the top range of automatic

IMA TMC bundlers, designed for processing single or any other multi-roll configuration, for bathroom and kitchen products, and with any flexible plastic packaging material, both transparent and printed. CINQUE improves the production capacities of every format, while maximising performance in the requested product dimensions. This extremely flexible machine is capable to treat all pack typologies, from single roll to triple layer

solve the complexities related to the packaging and handling of Tissue and Personal Care products. IMA TMC's core business belongs to the primary packaging of tissue products, with a full array of excellent machinery dedicated to wrapping and bundling Kitchen, Bathroom and AFH tissue rolls. Further investments were dedicated to developing an innovative solution dedicated to the nonwovens primary and secondary packaging. IMA TMC is part of IMA Tissue&Nonwoven: the hub of five IMA Group companies committed to the Tissue & Nonwovens Industry, providing converting and packing solutions for face masks, wet&dry wipes, diapers and absorbency products and tissue rolls wrapping, bagging and bundling up to palletizing.



configurations, up to 26 cycles per minute. Task is planning to expand the lines: their sixth line will integrate another UNIVERSA tissue wrapper. The choice of a supplier such as IMA TMC is well considered: for years, they have been supplying TASK with full optional, durable. and reliable lines. IMA TMC's focus on sustainability is reflected in their machines: today, consumers are pushing for products that help them reducing their carbon footprint and the demand for environment-friendly and fully recyclable products is increasing. Thus, the necessity for the manufacturers to have an equipment capable of switching from current poly wrap configuration to paper wrap configuration. On this purpose, IMA TMC can offer a range of machines able to process heat-sealable paper material at performance comparable to those achieved with poly.



All sustainable-driven innovations on the machines, participate to IMA ZERO: IMA Group's commitment in developing sustainable packaging,

reducing plastic and the use of resources, and promoting a positive social environment. Among IMA ZERO projects, NoP (No-Plastic) is the

66 Innovative solutions to solve the complexities related to the packaging and handling of tissue and personal care products



one dedicated to plastic reduction. Sustainability also means being wisely able to restore used machines, extending their life cycle: the TASK machines that IMA TMC has replaced are highly sought after. Therefore, after a complete overhaul by Spares & More. the IMA TMC company dedicated to the refurbishment and trade of second-hand equipment for the tissue market, these machines will be quickly again in production by other manufacturers.

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experience the alternative

"Without change, there is no innovation, creativity or incentive for improvement. Those who initiate change will have a better opportunity to manage the change that is inevitable"

William Pollard









A matter of chemistry

KEEPING PROMESES ON FIBER AND **ENERGY** SAVING

By: OVERMADE Srl



new DYNAFLO-C headbox design, obtained improvement on the fiber's distribution. permitted fiber saving and higher consistency operations with a consequent amazing reduction of the energy consumption in the approach flow area. These results have driven tissue manufacturers to select OVERMADE in their projects.

Between others the rebuilding of the forming area for **Lucart** with the installation of the new headbox has been a challenging project: to insert in the existing forming section the new headbox for a new production target at 1800 m/min, implementing the latest innovations of the most modern DYNAFLO C, in



▲ Complete tissue plant - OVERMADE ANGEL PROJECT - TM01.

the small available spaces without upsetting the existing forming section. All the characteristics elements of the latest OVERMADE headboxes have been inserted: from the flexible lip to the taper header passing through the expansion/mixing chamber and, of course, the micro-turbulence multitube section DYNAFLO. Similar great results have been obtained at the beginning of 2022 in a new headbox 5600 mm pond width for 2000 mpm installed on an OVER C former. In the press section multiple solutions has been delivered: from single press to double presses integrated with recovered steam and exhausted air blades and integrated with mist removal system to improve the dry

content and the CD profile of the paper at the entrance of the Yankee dryer. The projects have been developed involving POWERMADE. "We are achieving one of our main targets - says **Stefano Marocchio**, President and Ceo of OVERMADE - that is to design and manufacture our machines from the headbox to the winder widening our products portfolio with all the energetic and aero-thermic systems involved in the tissue and paper production. Since we made customers tailored solutions our own strength and priority, the increased capability to serve them with one single platform, from one single supplier is bringing benefits to our customers following our



66 We put at your disposal our know-how in all phases of your project 99



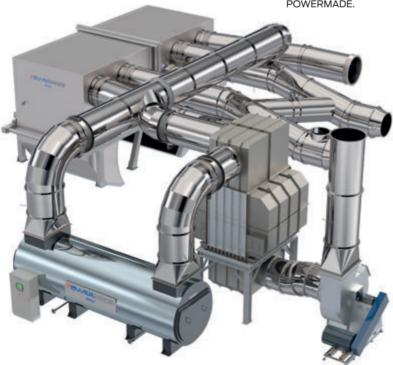
motto: OVERMADE: MADE in Italy, MADE in OVER". **POWERMADE** implemented energy saving and energy recovery projects managing and using all the available energy content of the hot air hood in north of Europe. Installing the Recovery Steam Generator System (RSG1) on existing tissue line where a rearranged hood air system and a steam plant integration permit to operate with the new steam recovery configuration. On top of that a further increase in energy recovery has been implemented with additional cycles of recovery for hall ventilation heating and for water heating.

All above improvements have been finally applied in a new tissue line that OVERMADE is manufacturing for an important North American customer located in Mexico: the NICO ANGEL project is comprehensive of one complete tissue plant for the production 35,000 TPY of high-quality tissue at a speed of 2000 mpm. The customer, well appreciating the quality of the product manufactured by the OVER CR C20 tissue machines and the know-how on energy saving, has commissioned



▲ Headbox delivered to Lucart Group.





the entire line to OVERMADE including the approach flow system, the water and fiber recovery plant and all the auxiliaries such as Vacuum system, Steam system, High efficiency hood, Mist and Dust removal systems all integrated with the heat recovery steam generator. The heart of the tissue line is represented by the OVER CR C20, the OVERMADE tissue machine capable to produce the softest tissue. OVERMADE continue to be a reference for turn key projects being able to supply, from a single platform, integrated energy saving solutions to all the tissue and paper producers. •

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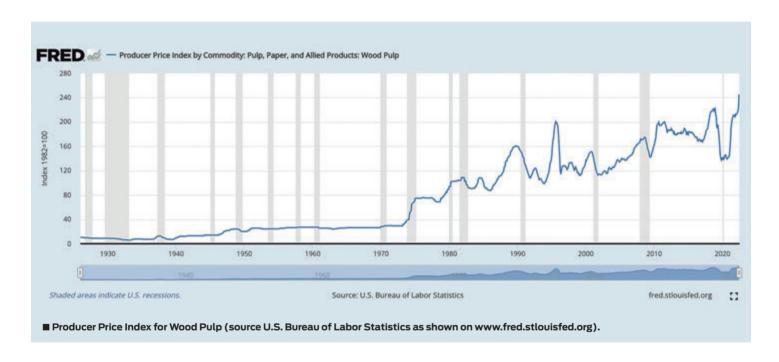
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Hybrid structured tissue efficiency begins at the Yankee transfer

By: Mark Christopher, Global Market Manager Buckman - Paul Howard, Global Industry Specialist Buckman

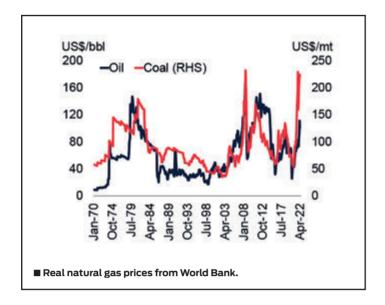


ybrid structured tissue is a term that has risen to describe the latest iterations of structured tissue machines which forego the through air dried sections of the dominant structured platform approach. There are many reasons why a tissue maker would want to create a structured base sheet without having to dry it via evaporation as with a TAD (Through Air Dryer). The two most obvious are the inherent energy inefficiency of evaporative drying and the cap on production imposed on the machine due to this inefficiency. This is particularly problematic at this time in Europe with the

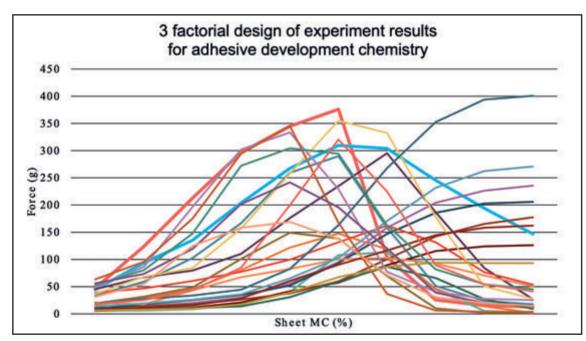
tissue industry heavily reliant on natural gas for hood operation. An advantage that hybrid structured technology brings versus the conventional tissue production is increased bulk to basis weight. This allows creation of high quality base sheets at lower basis weights which is particularly advantageous given the rising cost of pulp.

A hybrid structured machine uses more efficient dewatering processes including vacuum, belt pressing and shoe presses combined with methodologies that protect the sheet structure during the dewatering. The resultant sheet being transferred to the Yankee contains a significantly higher moisture level when compared to the TAD process and is much closer to









▲ Example of corrugation and poor reel build often experienced in hybrid structured tissue.

■Depiction of how changes in adhesive molecular structure impacts adhesion development vs moisture content.

conventional tissue making. With this method, the Yankee and hood sections' capacities are utilized much more compared to many TAD machines, which in some cases are installed with no hoods at all. Being able to do this, while still generating the desired sheet structure and absorbency capacity increases, provides a significant potential for cost savings and profit opportunities generated by the new platforms. Several approaches to the hybrid structured platform have been launched by various OEMs (Original Equipment Manufacturers) as well some proprietary technology approaches developed by tissue companies. NTT and QRT by Valmet, ATMOS by Voith and eTAD by Georgia Pacific are

possibly the most well-known iterations of hybrid structured technologies. Each of these has faced their own challenges in producing quality tissue/towel at high speed, and they all tend to share two common challenges:

- 1. Intimate transfer of the web.
- 2. Temperature intolerance of the prevailing Yankee coating chemistry.

The solution for both the OEM and chemistry provider is to find a chemistry that can manage the moisture levels and inherent variability at the nip with hybrid structured machines. In so doing, uniform attachment results in uniform creping energy across the sheet. Failing to achieve this, the rolls produced will



66 Connected to innovative technology





▲ Improvement in hybrid structured reel build with selection of a suitable coating chemistry (before on left and after on right).

suffer from highly variable reel build across the roll width. Poor reel build is not just an aesthetic issue for the production floor. The variability observed is telegraphing the bulk to basis weight and quality variation of the base sheet itself in these areas. This variability tends to create much difficulty on the converting lines, resulting in lower line speeds at best and high cull numbers at worst.

Intimate and uniform transfer of the sheet from the structured

fabric to the Yankee is the foundation for high speed production and a value added creping process.

Taking advantage of the optimized sheet transfer to the Yankee means speeding up, and higher speeds mean higher Yankee surface temperatures. The higher temperatures harden the prevailing Yankee coating packages which are PVOH(Polyvinyl Alcohol) -heavy in their make-up. This can then shrink the operating window, particularly for higher PVOH-based Yankee coating packages if not correctly modified by the other supporting Yankee coating components. Minimizing the use of PVOH and its correct modification allow for a more temperature tolerant and doctorable coating film leading to fewer blade changes, reduced risk of chatter

and more consistent quality and performance. To address these issues suppliers have developed an array of adhesive technology that provides hybrid structured manufacturers with coating packages that can deliver the needed performance for these challenging nip transfer conditions.

These new approaches minimize the use of PVOH while keeping the complexity of the system down via fewer individual components for the operators to manage. Given that different machine configurations, basis weights, furnishes, etc. result in almost unlimited variation in transfer conditions, correctly matching the chemistry to the right machine requires an analytical approach. This requires an expert audit of the process by the coating supplier so that the constraints of the given process can be contrasted against the available chemistry options. The manufacturer then can understand how the properties of the new chemistry will lend itself to helping achieve the operations and quality objectives. The possibilities for improvements as shown in the pictures above will result in economic returns thanks to more efficient drying and higher quality tissue. The benefits are measured in millions of dollars for the operation. •

BUCKMAN

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The E-WIND® T200 Tissue Rewinder is the embodiment of the company's level of excellence attained throughout the years.

Its wealth of knowledge makes it a fearless company, eager to experiment new solutions and to place its customers in the position of being able to create new products, taking advantage of the new processes it has perfected.











Processes focused on giving customers a head start in this highly competitive world and a tool to safeguard our most precious heritage: the environment.









et's roll together!" is not only a motto for us as this short sentence tells a lot about MAXIMA. Tissue rolls have been in our DNA since our foundation

and our commitment is to be specialized in tissue converting lines for rolled products. The aim is easy and challenging at the same time: to provide the most advanced technological solution to meet customers' needs in terms of line performance and new products as well. The result of this commitment is that today MAXIMA can offer a complete portfolio of technical solutions for almost any kind of tissue roll covering at 360° all the different market segments involved in tissue rolled products. Our complete offer of converting lines is summarized into three families of products that deal with consumer and professional rolls: COMAX our range of dedicated consumer lines, **PROMAX** focused on professional products and **ALLMAX** that gives to our customers the possibility of producing into the same line both consumer and professional rolls.

The COMAX family has been thought and designed with the aim of providing top quality products without compromising line usability and efficiency. Thanks to our MULTIFUNCTIONAL embosser, the change of embossing pattern is quick and safe, with the possibility of having right into the converting line all the patterns that will be needed. With our PRINTECH printer (available in 2 or 4 colours) it is possible to enhance finished products with an endless set of





Taylor-made engineering - The solution is created entirely in-house from design to implementation

different patterns; our quick sleeve change allows minimum downtime and keeps the entire line in high efficiency thanks also to the integrated cleaning system. Rewinding is for sure another relevant detail, when dealing with premium products, for this purpose our UNITECH rewinder has been integrated with BULKTECH system that provides uniform winding for the entire length of the product and preserves bulk as well. Finally, a perfect product needs a perfect cut and this where it comes into play our SAWTECH series of consumer log saws that varies from 2 up to 5 lanes.

PROMAX line of equipment is dedicated to professional rolls where flexibility becomes the most relevant aspect to be considered. That's why we combine our MULTIFUNCTIONAL embosser with our flexible rewinder that allows a quick product change just recalling the desired product recipe from HMI. All product parameters can be set by HMI and even the core change (that in a professional line occurs often) is managed with no mechanical adjustment and completely from HMI within the entire core diameter range (20 to 90mm). A special attention has been put in the cutting section and our **PROTECH** log saw (in 1 or 2 lanes configuration) can provide the highest quality of cut (even for high density rolls), thanks to its special design, thus maintaining the highest level of flexibility with our system of Universal Clamps. ALLMAX completes our portfolio of products. This is not only a "simple" mix of our COMAX and PROMAX features. MAXIMA goal is to provide



▲ PROTECH log saw for professional products.

▼MULTIFUNCTIONAL embosser with automatic rolls change system. an efficient and flexible solution keeping the line footprint as compact as possible. To achieve this goal two special solutions have been developed to complete the ALLMAX family of products: our **TAILTECH SWING.** a patented tail sealer that can operate both for consumer products (high speed rate) and for professional rolls (big diameter rolls up to 350mm). To complete the ALLMAX line a smart accumulation system that enables to have two systems of accumulation (one for consumer rolls and the other for professional rolls) within the footprint of a conventional accumulator. For all the three families of product, MAXIMA has developed its own technology to produce coreless rolls; lightweight mandrels replace cores during the normal production and are then extracted before the log saw. This additional tool can be added into any of our converting lines giving tissue producers the chance of "rolling together with us" whichever rolled product they need to convert!



MAXIMA SRL - TISSUE SOLUTIONS

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Greater flexibility, more precise profiling, much easier maintenance and cleaning: that's music for papermakers' ears! OraCrepe™ Next...sounds good!







A reliable partner for paper producers and paper machine constructors

Since 1987, Indexa is a reliable partner for paper machine constructors and paper mills for the erection and maintenance services of production plants and industrial machinery. Its aim is to maximize the efficiency of companies production facilities, reducing risks and time needed for erections always assuring the highest quality standards. by: Indexa Company

eople are the key to Indexa's success. In fact, Indexa's team is known throughout the world for being able to perform short and long-term projects in a timely and cost-effective manner, without sacrificing quality, safety or expertise.

Flexibility, coordination and problem solving are further strengths that enable the achievement of customer's expectations.

These are some of the reasons why, over the past 35 years, INDEXA has become one of the international leading companies in the Paper Sector erections.

A special focus is given to Converting and

Revamping of paper and tissue machines as these represent an important area for the Indexa's business, in particular:

- Turn key installation of new converting machines and production lines.
- Turn key Transfer of converting lines both on the same site both site to site.
- Upgrade and maintenance of converting production lines.

As partner of paper machine constructors and paper mills. Indexa carries out several activities from engineering to turn-key plant and in particular:

• Base and detailed engineering for new facilities.

► Supply, prefabrication, installation and insulation of duct and piping plants.











▲ Mechanical machinery levelling and alignment.

▼ Electro-instrumental

installation and cable

connection of

MV/LV plants.

- Revamping and components remanufacturing for existing facilities.
- Disassembly (marking, packaging and documentation) of mechanical, electro-instrumental and piping plants.
- Erection (engineering, installation and assembly) of mechanical, electro-instrumental and piping plants.
- Fabrication and metal structures.
- Mechanical, electrical and piping supervision.
- Surveys and alignments.

their expectation forward, through the excellent quality performance of specialized people, working in a safe manner and equipped with the

Our aim is matching customers' needs moving



best tools and trainings. Safety is embedded in our culture and maintaining a safe working environment for all our employees is one of our primary goals. In addition to having dedicated Safety Professionals on all our projects, all our field supervisors are safety trained and receive constant updates as we know that higher levels of supervision ensure better safety, more efficient teamwork and successful projects. Since a while, Indexa has expanded its goals and has been involved in challenging projects, in terms of complexity of activities, time of delivery and required skills.

Thanks to the expansion of the company through localised Branches in Europe and the USA, we can ensure our activities throughout the world. Furthermore, in order to be closer to its customers and to the environment. Indexa is investing in additional Warehouse and workshops to guarantee the best results and has adapted machinery equipment towards green technologies.

Pulling from over 35 years of experience, hundreds of projects and our highly skilled team, we approach each day with a lean thinking mindset of how we can continually evolve our processes to further increase value for our clients.

INDEXA COMPANY

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■ phone: +39 0776 52181 - email: info@indexacompany.com



How to produce superior quality while using less energy?

This calls for an ingenious solution. **INGENIA.**

INGENIA makes it possible to produce premium quality structured tissue paper with substantially higher quality than textured tissue and close to Through Air Drying (TAD) produced paper, **but using 35% less energy.**

INGENIA is the answer to your company's needs and the expression of Toscotec's vision that combines superior efficiency with concrete sustainability.

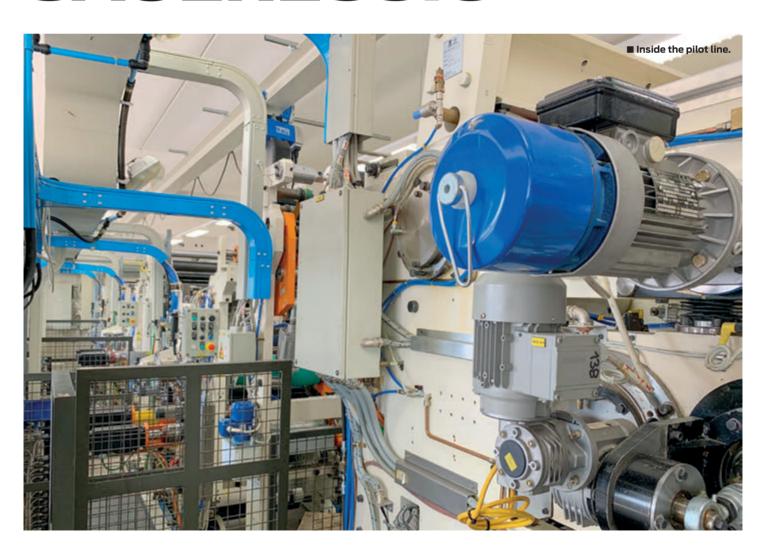




Turning ideas into innovative solutions.

Improving the processing of tissue products together with

SAUERESSIG







◀In-house pilot plant expands testing possibilities of tissue products.

The requirements on tissue products are constantly growing. Designs are becoming more challenging, manufacturing techniques more complex. As a long-standing expert in the tissue industry, SAUERESSIG Surfaces is constantly responding to current market developments and continues to work on forward-looking technologies and process improvements.

by: Matthews International GmbH - SAUERESSIG Surfaces

he company has been known for its creative design development, its expertise in technical construction and the production of embossing rollers, as well as for the assembly of individual machines and highly accurate calendar technologies - thus ensuring a qualitatively compelling and effective processing of tissue products like kitchen towels, toilet paper, napkins and handkerchiefs, in a wide variety of manufacturing processes. Moreover, as a company that has been pursuing a culture of

innovation, a well-positioned Research and Development department can be found as a matter of course. In addition to SAUERESSIG's in-house Competence Center and of particular interest for the tissue industry, a new pilot plant has been installed as well.

New pilot plant further expands testing possibilities of tissue products

The SAUERESSIG production site in Mönchengladbach, Germany, has been established in the surfaces market segment for many years. With the installation of the in-house pilot plant, customers gain the opportunity to evaluate the performance of tissue products under realistic operating conditions. With a production speed of up to 650 m/min and equipped with three unwinders, the system impresses with a high degree of efficiency. Embossing technologies, including nested and top-to-top as well as pre-embossing are possible. Gluing of the front and back sheet can be easily implemented thanks to two gluing units. This way, the facility opens the possibility to develop new prototypes with various technical properties and to test







Turning ideas into **powerful technologies**



unique designs in the tissue segment, before manufacturing the actual production roller. One of the greatest benefits of this proceeding? It lies in opening new market opportunities with low investment risk. The insights gained at in-house tests are promising and might be pioneering for further innovations. "We are highly pleased that the first successful tests involving tissue applications have taken place - says Andreas Greving, Sales Manager Tissue - and we are looking forward to further developments, test series and Research Programms in the near future". Renowned customers like WEKO have already recognized the potential and a specialized WEKO unit has been installed to enable tests including the application of fluids.

State-of-the-art laser technology extends production capacities of hygienic rollers

Not only in the field of testing facilities new systems have been implemented recently. **SAUERESSIG** has also extended its production capacities. A Cellaxy V5 XL laser with state-of-the-art laser technology has completed the first production rolls successfully. It allows for high-precision engravings with excellent detail variety and highest resolution. When it comes to the tissue segment, the new addition to SAUERESSIG's machinery pool is ideally suited for direct laser engraving in steel, due to its high engraving speed and

strong material removal. Hygienic rollers, for instance for handkerchiefs and napkins, thus can be produced with a high degree of cost-effectiveness. Steffen Völker, Managing Director Surfaces, sums up the benefits as follows: "The new technology enables us to offer our customers maximum implementation of their designs. At the same time, we score with short delivery times and can guarantee consistently high reproducibility".

Direct laser engraved match steel rolls for napkins, "patent pending"

With direct laser technology, SAUERESSIG Surfaces can implement solutions for bonding tissue layers and achieves the greatest possible ply bonding effect in napkin production. Talking in term of embossing process, the benefit can be seen in the low compenetration between male and female needed to reach the required ply-bonding, which also drastically reduces vibration and noise as a side effect. In addition, the low compression results in a low side volume, which allows perfect planarity of the napkin pack.

This is just one example of how the company keeps turning ideas into innovative solutions. With ventures to come, SAUERESSIG keeps on focusing on forward-looking technologies and process improvements. •

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ENERGY & Vacuum Systems



Maximize the efficiency of your tissuemaking process





High production and low energy consumption: the key words of OMET converting lines





OMET is always in step with the needs of the market and its customers. Thanks to the continuous technological development and advanced digital controls, OMET tissue converting machines ensure maximum performance, reliability and production efficiency, guaranteeing at the same low energy consumption. by: OMET Srl

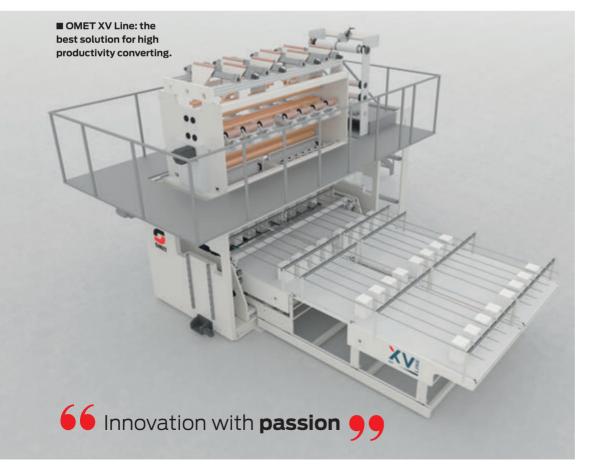
mong OMET latest innovations, emerges the revolutionary XV Line, the converting machine specifically designed by OMET in order to increase the production capacity and the efficiency of the

entire transformation process. This line is the result of a careful technological research with innovative and patented operating principles that allow for an absolute modularity of the machine itself. The machine can reach over 25.000 pieces per minute, making it the ideal solution for high productivity converting. The elimination of the vacuum also helps to make the machine even greener, reducing energy consumption. To complete the machine, all the control technologies developed by OMET in recent years are present on the XV Line, such as vision systems and automatic register controls. ensuring the machine considerable savings in time and a reduction in waste.

OMET recently introduced also the *RED* Line, the new converting line for increased

> production. Thanks to a new servo-controlled cutting unit, specifically developed by OMET in order to reduce waste and time, this machine doubles the usual production, thus reaching up to 10.000 napkins per minute.

The expertise of OMET in the tissue converting sector is the result of 60 years of leadership in the tissue market and the ability to understand the customers' needs and turn them into winning market solutions. OMET tissue converting machines combine full digital controls, ease of use and high printing capabilities. They promote time and waste savings and reliable non-stop operation. Even in this period where we often hear about energy consumption, OMET is able to guarantee high quality of the final product and, at the same time, energy saving, thanks to its innovative folding and interfolding lines high levels of productivity.





OMET high-productivity converting machines are "green" machines. They are in fact equipped with innovative energy saving systems. The lines recycle the energy of the braking motors and carry out continuous monitoring of energy absorption.

Furthermore, OMET lines are equipped with independent motors, and this is a great advantage in terms of energy saving. Independent motors increase the efficiency of the kinematic chains; the machine is not made up of an infinite number of organs that reduce efficiency and waste energy.

On the contrary, OMET lines are made of technological systems accurately developed and that can share and recover energy. Let's not forget also that OMET is investing in several Digital Transformation projects, having realised before others the importance of this revolution and the potential of this new world. As part of Digital Transformation, new skills are developed to acquire the ability to be more agile, people oriented, innovative.

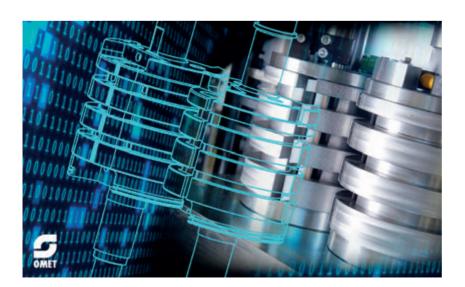
customer-focused, lean, efficient and able to induce and exploit opportunities to change the status quo quickly and generate revenues thanks to new information and services that arise. Innovation has always been one of OMET's key values. Hence various initiatives were born that support a digital transformation strategy, such as: Digital Twin – the virtual replica of a physical system, in this case a tissue converting machine, that allows to reduce production times: Galileo - the new OMET customer service: the NOVA app - new multi-language



▲ New investment OMET projects towards Digital Transformation.

▼OMET Digital Twin: the digital twin that allows you to considerably reduce production times.

OMET App ready to upset remote service and remote installations: OMET Smart - the new OMET system for collecting, analyzing and displaying production data and E-Spare - the new manual and spare parts service managed digitally with the highest technology, through a simple and intuitive online platform. The key benefits of digital transformation are enormous and include improved customer experience, increased productivity, improved business models, improved agility and innovation, better collaboration, and increased transparency. OMET lines embodies the essential requirements that have always been sought by the user: high product quality levels, ease of use, easy maintenance and low power consumption. •



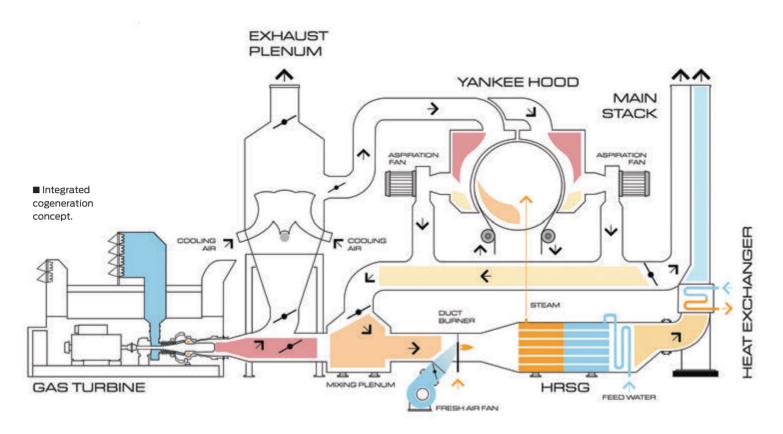
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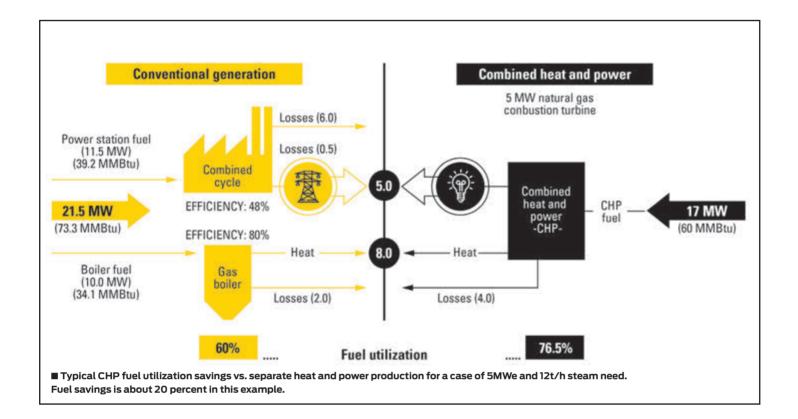


A Caterpillar Company



COGENERATION helps mitigate natural gas and grid power supply chain disruption risks

By: Benoit Fecamp, Market Development Manager, Solar Turbines Incorporated.



he uncertainties of 2022-2023, in terms of natural gas and electricity prices and volumes, top the agenda of boards of directors of the paper and tissue-making industry across Europe and around the world. Given potential natural scarcity, now is an excellent time to look at the role of cogeneration in the energy landscape. Combined heat and power (CHP) is a key ingredient in our energy future for two primary reasons:

- 1. Cogeneration offers a primary energy savings of more than 10 percent. It saves more than 10 percent of fuel compared to the separate production of heat and electricity.
- 2. Cogeneration in general and tissue-integrated cogeneration assets in particular can produce low CO₂ power and heat when variable renewable power generation sets cannot (i.e. when the wind isn't blowing or the sun isn't shining) enabling a larger amount of variable renewable penetration in the power grid.

Alternative fuel sources to consider

There are several ways to mitigate the risks of natural gas rationing, including the use of liquefied natural gas (LNG) or liquid fuel

(like diesel #2) in cogeneration equipment - both consolidated solutions in the power generation industry. Doing so may require a modification of the turbogenerator package to accept the second fuel and additional balancing of the plant equipment to allow its storage and conditioning. Feel free to contact your local **SOLAR TURBINES** customer service representative to evaluate the solution.

Powering the future through

sustainable, innovative energy solutions



It's also important to take into account CO₃ reduction targets when considering the implementation of an alternative fuel source. Diesel #2 may appear to be the easiest option to locate, supply and store. Its CO₂-equivalent intensity coefficient, however, is 38 percent greater than natural gas. NOx emissions during diesel #2 operation are slightly higher than with natural gas as well, requiring a verification of the plant's emissions permit. LNG, on the other hand, has a composition very close to



■Benoit Fecamp, Market Development Manager, Solar Turbines Incorporated.

pipeline natural gas and presents the same basic characteristics in terms of NOx and CO₂ emissions. The LNG supply chain is well-developed and packaged cryogenic modules have been created for industrial applications, making LNG a possible alternative fuel for GT-based cogeneration. Biogenic alternatives also exist and continue to grow, primarily in the form of compressed biomethane, bio-LNG, green hydrogen and renewable diesel like hydrotreated vegetable oil (HVO). These solutions are compatible with Solar Turbines' SoLoNOx™ gas and dual-fuel combustors. Though biomethane and renewable diesel NOx emissions are comparable to their fossil fuel counterparts, CO₂ emission reductions can be as high as 80 percent. This makes using fuels of biogenic origin a possible strategy to mitigate natural gas supply risk while maintaining CO₂ objectives. In addition, with green hydrogen supply chain development, hydrogen may also displace natural gas supply with the above-mentioned

Flexibility has its advantages

biogenic secondary fuels.

Looking at the current market situation in Europe, with an eye toward the medium-term future, CHP flexibility continues to be a key driver to maintain production continuity, reduce production CO₂ intensity and optimize operating costs. That includes:

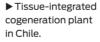
• Fuel flexibility for onsite heat and power generation capability, given natural gas and power availability concerns.

• Operational flexibility, specifically the ability to manage gas turbine or plant production load with a short response time to address specific electrical market demand (taking advantage of low day-ahead pricing, high balancing or high intraday pricing).

Smart digital solutions for CO, and cost optimization

The ideal solution is to maximize the use of an onsite gas turbine during high grid power price days (typically also when the grid is most GHG-intensive). Minimize gas turbine operations when variable renewable power is in excess and when price and CO₂ emissions are at their lowest. That enables the operation to benefit from the lowest CO₂ power in both situations. Smart digital solutions can help you achieve this goal - optimizing production, CHP operation and CO₃ emissions while considering variables like natural gas costs, green fuel input, power prices, onsite renewable power generation, stored energy and more. Solar Turbines' products, capabilities and digital offerings allow you to capture the full spectrum of the cogeneration flexibility that will result in lower GHG intensity, reduced operating costs and greater production resiliency. Visit www.solarturbines.com for more information.

66 Solar Turbines is one of the world's leading manufacturers of industrial gas turbines

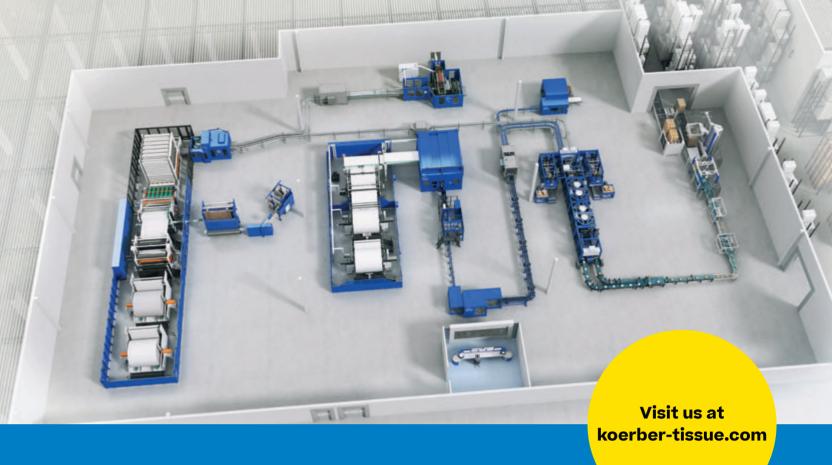




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Unlocking the full power of tissue

The Körber ecosystem is a revolutionary business model developed jointly with other Körber Business Areas and highly qualified external partners.

We now integrate the technologies making up a tissue production environment into a single and complete solution to enable tissue converters:

- maximize OEE:
- streamline procurement;
- · build long-term strategic partnerships.









n early July, a household paper enterprise in Hanoi, Vietnam officially signed a contract with **BAOSUO ENTERPRISE** for a new project with an annual capacity of 20,000 tpy of household paper. This contract

China's intelligent manufacturing in the Vietnamese market and ultimately

achieve a win-win situation in many aspects".

With the gradual improvement of consumption level in Vietnam, the per capita consumption level of tissue is also increasing year by year. In July 2022, two Vietnam-based tissue manufacturers have officially signed a contract with Baosuo Enterprise for the supply of a turnkey tissue equipment project. by: Baosuo Paper Machinery Manufacture Co. Ltd.

includes the overall equipment for tissue production - a Baotuo paper machine (BC1300-3550 crescent former tissue machine) and 10 sets of Baosuo tissue converting machines and Baojin tissue packing machines under Baosuo Enterprise. The tissue manufacturer has a large presence in the northern Vietnamese market and its products are also exported to countries including Australia, America, the United Kingdom and Malaysia. After this new project is put into operation, the manufacturer will further expand the market and consolidate its position as a leading tissue products around Hanoi. Another Vietnam-based tissue manufacturers that signed a turnkey tissue equipment project with us is An Hung Company. Based in Ho Chi Minh City, the investment includes a Baotuo paper machine. Baosuo tissue converting machines and Baojin tissue packing machines under Baosuo Enterprise. The supply includes: 1.BC1100-2850 Crescent former tissue machine. 2. PF-EA3000 Jumbo roll slitting rewinder. 3. YD-PL250C Non-stop toilet roll/kitchen towel rewinder line. 4. YH-FG180-1500 Automatic facial tissue production line. **5.** FW35C Facial tissue wrapper. **6.** TS180 Facial tissue single wrapper. 7. Electric intelligent system. 8. Pulp preparing and white water treatment system. These two project in Vietnam will be completed and put into operation in the first quarter of 2023. A spokesman for Baosuo said: "Vietnam is an important location for China to promote "the Belt and Road" initiative, especially the Maritime Silk Road. It is also China's largest trading partner in ASEAN and China's eighth largest trading partner in the world. Baosuo Enterprise provides turnkey solution for tissue intelligent equipment for the global household paper enterprises. We actively participates in "the Belt and Road" initiative with Vietnamese tissue manufacturers to promote



In addition to the global market, Baosuo mainly provides turnkey solutions of tissue production for the Chinese market. In February 2022. China's Hengan Group has signed for a Baosuo Group supplied BC1800-3650 Baotuo Crescent Former tissue machine to increase its production of premium tissue products. The machine has a design speed of 1,800m/min, a paper width of 3650 mm and will be installed at the company's Changde City plant in the Hunan province. Once the paper machine is put into operation it will add 30,000 tpy of high-quality tissue products to the **Hengan Group**. Moreover, the machine has increased industrial design and is optimized to save energy and improve performance. It is not only favored by Hengan Group, but also selected by Zhongshun C&S Paper Co. Ltd., Sun Group, Asia Symbol and other well-known tissue manufacturers.

Hengan (China) Paper Co. (located in Jinjiang, Fujian), a subsidiary of Hengan Group, also signed

for a Baosuo Enterprise Group supplied Baotuo paper machine in 2020. This paper machine was officially put into production on 26 December 2021 and is mainly used for the production of high-end absorbent base paper for tissue products. A spokesman for Hengan said: "The paper machine runs stably and the base paper has good uniformity and smooth surface." This fully reflects its high affirmation of the stable performance of the Baotuo paper machine, as well as the recognition and satisfaction of the project service of the Baosuo team.

Baosuo Enterprise owns 7 subsidiaries and 6 production bases. We have established a complete industrial chain and our scope of business covers tissue machines, tissue converting machines, tissue packing machines, electrical intelligent system, etc. Over the years, Baosuo strives to provide global customers with professional tissue intelligent equipment turnkey solution. Our rich experience in mechanical design, manufacturing and service will keep your business moving and make your business stronger. •



66 We uphold the **business strategy** of basing on domestic market and going global





When it comes to performance



Your paper machine certainly has a lot of potential, it's a question of getting it out: Start up faster, dewater more and run your clothing for longer - with our New-Tech fabrics you can increase performance and cost efficiency. Are you looking for process optimisation? Our experts can support you in reaching your goals with a combination of high-tech equipment and know-how. Learn more at:

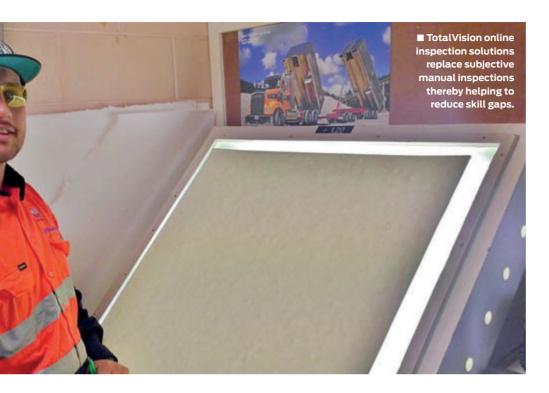
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Addressing tissue industry skill shortages with COMPUTER VISION



According to the US Bureau of Labor, only 23% of operating workers are between the age of 16 to 35 and the median age in this category is 46 years!

The manufacturing workforce is aging while at the same time high employee turnover rates and expensive training make knowledge transfer difficult. Resultant low productivity and inconsistent quality are but two factors affecting business outcomes. Despite such performance issues, the first quarter of 2022 saw manufacturing labor costs increase by 5.7%. Martin Rempel & Vince Roy, Papertech

he tissue industry is facing all of these challenges as tribal knowledge disappears with the retirement of older workers. Little apparent innovation makes the industry unsexy, at least to younger workers seeking to acquire skills with some longevity. As human resource departments need to become ever more creative in hiring and training effective manufacturing personnel, it is paramount to investigate and implement methods and technologies that allow for consistent operations despite labor shortcomings. One technology worth investigating is computer vision, a component of digital manufacturing technologies that use data to provide compelling insights into operational improvements. Computer vision provides the "eyes" that make high speed processes visible and the intelligent tools that make what is seen understandable. Smart image based process automation, troubleshooting guidance and quality records reduce pains associated with missing manufacturing expertise.

Make tissue production easier

Traditionally the successful operation of a tissue machine has been heavily dependent on operator skill level. Today skill compensation is provided by these vision tools:

- 1. Jet cut-through automation.
- 2. Wet-line control automation.
- 3. Sheet formation can be made visible and analyzed without the physical on-machine analysis.
- 4. Root causes of web breaks can often be automatically presented with visual information reducing required troubleshooting skills.
- 5. Web quality defects can be automatically identified often in conjunction with images of their root cause. Subjective operator inspection of web samples and troubleshooting is eliminated.

The vision technology vendor

in tissue production & converting



Furthermore, high speed processes can be recorded and saved for subsequent training of new manufacturing personnel. The access of vision data via remote services makes process and quality data readily available to resources with adequate skill levels in any location. This can make the need for specific site based skill sets unnecessary.

Intelligent operating decisions in the Converting Department

By unlocking data in information silos, knowledge gained from one process can be applied to optimize upstream or downstream manufacturing operations. This also applies to vision data collected during the tissue manufacturing process.

Tissue web surface quality data can, for example, be associated with completed parent reels and passed to

a designated converting process via a Manufacturing Execution System. After a reel is identified, relevant information is presented to the operator and machine control algorithms automatically control line speed to ensure optimal output without process interruptions. The operator no longer needs "tribal knowledge" to get the converting line setup right, allowing new and unskilled operators to run a line.

Simplification of Converting Line Operation

Vision solutions also make converting tasks simpler:

- 1. Root causes of process interruptions can often be automatically presented with visual information reducing required troubleshooting skills.
- 2. Web quality defects, such as poor embossing or print quality, can be

automatically identified eliminating subjective quality assessments.

3. Packaging defects can be

automatically detected and poor quality product can be rejected prior to warehousing or shipment. Today, leading international tissue producers are employing vision solutions, often as "best practice". Increasingly recorded images are used to create instructional videos made accessible via Learning Management Systems and greater emphasis is being placed on proactively managing workforce skill gaps. PAPERTECH, a leading vision technology provider for the tissue industry, is able discuss approaches in implementing the vision toolsets that will maximize the productivity of your workforce. Based

on human resource forecasts it should

be pertinent to get started on better

enabling workers now!







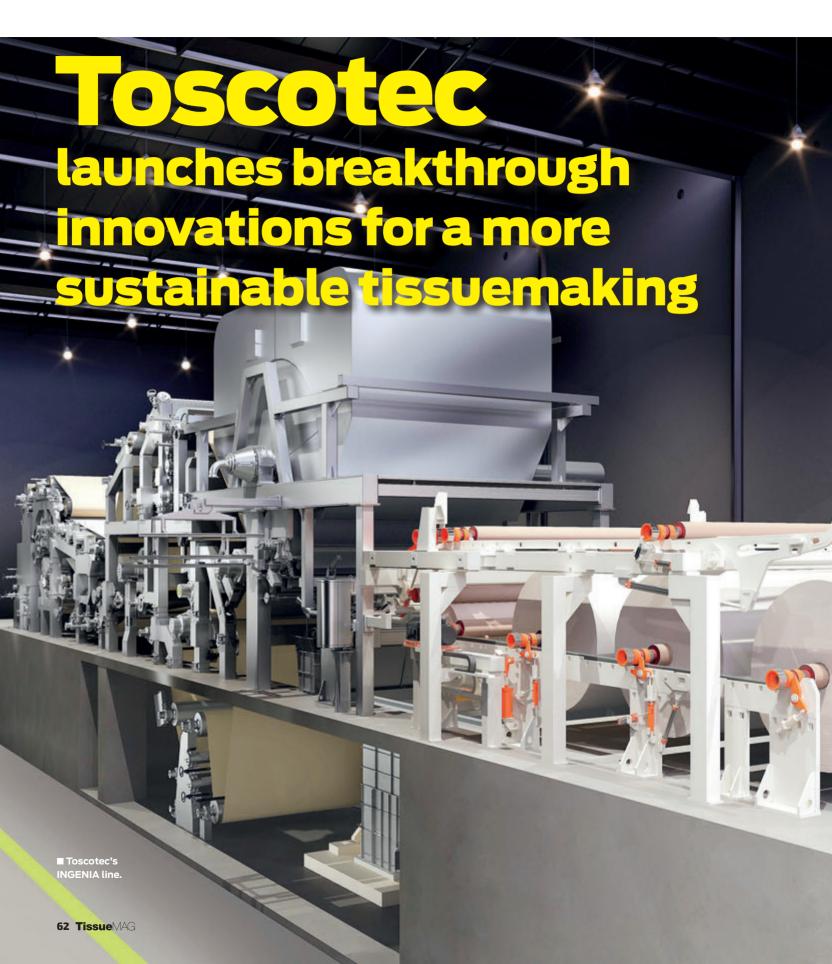


Tau Machines has always offered the maximum flexibility, performance and reliability, and still continues to develop its machines with passion to maintain the lead in innovation.











Energy, sustainability and quality are the most challenging topics at the moment in R&D and design process for tissuemaking. In 2022, Toscotec responded to the challenge of today's market launching two innovations: the new-concept INGENIA tissue line for the production of premium quality structured tissue and TT Induction SYD, a breakthrough Steel Yankee Dryer that uses electromagnetic induction to dry the paper web. by: Toscotec SpA



INGENIA, a new concept machine for structured tissue

Toscotec has launched INGENIA. a new concept tissue machine to produce premium quality structured tissue paper. The quality generated by INGENIA line is substantially higher than textured tissue and close to Through Air Drying (TAD) produced paper, but using 35% less energy. INGENIA delivers premium quality tissue with lower energy use and lower capital investment than TAD lines. INGENIA's concept is based on consolidated technologies for premium tissue, building on vast internal know-how of Toscotec's and Voith's R&D. and field data validation on TAD and structured paper systems. Paolo Raffaelli, Toscotec Chief Technology Officer says: "The key factor for energy reduction compared to TAD, is that INGENIA achieves significantly higher dryness through non-thermal dewatering on a structured moulding fabric. With TAD, the thermal drving starts from 24-26%, whereas INGENIA achieves a much higher dryness level without using hot air or steam. This maintains the premium quality obtained through rush transfer and structured moulding fabric, but uses much less energy".

Ultra-premium tissue quality

Through non-compressive water removal technologies and efficient fiber moulding, INGENIA produces much higher tissue quality properties than other technologies for textured or conventional DCT tissue. These properties include bulk, softness, stretch and absorbency, which improve the tactile "hand" feel and the final paper characteristics that compete with premium segments for toilet, facial and towel tissue grades.

Energy efficiency through process innovation

The process of this new concept machine begins with a dilution profiling layered TT Headbox-ML operating on a twin-wire forming section. Like TAD machines. INGENIA operates wire rush transfer at low consistency. but its key capability is an enhanced vacuum de-watering system without pressing the paper web, which ensures that dryness is greatly increased while fibers are being supported in the same shape as they originally formed when fully water saturated. At the end of the wet section, TT NextPress shoe press uses low loading pressure to gently stabilize the web dryness content and transfer the paper to the drying section without bulk compression. The combined action of a third-generation





design TT SYD Steel Yankee Dryer and high-efficiency TT Hood achieves the final desired dryness. The process is completed by dry creping, sheet stabilization integrated with dust removal, and precision winding using an electro-mechanical TT BulkyReel fitted with a Center Wind Assist on the primary and the secondary arms. The Center Wind Assist fully preserves bulk by reducing the nip pressure against the reel drum during the winding process.

TT Induction SYD, a breakthrough innovation in Steel Yankee Dryers

TOSCOTEC, the global market leader of Steel Yankee Dryers, has introduced TT Induction SYD, a carbon-reduction breakthrough that redefines Yankee dryer technology entirely. TT Induction SYD uses electrical induction instead of steam energy to dry the paper web, thereby cutting direct greenhouse gas emissions to zero.

A disruptive innovation for dry crepe and TAD tissue machines

With TT Induction SYD, the internal steam distribution and steam/ condensate removal systems are entirely replaced by an induction system composed of static coils installed inside the shell and electrical controls and instrumentation located outside for easy maintenance and monitoring. As a result of precise coil geometry, the induction system delivers a very fast and accurate heating effect exactly on the areas of the shell where it is required, while preventing residual circulating currents in other areas. Steam-heated Yankees use steam energy typically generated by burning fossil fuels. TT Induction SYD uses electrical energy that can be derived from renewable energy sources while delivering the same result, i.e. uniformly heating up the Yankee's shell in contact with the paper web to achieve dryness. Luca Ghelli, Toscotec R&D Director savs: "Sustainability is the guiding idea of TT Induction SYD's design. As a proven industrial technology, an induction system offers multiple advantages when applied to the most energy-intensive section of the tissue machine. The efficiency of this

cutting-edge technology will dramatically reduce the carbon footprint of papermaking. Based on our expertise in steam-heated TT SYD and induction systems, we succeeded in developing a more efficient and sustainable steel Yankee dryer".

Substantial carbon reduction with unchanged productivity and paper quality

Normally, approximately half of the carbon dioxide emissions produced by a tissue machine originate from the operation of the Yankee dryer. By using clean energy, TT Induction SYD achieves zero direct emissions, while maintaining productivity unchanged and reducing energy consumptions because of the higher efficiency of the induction system. Due to the precise heating of the shell, it also eliminates possible moisture profile issues related to uneven condensate removal, thereby ensuring an improvement in moisture uniformity in both cross direction (CD) and machine direction (MD).

Maximum safety, easier operation and maintenance

TT Induction SYD was designed without any electrical, mechanical, and radiation risk to ensure maximum safety. Besides offering safe operations, it also clears all issues related to the maintenance of steam-heated Yankees, including pressure vessel's mandatory and planned controls, maintenance of condensate straw pipes against potential plugging and of special heads for steam and condensate inlet and outlet. TT Induction SYD simply requires relatively easy maintenance on the electromagnetic induction system.

TOSCOTEC SPA

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Advanced process chemicals for industry

As a worldwide company PETROFER runs 15 international manufacturing facilities, with representation in over 70 countries, employs over 1,200 people and is one of the leading companies in the fields of industrial technical speciality chemistry. Whatever you are making, wherever it is produced, PETROFER has the process chemistry and know-how to optimise your operation.

The PETROFER PAPER product line not only offers products for tissue and towel, but also provides innovative solutions for the paper, packaging, converting and board industries. Our products are tailor-made solutions with approvals including BfR, FDA, Nordic Swan, thus ensuring the user: high productivity, quality, safety and environmental acceptance in paper processes.











Körber Business Area Tissue the future pass-through the Ecosystem approach





Research & Development have always been the key variables for a company as Körber **Business Area Tissue** that aims to anticipate customer needs and be a pioneer in its sector. by: Körber Tissue Fold Srl

e know that the tissue market is constantly evolving, iust like the needs of our customers. not only in line

with demands of the final consumer but also because of global economy trends. The pandemic and the current conflict have significantly changed the dynamics and balances of the markets, forcing companies to evolve increasingly towards greater flexibility. The challenge for our Research & Development in last years has been to offer customized processes and, at the same time, easy-to-use solutions that limit the need of expert or skilled operators. Our Sam Operation Solution systems are in line with this strategy. They are in fact designed to adapt continuously and independently to the entire manufacturing process, preventing production slowdowns as much as possible.

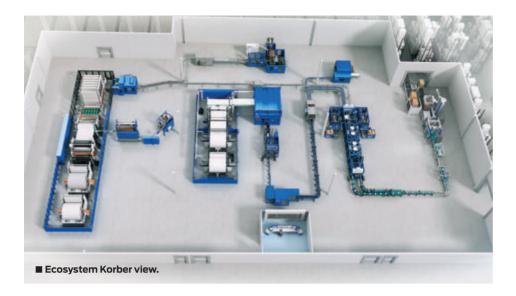
These systems automatically monitor line performance and product quality, always ensuring maximum performance stability. The range of Sam solutions that Körber Business

Area Tissue offers varies based on the customer's needs. Their instalment in our machines, or even in those of third parties, results in significant energy savings and an important reduction in waste compared to lines managed by human operators. Respect and care for our planet are fundamental in

KÖRBER BUSINESS AREA TISSUE to create a better tomorrow for all of us aren't only words. What we are aiming for in the near future, and for which we are evolving into the role of sole reference partner, is also to focus on the flexibility and sustainability of the machines already in the design phase. An example in this way it's our Ecosystem Körber where the technologies involved - in the entire tissue converting process - are now integrated into a single solution, from raw paper to finished product, up to distribution logistics. In the Körber ecosystem all the machines making up the production line, from parent reel unwinding to palletization, including those developed by companies external to the Körber Group, are connected to each other and controlled by Sam Flow, a dedicated piece of software

that continually monitors the process and is capable of self-adjusting the main production parameters to deliver the maximum production efficiency possible given the desired characteristics of the finished products. This "one-stop-shop" concept adopted by Körber Business Area Tissue aims to simplify the tissue converting and packaging practices, even from a commercial perspective, with a single contact point offering to the customers a wide range of benefits - from the best technology solution based on the specific market requirements, to full support in defining the optimal line layout by minimizing industrial footprint. The Körber ecosystem is strategically cohesive. The digital interconnectedness of the Körber business areas underpins the single source ecosystem, and helps target major industry pain points, including: **Sustainability**: plastics reduction is among the top sustainability initiatives. Bioplastics and paper-based substrates are popular replacements for traditional plastic, but can cause equipment jams. Körber Casmatic Zephyrus allows for the use of 100% recyclable cardboard





We offer the industry's most comprehensive portfolio of **tissue technology** across the entire value chain

boxes instead of conventional plastic packaging - a sustainable alternative that also offers additional advantages in terms of product protection, conservation, storage, and palletization. **Ecommerce**: tissue manufacturers are becoming more market diverse, led largely by the explosion of ecommerce. Adjusting production lines for multiple ecommerce packaging formats is simplified with the Körber ecosystem. The flexible and modular Casmatic Zephyrus constructs boxes, packs tissue products, and readies packaging for the shelf using Delta robots and advanced Körber technologies.

Labor shortfalls: the labor crisis is ongoing, and qualified skilled workers are at a premium. As such, tissue manufacturers need flexibility to accommodate a range of operator experience and skillsets. The automation and digitalization of production introduced by the Körber ecosystem alleviates many of the overarching concerns.

Supply chain management: the single source Körber ecosystem makes both production and project management easier for customers. It seamlessly replaces the cumbersome chain of multiple suppliers, which streamlines

communication and logistics. In addition, the Körber ecosystem's single contact point offers customers the best technology for specific market requirements, full support in optimizing line layout and minimizing industrial footprint, and improved management of production time and costs.

Overall equipment efficiency (OEE): an overarching goal of the Körber ecosystem is simplification. All the machines making up the production line, from parent reel unwinding to palletization, including those developed by companies external to the Körber Group, are connected to each other and controlled through Ecosystem Sam Flow or FactoryPal Boost - dedicated software that continually monitors the process and auto-regulates the main production parameters to deliver maximum efficiency for the desired finished product characteristics.

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INNOVATION AT WORK

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- Create your USP
- Expand your product range
- Non-contact application
- Reproducibility of the application amount
- Automatic speed compensation
- Easy operation and access





SOFT LOTION



FRAGRANCE



ANTIMICROBIAL



PLY BONDING



WATER BONDING



RAISE PRINT QUALITY

Create your own and unique hanky, toilet paper, wipe, napkin or facial tissue and raise your margin, quality and company attraction.

Due to the application of water based additives like softener, lotion, balm with vitamins, fragrances, natural extracts etc. you can ensure your market position easily and step into the market of high value customized products. Diversify your product range and be unique!









Towards energy-efficient and economical tissue production with RunEco solution





Vacuum demand varies for different paper grades, felts and machine speeds, therefore, a tailor-made solution with flexible and variable capacity can balance the supply and demand, resulting in both optimized dewatering and minimized power consumption.

by: Runtech Systems

A one stop shop to all paper machine dewatering solutions and services

Together with NASH, another INGERSOLL RAND brand, we are the only company that can supply both liquid ring pumps (LRP) and dry vacuum systems, or a combination of them, for a so-called hybrid system. In addition we offer doctors and save-alls, making our offering complete for paper machine dewatering. With this unique portfolio, we can always find a perfect fit for our customer's demands, needs and budget. RunEco vacuum system is developed especially to take into account the challenges and demands related to the dewatering and runnability. Traditional method of increasing vacuum levels is replaced with speed adjustable turbo blowers, optimal doctoring and save-all systems with online dewatering measurements. By using only the needed vacuum in the critical consumers, mills can fully benefit from the more efficient nip dewatering strategy and save energy. Depending

on machine design and width the most efficient operation sometimes requires one and sometimes two turbo blowers. The specified air flow capacity is typically quite high consisting of overall safety margin, felt life and type margin and with LRPs e.g. pump wear and seal water temperature variation margins. In normal operating conditions the needed air flow capacity is ~40-50% lower than the specified capacity. Regardless of the situation, RunEco system with a fully speed-controlled turbo blower provides high operating efficiency at all times.

During normal operation one single-stage turbo blower typically provides sufficient capacity. However, a system with two units allows even higher operational flexibility, controllability and energy efficiency. E.g. often tissue machines have three main vacuum consumers, namely the press suction roll and two felt Uhle boxes. Also often the vacuum level of the suction press roll is clearly lower than that of the Uhle boxes.



Your **reliable partner**, whenever you are looking for solutions to improve runnability and efficiency

Old system	kW	New system	kW	Savings
LRP x 4		LRP x 1		
LRP x 1	spare	EP500-D1		
Total	950	Total	500	450 kW
				47%

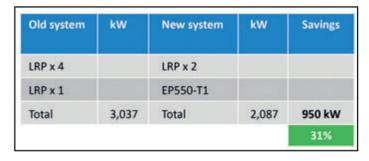
▲A tissue producer gained energy savings of 447 kW which was almost 50% of its previous usage; water usage decreased by 75%. The installed EcoFlow dewatering measurement system provided a better control of the process.

And as air is a compressible medium the volume changes significantly with the surrounding pressure. These unavoidable facts lead to considerable energy losses in a one-unit system through two mechanisms.

First being the throttling losses in the suction press vacuum level control and, second the loss due to the air expansion from the lower suction press roll vacuum state to the higher vacuum in the felt Uhle boxes and in the main vacuum header. An often used vacuum level difference of approx. 10 kPa between the suction press roll and felt Uhle boxes can lead to over 30% increase in the air volume through expansion and thus naturally to large increase in the energy consumption. A two turbo blower RunEco system, while offering a redundant air flow capacity, offers additionally a higher degree of controllability and less losses resulting in a more energy efficient vacuum system.

Typical savings in energy consumption are 30-50% when the losses are eliminated in a two turbo system. In addition

▼ Another fundamental issue in an energy efficient vacuum system is dewatering and doctoring. These are not only related to energy consumption, but also play a major role in paper machine runnability (profiles), efficiency (dirt and breaks) and profitability. Therefore, a well-designed and operated dewatering and doctoring system is one of the key issues to a well-performing and energy-efficient machine.



▲ A confidential tissue producer kept two LRPs for the chester box. A RunEco EP550-T1 Turbo Blower was connected to other vacuum consumers to allow for all energy efficiency targets to be reached.

we also offer LRP technology to form a combination of both technologies - namely a hybrid system.

Hybrid vacuum system

Quite often a situation has been observed where a single, or a few low air flow consumers (devices) are operating at high vacuum levels, such as a high vac box or a press suction roll high vacuum zone, while the rest use a considerably lower vacuum level. This leads to a situation where the most economical option is to continue the use of the existing LRP. Fully rebuilding a system with blower technology is not always the most efficient solution, especially if this means that different vacuum levels need to be combined in one blower. It is proven that a well maintained LRP operating at low speed to produce high vacuum level can perform at a good efficiency level outperforming systems where a large single blower experiences considerable expansion losses.

Discover the potential of your machine

With the experience of thousands of audits and studies at paper mills, we are able to benchmark the effectiveness of existing vacuum systems, dewatering equipment, suction elements, fabrics and felts. This experience and expertise allows us to work with our customers, help them get the most out of their papermaking process and vacuum systems - and ensure they achieve both their operational and process goals. •

RUNTECH SYSTEMS

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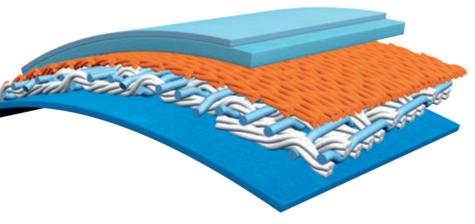
Tecnology and Italian style since 1929

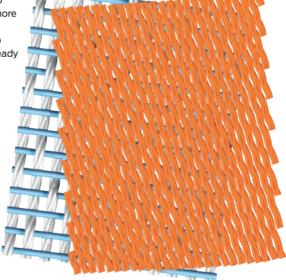




Heimbach keeps on improving tissue machine clothing new advanced Press Felt technology designed for tissue press applications: Atromaxx.T and Atrojet.T

▼ Atrojet.T. Fibre batt fineness and stratification. Paper side base: smoothness & evenness from inside out. Roll side base: void volume, strength, life potential. ▶ Micro Non-woven uniformity structure. Atrojet.T has superior surface contact to achieve ideal pressure distribution for more even pressure transmission at the press nip. Stratified base/batt construction to provide suction roll dewatering. Very steady dewatering and even CD profiles.

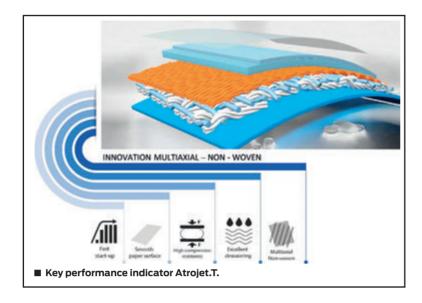


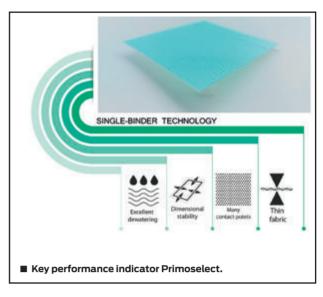


The continuously developed *Atrojet.T* conception combines the benefits of Heimbach most advanced technology bases (ATB) multi-axial Press Felt conception Multiaxial and Non-woven.

by: Heimbach GmbH







Atrojet.T - multi-axial tissue press felt

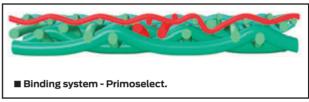
The multi-axial press felt conception are offering comprehensive product ranges to meet the requirements of pioneering press application. The exclusive base weave combinations of **HEIMBACH's** multi-axial tissue press felt conception Atrojet. T and Atromaxx. T meet the specific and individual requirements such as short break in time and high nip dewatering capacity for customized well-engineered tissue press felts application.

Advantages of multi-axial and non-woven tissue press felt technology

Atrojet.T is an innovating tissue press felt conception combining the advantages of multi-axial and non-woven technology. Heimbach meet the requirements of state-of-the-art press felt positions even better. The specific value of *Atrojet.T* is the integrated engineered non-woven paper side layer. Fine uniformity and smooth felt surface of the none-woven layer are unique features of the *Atrojet.T* press felt conception. A variety of customer-specific solutions is given by the fact that the non-woven layer consists to an engineered range of top side batt solution.

Uniformity from inside out

The evenness and uniformity from inside out the felt provides smooth felt surfaces through high contact area. The homogeneous and high contact area of *Atrojet.T* base is superior among press felt technologies. Homogeneous compact felts are important features for tissue felt application regarding even pressure transmission at the press nip which is key for even dewatering and even CD profiles of the paper web. The roll side base of Atrojet.T is made of multi-axial arranged components and are selected as per individual request concerning void volume, mechanical strength etc.



and in context of the individual requirements of the position e.g. one or two nip positions respectively the latest state of the art shoe press technology for tissue machines. Tissue producers are aiming for as smooth as possible transition of process parameters during machine clothing lifetime. Atrojet.T concept offers advantages to meet the requirements of those challenging machine conditions. Thanks to the homogeneous and strong inner structure, which also contributes to high fibre batt anchorage. Atrojet. Thas proven its robustness towards harsh high-pressure shower cleaning which can prevent felt clogging e.g., when changing from virgin pulp to DIP and/or producing non wet strength to wet strength grades. *Atrojet.T* has been proven itself in the field to be able to take up even long-term laminar HP shower.

Forming fabric technology designed for tissue machines

Heimbach have continuously optimized the Primoselect forming fabric conception in recent years. With our latest advanced Primoselect, TSF+ products Heimbach offer a tailor-made forming fabric series for tissue machines. The patented Primoselect.TSF+ single-binder concept is engineered to fulfill a wide range of demands for producing the highest tissue paper quality.

Single-binder technology - thin caliper and low void **volume**. The Primoselect.TSF+ concept combines the best properties of conventional SSB (sheet-support-binder) and



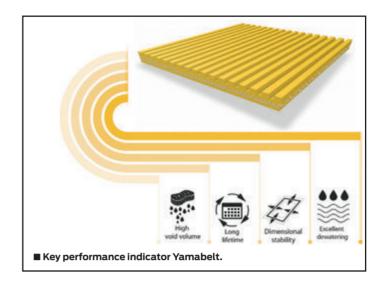
WSB (warp-support-binder) fabrics. Its sets new standards in the ratio of open paper side area and fiber support.

No Interlayer wear - high drainage and durable **performance**. Primoselect single-binder technology minimizes the interlayer void volume. The binding pattern has no CD yarn crossing points, therefore giving a more compact fabric structure, leading to: high drainage area with high fiber support: thin caliper/low void volume for clean operation: no interlayer wear and excellent dimensional stability.

Offset warp system - high dry content and excellent sheet profiles. Primoselect.TSF+ is equipped with an offset warp system in machine direction giving indirect drainage paths, with the advantage being the elimination of interlayer wear and controlled initial drainage. The Primoselect. TSF+ concept enables clean machine operation, increase paper machine efficiency and improves paper quality for the best production of tissue papers. We are convinced that the latest Primoselect. TSF+ concepts will continue to grow and become the standard for many tissue machines.

Yamabelt - shoe press belt on the advance

In the early 60's Yamauchi started the manufacturing of the polyurethane coated products for the paper industry.



New Yamabelt - AIKIDO shoe press belt. The new. advanced Yamabelt AIKIDO has been designed for all kind of paper and board machines including tissue machines. A major improvement of the new AIKIDO Yamabelt is superior mechanical resilience and void volume retentions which enable an effective dewatering and a higher life. The unique groove technology guaranteeing extra smooth surfaces.



66 A **loyal partner** to the paper industry, regionally but also globally



In 1983 the first shoe press belt was developed. In 2010, Yamauchi and Heimbach started the partnership of the Yamabelt shoe press belts. Two worldwide known companies combined their know-how to be able to offer the customers tailor-made synergies.

The value of shoe press belt. High sheet dryness after the press section is a key factor achieving a high machine speed and efficiency. Additionally, many paper quality parameters can be influenced by the shoe press concept and the shoe press belt technology. Most of the shoe presses are equipped nowadays with press belt having continuous grooved or interrupted grooved designs. The combination and interaction of the advanced press felt technology (Atrojet) and shoe press belt technology (Yamabelt) can be the key success factor, when the runnability and the efficiency of the paper machine are tuned to maximum efficiency.

Main specifications. Inner diameter: 1100-2020 mm: Belt width: up to 13 m; Material: advanced PUR (hardness 90 to 95°); shore A); Belt designs: individual range in the variety of groove patterns (plain, grooved, interrupted grooved & high pitch).

Smooth surfaces do support low flow resistance and efficient dewatering by the Yamabelt to provide high sheet dryness.

Yamabelt - A wide range of grooved designs. The Yamabelt product portfolio includes a wide range of different grooved designs to apply the best possible belt design for every individual shoe press position. It is Heimbach's aim to select the optimal belt design for your shoe press demands from the wide variety of Yamabelt groove patterns. A high-precision manufacturing and decades of experience contribute to achieve the highest quality. •

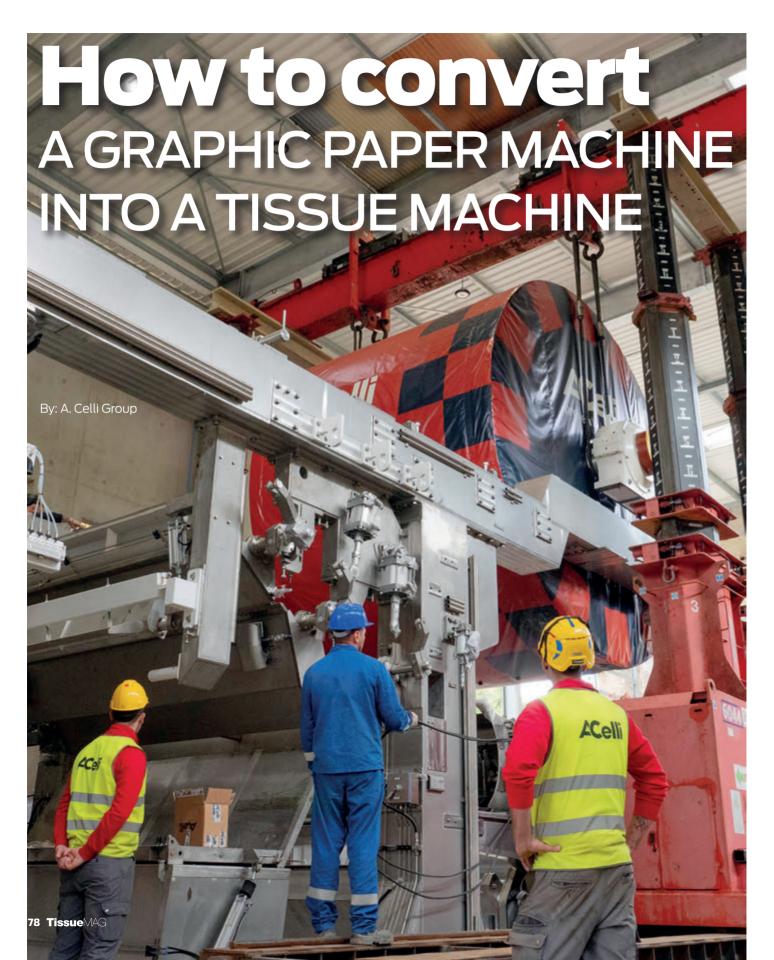
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n the last decade, the extraordinary expansion in the use of computer tools has led to an ever greater reduction in the use of graphic papers for written and illustrated communication, both mass and professional. Today, in fact, the demand for these graphic and writing papers is mostly represented by market niches dedicated to special products such as, for example, papers dedicated to artistic activities, aesthetic packaging and some types of office papers. The general reaction of the paper industry, to avoid the closure of many plants, was the conversion of machinery to adapt them to the production of the types of paper most requested by the current market.

Types of conversions

Most of these conversions involved the transition to packaging paper production, including the liner and fluting necessary for the production of corrugated cardboard, due to the fact that demand for these products has grown strongly thanks also to the e-commerce. However, the packaging paper market is characterized by low margins and conversion investments are justified only in the case of large and high productivity

machines. Furthermore, the transition from the production of graphic papers, typically composed of pure cellulose, to packaging papers produced from recycled waste paper requires heavy interventions on the stock preparation plants. It is in fact necessary to implement the part of the process that concerns the purification of recycled fibers, not present on the original plants fed by cellulose.

Some customers, standing out from the crowd, have instead taken the more creative approach of converting continuous machines created for graphic papers to configurations suitable for the production of tissue paper, namely crepe papers for hygienic and sanitary use. These papers have the advantage of normally having a higher added value than wrapping papers, a factor that increases margins and improves the return on investment.

The conversion process to tissue paper production

From a technical point of view, a plant for graphic papers and one for the production of tissue paper have many parts in common:

• Both can be fed with the same raw material and this

66 In the global paper and nonwovens markets with top-range technological solutions for over 75 years



means that the stock preparation lines do not need impacting modifications.

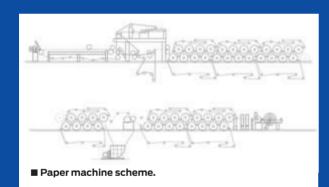
- The same headbox can be used, if the productivity of the machine does not change significantly.
- The Fourdrinier wire in the formation area is typically suitable for medium-heavy tissue weights such as towel papers or table or sanitary support papers.
- The multi-cylinder dryer section can be used in part to complete the drying of the sheet after creping.
- The machine winder (Pope Reel), with any minor adjustments to improve the control of the winding pressure, is normally suitable for winding crepe papers.

The machine section that must undergo a radical transformation is that relating to the presses. In the conversion

The final result

n the image below, you can see the layout of a traditional graphic paper machine.

The final result, once the conversion process has been completed, will be a tissue machine with the following layout.





For more information on how to convert your graphic paper plant into a tissue plant, a process for which **A.CELLI** has all the know-how and experience necessary to guarantee a first-rate result, request a free consultation with our experts.

Technologically advanced tissue machines to ensure excellence in production

operation, the conventional press section of the graphic paper machine is completely replaced by the Yankee Dryer, which groups into a single element 3 fundamental stages of the tissue paper sheet production process: the pressing; a first drying phase and the creping.

As we have said, at least one of the group of drying cylinders of the original machine will be kept downstream of the Yankee press section in order to complete the drying of the crepe sheet. The remaining groups of dryers will instead be eliminated, while the winder will be moved back into the space left free. In this way, the new machine will be shorter and more compact than the original machine, with plenty of space in the area downstream of the winder.

In some cases, a slitting unit can be inserted between the last drying cylinder group and the winder, thanks to which it will be possible to divide the sheet into smaller formats that will be wound in as many coils centered on a single pole managed by the rewinder. This solution will make it possible to directly package marketable finished rolls, avoiding the passage on an off-line rewinding machine. It is important to underline that, even in composing the new Yankee Dryer section, many of the components of the original press can be recovered. Among these we can mention: the suction press rolls; the felt cylinders; the guiding devices and felt stretchers; felt cleaning and conditioning devices.

All this will help to reduce the investment on the conventional part of the press section to the supporting structure alone, thus concentrating the majority of the investment in the Yankee Dryer section consisting of the Yankee Dryer itself, the high efficiency hood and the related steam and aerothermal systems subservient to the two elements. Finally, also as regards the management of process discontinuities (e.g. machine start-ups and sheet breaks), the existing equipment can be reused, in particular the under-the-machine pulpers and the broke treatment system. •

A.CELLI PAPER SPA

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NEST TAKES CARE OF YOUR PRODUCTS.

IMA TMC product range extends up to the end-of-line, offering complete packaging lines through the palletization with **NEST**: the innovative universal gripping head for palletizing systems.

Thanks to the patented product picking, NEST can lift your products from below **without exerting any lateral pressure**, in a precise and reliable way, reducing the space up to 50% compared to traditional parallel opening grippers.

NEST technology also allows to process paper and cardboard interlayers and pallets in wood and plastic, of all sizes.

NEST is versatile: it can be installed on any industrial robot on the market, on any palletizing island and is **compatible with all HW platforms**.











"New complete handkerchief lines"

With efficiency and product quality at the top of the category. Now available with further important developments

By: Tau Machines Srl



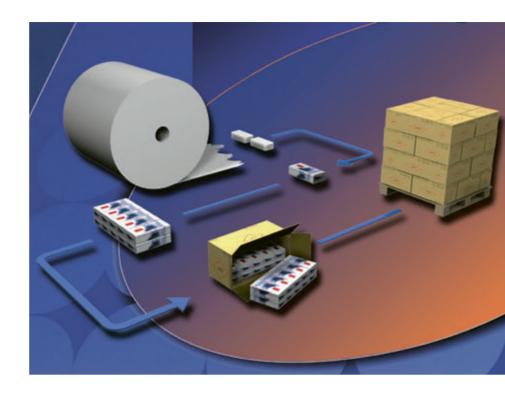
ollowing the introduction of the new handkerchief production lines in 2021. Tau Machines has continued to develop its machines to offer the best solutions to the tissue converting market. The new upgrades of the 2040 lines deliver increased production performance, lower energy costs and faster and easier production and format changes. All this takes place via the machine's control system or remotely. In addition to the new lines **TAU MACHINES** can offer new units for reclosable adhesive labels, delivering up to 500 packets per minute and ensuring better product quality and considerable savings in raw materials and production costs.

A further important development has been the introduction of the new CS120 packaging machine with actual speeds of up to 120 packets per minute, which incorporates all the developments made to the earlier CS80 model and is suitable for the production of bundles of handkerchiefs, packets of napkins and interfold products.

Tau Machines has been serving tissue producers in the international market for over 25 years, supplying complete lines with innovative technical features that have paved the way for flexibility and ease of use in the tissue sector since the beginning of the millennium. Their main technical features were:

- modular machine construction so customers can compose the machine to their requirements; this is achieved through a plug-in system, which can be upgraded even after purchase, for example:
- one embossing unit; two embossing units; a softening unit; fully automatic paper unwinder and splicer; non-stop automatic film splicer and reel unwinder; system to vary the number of single sheets per packet from 7 to 15, on-the-fly through a computerised system; fast changeover system between "pocket" and "compact" packet formats.

Our tradition of leadership in this technology along with our motto "there is no limit to doing better" has continued over the years and has led to the medium-sized machines supplied to our customers becoming the benchmark for ease of use, flexibility, reliability and performance. At the beginning of the 2020s, despite a difficult worldwide market situation due to Covid-related events, we introduced further



important developments that have reinstated Tau Machines at the highest technological level in handkerchief production, with a special focus on sustainability. Our technology is oriented towards the highest possible energy consumption efficiency, which on average is up to 20-30% lower than that of our direct competitors. Our packaging can also use 100% recyclable paper and film, which has led

▲ Lavout.

66 Machines designed for the needs of the customer, with an eye to the future



to significant cost savings and a high degree of environmental friendliness.

For new machines, Tau Machines has designed all the components across the entire line from scratch, including all the mechanical parts and all the electronic systems for motion control and production management. Some of their technical features are:

- Full control over working parameters through HMI panels on the machine.
- Production management from on the machine or in remote mode.





- Scheduled maintenance management from the control panel on the machine.
- Option of connecting to company ERP systems for production management.
- Machine construction complies with EC regulations and Industry 4.0 rules.
- Guaranteed production rate of 140,000 to 160,000 packets per shift.
- 2/3/4 ply and 100% recyclable papers can be used.
- Standard or 100% biodegradable packaging films can be used.
- Extremely easy to use and maintain.
- Use of packaging film with standard sizes and print layouts compatible with all machines currently on the market.

New **CS120** bundle machine with actual speeds of up to 120 packets per minute is the top of its category in terms of performance and product quality. Its various options can be used for packaged bundles of handkerchiefs, napkins and interfold products.

Like the renowned CS80, it incorporates an automatic system for changing formats and types of production. This means that previous work orders can be replicated automatically via a product labelling system that can be operated on the machine panel or remotely via the company ERP. •



TAU MACHINES SRL

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PROMOTECH PRESENTS: ROBOTIC SOLUTIONS

Promotech is ready and committed to leave its footprint in the world of robotics. What is industrial robotic automation and what are its advantages?



Industry 4.0
development has
considerably spread
the use of Industrial
Robotics
Automation
systems, even in
sectors previously
far from it.
The need to increase
production

efficiency and develop new business paths has made robots in the industrial sector to reach such an importance that it is almost impossible to imagine doing some works without their help. The paper and converting industry is no exception.

by: Promotech Srl



ndustrial robotics is a secondary area of Industrial Automation involving the use of robots to assist the operator with some processes, improving his ergonomics or increasing his speed. Thanks to the robotization of processes (Robotic Process Automation) it is possible to obtain production



increases, lower costs, greater precision and reliability. There are several advantages in using robotics in the industrial processes but we can mainly reduce them to three categories: productivity, precision and efficiency. A robot is able to perform many tasks autonomously or semi-autonomously through previously programmed movements, or by adapting its performance to the environmental and process context, using sensors and/or artificial intelligence solutions. In this case, the system acquires data, processes them and adjusts the operation of the machine accordingly.

The use of industrial robotic automation solutions was born in the assembly line to replace humans with robots and automated systems capable of taking on repetitive and tiring tasks ensuring high speeds. It has now developed to very different application realities thanks to the use of artificial intelligence or human-robot collaboration solutions. As a consequence of current and future developments of this technology, its fields of application are multiplying, as well as the advantages for those who automate industrial processes.

Paper and tissue industry: which robots to use

The use of robots is particularly suitable for all those situations in which hard works requiring special attention have to be managed, as they may jeopardise the worker's health. For instance, we are referring to activities involving the use of particular tools such as blades and presses or characterized by demanding tasks such as moving massive paper reels or managing potentially hazardous substances. In all these cases, a robot allows you to carry out the activity while ensuring the safety of your staff. The workers can

perform activities that have a greater impact on the company, increasing their contribution to the overall productivity - as they doesn't have to deal with repetitive tasks with low-added value anymore. Thus, the increase in productivity becomes complete. In

66 We can count more than 1500 satisfied customers worldwide

fact, the ability of robots to increase business productivity should not be overlooked. Furthermore. in particular situations such as the current one. robotic automation has made possible to guarantee work continuity and respond flexibly to processing variations, unexpected staff reductions and sudden peaks in demand.

In addition, the use of robots significantly reduces the risk of oversights and errors, thanks to the high and constant precision degree of the operations, reducing non-homogeneity and processing waste. Finally, it is possible to accurately **schedule** processes, tests, updates and workflows, always knowing in advance how long they will last and how uniform the results will be. Given these capabilities, robots can be particularly useful in the paper and converting industry for activities such as machine tending, material handling and end-of-line and packaging management.

Promotech and Yaskawa, a partnership for exceptional performance

In order to meet the needs of its customers and provide the ideal solution for all production needs, by automating and speeding up processes, **PROMOTECH** has chosen *MOTOMAN* robots and offers complete assistance to its customers. In addition to the wide range of options for various applications such as robots for welding, palletizing, painting and handling, our Group offers models specifically designed for high-quality automated systems manufactured according to the turnkey formula. Characterised by an unparalleled efficiency,

Yaskawa MOTOMAN robots are available in different series and are widely used in any sector and application, especially in the paper and converting sector.

Fast and versatile

The robotic islands that can be created with 6-axis robots are characterised by their compactness and speed. They are suitable for high speed assembly and handling applications, such as machine tending, where they offer payload options

> from 4 to 600 kg. The small size and slim design of the robot arm reduce the installation space and the risk of interference with peripheral systems, increasing installation flexibility. Equipped with an IP67 degree of protection to be



used even in harsh environments, the robots are easy to configure, integrate and maintain.

Palletizing specialists

Another solution is specifically designed for the end-of-line automation. The 4-axis robots can move and build up pallets easily and accurately, due to a loading capacity from 190 to 500 kg and to a range of vertical movement of 3024 mm combined with a horizontal outreach stretching up to 3159 mm. It is a compact application, but at the same time flexible and powerful. Thanks to a high acceleration and speed, it is able to perform up to 1200 palletizing cycles in one hour. Furthermore, the power regeneration function can reduce the consumption of the robot by almost 30%. To enable an increasingly enhanced use of pneumatic drives or suction systems, the robots adopt a large diameter hollow structure for the wrist at the top of the arm, so as to allow the housing of continuously growing pipes.

Partnership with no limits

The new application frontier is to make use of the 6-axis hybrid robots combining the stability and high movement speeds of an industrial robot with a special collaboration with humans, based on the safe limitation of the contact forces between worker and robot. In this way, they can be used according to the ISO TS15066 technical specifications without additional protective measures. In addition, the arm design prevents hands from getting stuck or pinched. It results in an extreme flexibility of installation for all those situations in which the coexistence of robot and man is frequent but not continuous. Regarding programming, in addition to the conventional teaching methods via programming pendant, the robot is equipped with the

Direct Teach (DT) function enabling the robot arm to be manually operated and instructed to perform selected actions. Therefore, the robot is extremely easy to manoeuvre even for users not accustomed to these systems and for processes that require frequent programming.

The collaborative line uses a version with a payload of 20 kg and an outreach of 1700 mm, allowing large objects to be managed. To date, the packaging technology is based on powerful and reliable automation components. For plant workers, unplanned downtime is not acceptable, particularly at the end of the production chain. This applies to all machines related to the paper industry. In order to accurately perform these processes, each single component, from the controller to the robotics, must work seamlessly together. It is easier, more effecient and more suitable for mechanical engineers to rely on the products and expertise of a single manufacturer.

Promotech along with Yaskawa, has long established itself as a reliable automation partner in the world of modern packaging technology, with today's powerful motion controllers and drive systems combined with a wide range of robot solutions designed specifically for packaging systems to allow quick and suitable solutions. Across Europe and around the world, Yaskawa is proud of our network of System Integrators experts, who will design and build the perfect packing station or line for your specific needs. Today Promotech with its Holding Company is able to provide complete turnkey solutions with a view to industry 4.0.

Promotech in Italy and around the world

romotech was established and developed in Lucca, a one-in-the-world centre of the paper industry. Since the 1990s, along with the distribution of technologies for industrial automation and sales, we have been developing a hardware and software consultancy support that offers a series of tailor-made services dedicated to the specific needs of each company and sector. Leading companies in the paper, packaging, pharmaceutical, food and other industrial sectors have chosen us as their partner thanks to a dynamic and specialized organizational structure. Our strengths: large warehouse availability of new, obsolete - used and refurbished - components, problem-solving skills, technical support and repair service.



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Embolube® 120 D - an embossing fluid technology for a safer, sustainable future

PETROFER is proud to take care of the safety of converting staff, who can be exposed to fire risk, while generating significant cost and efficiency savings for tissue and non-woven converting.

by: PETROFER

he production of tissue items such as hankies, toilet paper or kitchen towels takes place in several steps. Besides the production, which includes stock preparation and the manufacturing process, the converting to the finished product is also an important part of the process. It is precisely here, in the converting process, that we have seen the opportunity to make a positive contribution to occupational safety and sustainability. During the processing of tissue, a lot of dust is generated, which combines with oilcontaining substances that are used to keep embossing lines clean and float around the machine like a cloud. This is where our idea of improvement comes in. We are PETROFER and BFG. **PETROFER** develops, produces and

The leading oil and chemical supplier to industry - over 600 high quality chemical products

markets innovative process chemicals for a wide range of industrial applications. **BFG** as our Italian distributor, are also our service provider for technical problems and questions around the application of lubricants and chemicals in the local paper industry.

What is the challenge on the machine in detail?

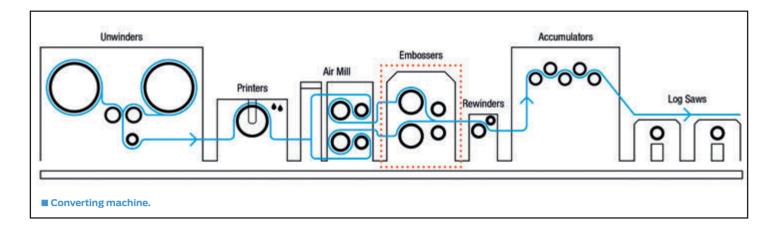
The oil commonly used for embossing in tissue paper production has a low flash point. Due to the static electrical charge produced on the machine during converting, sparks often occur, which, combined with the aerosol fog of the oil, means a high risk of fire. These circumstances pose a huge safety risk to workers and any subsequent fires are the reason for the high costs incurred to repair the machines after an incident. Apart from these problems, the tissue paper manufacturing process brings other challenges.

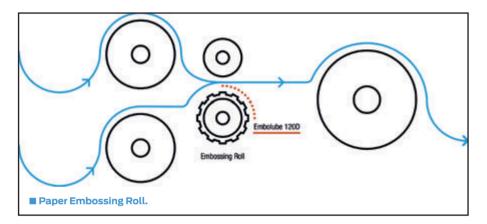
The conventional and historical process, based on silicone oil also has disadvantages. Most of the silicone oil available.

oil, also has disadvantages. Most of the silicone oil available in Europe is imported from China and the supply of this oil presents logistical challenges. Additionally, due to the high energy consumption in the production of silicone oil, the process is extremely expensive and harmful to the









environment. It also poses a hazard because it is very slippery, consequently there is a high risk of workers slipping if any of the oil spills onto the floor.

Our product Embolube® 120 D with its water-based formulation combines the excellent embossing and cleaning properties with an increased level of safety:

- high cleaning power.
- ideal lubrication.
- reduction of frictional heat.
- non-flammable product/no flash point
- as water based providing a significantly lower fire risk.
- lower total dosage = lower costs.
- not containing MOAH (aromatics).
- high delivery reliability and availability without huge logistical costs.

Case study

One customer experienced up to 3 fires a year on their converting line. In addition to the enormous damage to the machine and the safety risk for his employees, this also posed a problem for the insurance company.

Resulting in higher insurance premiums. We were given the opportunity to test our product. Right from the start, it became apparent that we could significantly reduce the consumption quantity while maintaining the same production quality/speed. In total, we reduced consumption by 55% compared to white oil. The reduction in consumption also eliminated the excess aerosol fog. This has the positive effect that dust and pollution debris are considerably reduced. This minimized the cleaning effort and added two further production shifts per month. By using our non-combustible product, the insurance premium for the

converting line could also be reduced, as well as the amount for storage and stocking. All this showed our customer that besides the safety advantages, a more cost-efficient product can be realised.

Conclusion: Embolube® 120 D improves efficiency, safety and cost savings in tissue and non-woven converting. •





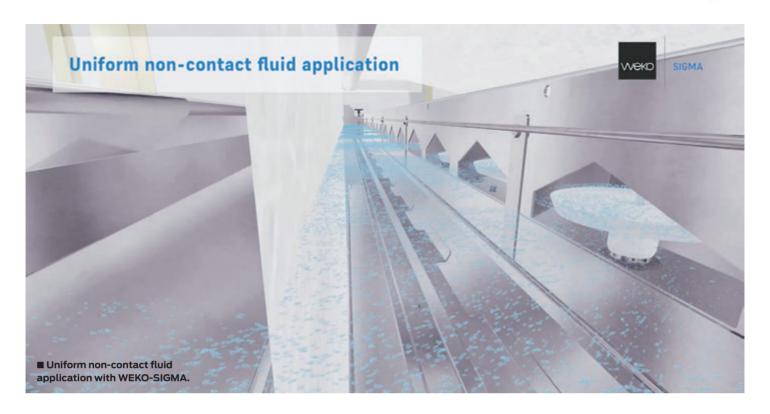
OMET your Full Service Provider



IMPROVE your multi-layer TISSUE

As Ply bonding of multi-layer tissue is an up-to date topic it is seen that tissue manufacturers, facing difficulties while aiming to achieve a strong bond at soft touch. WEKO's water bonding process using water during the embossing helps to improve ply bonding in a roll converting machine. Thanks to precise fluid application WEKO offers efficient solution concepts for your multilayer tissue with ply bonding and water bonding! bv: WEKO

■ Perfect embossing quality and improved layer adhesion due to the application of water.





▲ Carolin Russ, Product Management Tissue WEKO.

he inventive company from south Germany with a long history working in close cooperation with manufacturers of additives, has developed a precision system based on a proven technology: the non-contact fluid application system. This provides numerous benefits for the tissue industry. Your Benefits:

- Free in embossing design
- No knurling necessary
- Process reliability
- Precision and reproducibility
- Less strain on the tissue
- High productivity and economy
- Raise in print quality.

The WEKO solution

Based on rotating, spraying discs, a uniform stream of finest micro-droplets is generated at a high speed to accurately give the tissue its individual properties. "The application volume can be controlled quickly and precise for

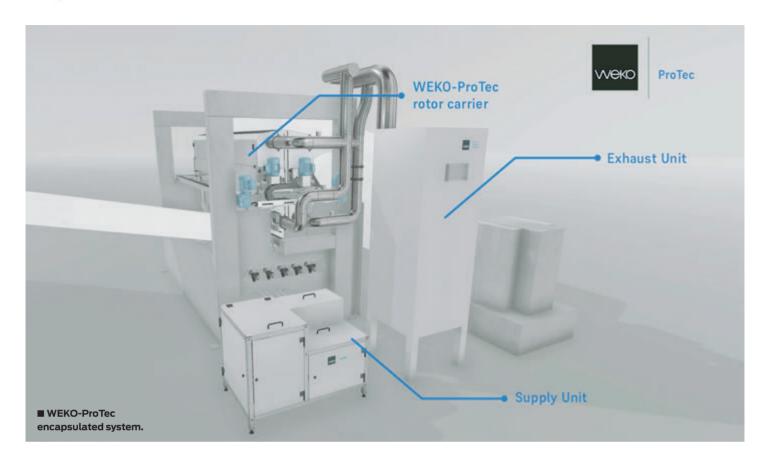
reproducible results. Because less is sometimes more - it is the effect that counts" - emphasizes Carolin Russ, product manager at WEKO. The mechanical tissue strain does not come into play with the WEKO Fluid-Application-System (WFA). There is no contact with the tissue and therefore it is handled extremely carefull. The rotation of the discs create a 360° spray circle from which a part is used that meets the tissue. The remaining part of the spray circle is kept in the chambers of the rotor carrier and is circulated to the supply unit where it is re-used. By continuous filtering the liquid, contamination of the application bath does not appear. As a special option for this industry **WEKO** thought about a solution to prevent the tissue web from sticking and so breaking if the machine is being stopped.

Our encapsulated version WEKO-ProTec provides the rotor carrier with an enclosure which can be connected to an extraction system. Contamination of the working environment is avoided and thus safety generated.



Teamwork and innovation are our keys to success





How does it work?

Ply bonding with WEKO means bonding the single tissue layers applying a defined small amount of liquid glue. The combination of several plies during embossing forms the multi-layer tissue. For WEKO's rotor spray



PLY BONDING

application water-based glue is suitable. Its fine dispersed micro droplets are distributed even and work perfect on sensitive surfaces without any material strain.

Water bonding is a booster for the ply bonding process. With three or more plies an adhesion is possible without extra knurling. Therefore the embossing design is very flexible and cost saving since no extra knurling tool is required.

By spraying a defined amount of water, the layer adhesion is massively improved, as the water increases the penetration of the before applied glue in every single layer. Also the swelling properties of the fibers allow improvements of the tissue in dimension, bulkiness and volume. Your Process reliability is increasing since the system works very continuously. Experience the "Innovation at work". Together with SAUERESSIG Surfaces, we are operating a pilot



WATER BONDING

plant equipped with a specialized WEKO unit, where you can test your ideas and prototypes outside of the running production.

Contact us for more information about the improvement of your multilayer tissue.



▲ YouTube video link.

WEITMANN & KONRAD GMBH & CO. KG

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- contact person: Carolin Russ, Product Management Tissue
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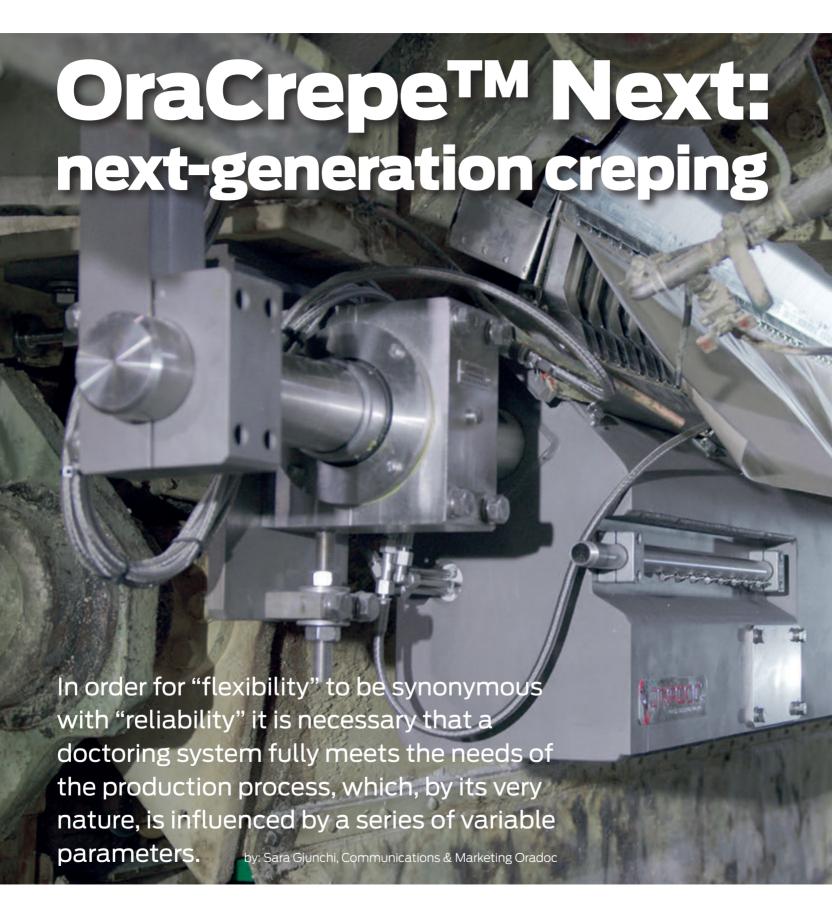
Valmet Tissue Technology Center is a unique resource for the cultivating and realization of ideas, innovations and verifying new technologies or machine configurations. With access to flexible production tools, a fully equipped paper laboratory and a wide network of tissue expertise near at hand, we provide a creative environment for constructive work to achieve your targets.

Valmet Tissue Technology Center provides a full sized, flexible pilot line to meet tissue makers' every need and can be configured for production of plain, textured or structured tissue products or configured according to specific requests. The pilot line is equipped with latest technologies to ensure you can follow the trial on site or remotely. In close collaboration with you we can achieve great results!

For more information: www.valmet.com/tmpiloting









igh product quality and production variability (always taking into account the different process conditions) are the peculiar characteristics of modern tissue market, which requires high-level performing machines. The choice between rigid or flexible doctoring system, therefore, is carefully considered on the basis of the characteristics of the machine and the type of production (production speed, paper weight ...) and it is not necessarily definitive. That's what the **ORADOC** and **WEPA** case history is all about: a change of strategy that led to a tangible improvement in production level, as well as leading to the development of a new product now available in the range of doctoring solutions provided by Oradoc.

With thousands blade holders installed all over the world, Oradoc can certainly boast a consolidated experience both in terms of highly customized design and assistance during installation and maintenance. But what makes a company competitive on the market and in line with the times is its ability to keep pace with customers' production needs, welcoming their requests just to turn them into solutions that are innovative from a technological point of view as well as reliable and performing. This is how $OraCrepe^{TM}$ becomes $OraCrepe^{TM}$ Next.

Maurizio Tomei, Sales & Customer Service Manager of Oradoc, summarizes the genesis of this venture as follows: "The project was born from the combination of two main aspects: from one side the will of Oradoc R&D department to develop a new flexible doctoring system for Yankee cylinder, on the other side the need of Fosso Ralletta WEPA plant to replace the existing PM16 creping system - a rigid and obsolete solution - with a flexible Oradoc one".

"We had already adopted this solution in 2005 on PM17 -







66 ORADOC - Perfect **Doctoring** Systems 99



explains **Stefano Chiocca**, Fosso Ralletta plant Production Manager - and we had been able to obtain significant improvements in the production process. We know and we have appreciated Oradoc expertise for many years, as Oradoc doctoring systems are installed in our factories both in Italy and abroad".

The devised technical solution stems from the consolidated experience that Oradoc has gained over the years on OraCrepe™ blade holders for the Yankee area, adding however

■ A detail of the integrated OraTec FX-20 sensor.

some technical improvements aimed at increasing and optimizing the system in terms of performance, reliability and maintainability.

"The research and development project had as its starting point the technical characteristic that distinguishes the flexible blade holder: self-profiling, i.e. the ability to automatically adapt its shape and that of the blade to the Yankee crown profile - underlines **Andrea Orlandini**. Oradoc Operations Manager. With this in mind, the design of the blade holder and the various components were also reconsidered. with the aim of increasing their performance both in terms of operation and maintenance".

"An innovative, independent system for controlling the blade load on the edges, a compact and robust design and a different pressure system complete the

new flexible OraCrepe™ Next blade holder" - explains Lorenzo Romei, Oradoc project engineer, who followed this product from the start.

To assess the performance of the new OraCrepe™ Next, WEPA also decided to install the OraTec™ FX-20 system to monitor the creping process in a continuous way, with sensors integrated inside the doctor beam, a solution already adopted in other plants of the group. "Two years after installation, we can certainly say that OraCrepe™ Next has proven to live up to our expectations, solving some problems of paper passage and difficult maintenance that we encountered with the previous rigid system - underlines Stefano Chiocca. No start-up problems and great reliability in following tests, easier ordinary maintenance and excellent quality of the finished product ... we are very satisfied".

"In projects of this level it is important to be able to collaborate with the right partner for build a business you can be proud of. We had the opportunity to share this project with WEPA, who agreed to host the pilot installation of OraCrepe™ Next in their Fosso Ralletta plant. A special thanks goes to WEPA Italy and to all the technical team that was involved in this project" - concludes Tomei.

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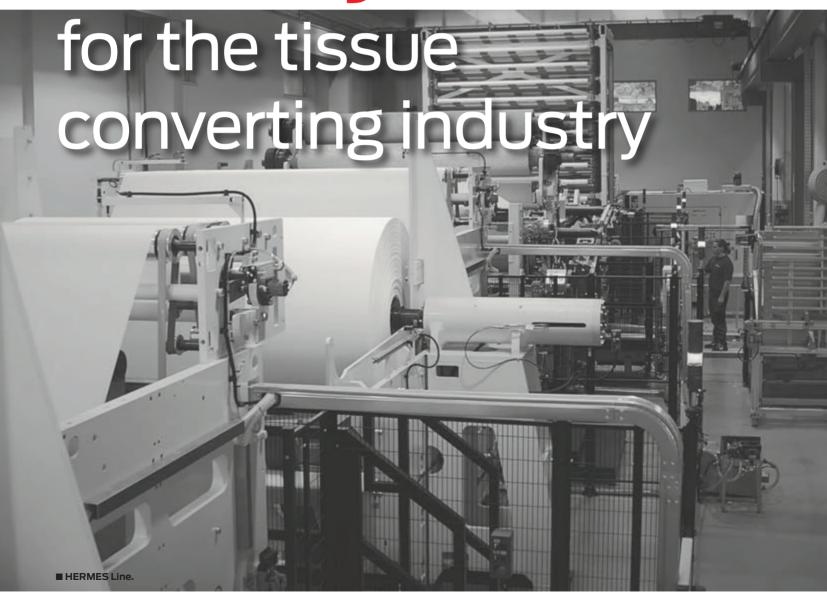








MAFLEX International turn-key solutions







By: MAFLEX - Tissue Converting Machinery

aflex is celebrating 25 years of supplying machinery, with over 200 units installed and operating around the world. In addition to quality machinery, Maflex also provides the following:

- Market study (especially for start-up companies).
- Financing Assistance Programs.
- · Converting facility analysis.
- Individual line study and optimization.
- Turn-key project solutions. Maflex continues to grow in delivering turn-key solutions to converters throughout the world. Customers put their trust in Maflex to handle all aspects of the project. This includes supplying the converting equipment, packaging machinery, conveyors, necessary riggers and installation details. Maflex chooses compatible downstream equipment which maximizes the performance of the

line, while meeting the customer's budgetary requirements. Because of our past success, **MAFLEX** is experiencing an increase in turn key project requests. The following is an example of a turn key project we provided to our Eastern European customer: the company was already converting product with older equipment. They decided to invest in Maflex for a new line for consumer

splice unwind stands and quick-change winding mandrel.

- 3 Unwinders UT250 (for reels up to Ø2500mm) available with zero speed automatic splice option.
- HERACLE embosser/laminator with automatic change feature, able to change upper steel roll 100% from Operator Panel, without breaking the paper and with an infinite possibility



66 Shaping technology on **your goals** 99



products. Due to their experience with and faith in Maflex, they chose Maflex as the primary contractor.

The scope of supply was to deliver and install the complete converting line. We also helped them obtain financing for this project. The scope of supply, directly related to Maflex machinery, consists of:

• Coremaker GAIA 100, able to run up to 140 m/min. Equipped with flying

of embossing rolls. In this case, the customer decided for 3 upper steel rolls (1 for kitchen towel DESL and 2 for toilet rolls, DERL). The HERACLE can laminate at 600 m/min and can achieve a "going-to-going" roll change in less than 3 minutes.

• HERMES Consumer Rewinder with easy-to-use operator interface to help create a perfect winding profile. This highly flexible rewinder provides





66 We provide **dedicated solutions** to special needs 99



tool-free, push-button product changeover. The HERMES can run up to 600 m/min and produce up to 40 logs per minute.

- IVI Tail Sealer, up to 40 Logs/min and a high-capacity Log Accumulator (logs up to Ø200mm O.D.).
- HESPERIA 4C, a 4 channel Log Saw able to cut from Ø90mm to Ø200mm with Electronic Universal Clamps. The line, in addition to the converting machinery, was presented with the new PEGASO smart supervisioning system, a complete Production Assistant that

makes the job easier. PEGASO captures and records real-time production data. This data can be retrieved directly or remotely. A Smart Camera System is used for capturing events and remote troubleshooting. An electronic device monitoring system provides real time data (heat, current, amperage draw, etc.) to prevent unnecessary power consumption and unscheduled downtime. PEGASO includes a video tutorial database of procedures and use and maintenance manuals. The system also allows the customer to review exploded view drawings. These exploded view drawings are

machine-specific, detailing only the parts that the customer has on their equipment. The customer can use the system to process online spare parts orders. The downstream packaging

equipment was provided by a reliable packaging partner. Maflex carefully selected this company based on cost-effectiveness, machinery performance and a history of successful projects done together in the past. Regarding the financing of the project, Maflex helped the customer partner with a primary Italian institute, specialized in financing these projects. Maflex provided reports, market studies about the viability of the project and estimated future value of the line. This allowed the customer to obtain 95% financing of the total amount of the project. Maflex is currently involved in several projects like this in Italy, EU and North & South America. This is helping new players enter the tissue converting market and boosting existing converters towards new and efficient solutions. •

MAFLEX HEADQUARTER

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MAFLEX AMERICA INC.



IS MAKING ADJUSTMENTS TO YOUR YANKEE COATING WORTH THE RISK?



In many mills, the Yankee coating is a legacy application that hasn't been significantly changed in years. It's viewed as too risky to mess with—particularly with market demand and internal pressures pushing you to make more tons more efficiently. As such, mills often eschew upgrading the Yankee coating in favor of wet end or converting changes. Even with these approaches adding value, by avoiding a potential short-term disruption of a Yankee coating trial, you may have locked in sub-optimal Yankee coating conditions for the long term.

What if you could understand how different chemical packages will perform within your unique process?

With Buckman's proprietary lab testing approach, you'll see how we stratify chemical products and predict performance based on key properties, such as wet tack, set speed, nip robustness, hardness, and

softness at certain temperatures. Using our database of tissue machine run parameters correlated to key Yankee coating properties, you can identify the best-possible process conditions for your choice of Yankee coating package.

Make data-based decisions with confidence

With this scientific data laid out in clear, easy-to-read charts, you can visualize the link between your process conditions and our adhesive properties. As a result, you can make data-based decisions with confidence that your coating solution will deliver concrete, measurable improvement.

To learn more, contact your Buckman representative today. Or scan the QR code to visit buckman.com.







Paprima Industries



Water consumption is fast becoming a looming environmental issue that affects not only our industry, but the global manufacturing

sector as well. Therefore, the public and the government are pressuring us to do better with the water we are using. Developing a 'Sustainable Water Management Program' is the new fad in our industry.

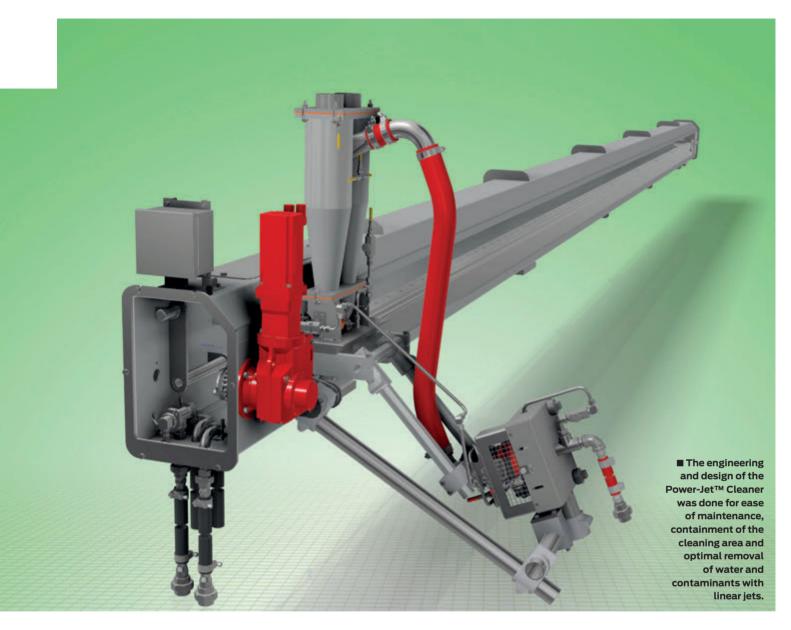
by: Paprima Industries Inc.

ater is quintessential throughout the process of papermaking.
From the beginning of the process, water is used with the washing and transportation of the pulp, as well as with dilution. It is then used for cleaning and cooling of the equipment. Understanding that we all need to do something about this and have a crucial role to play,

PAPRIMA INDUSTRIES decided to look at what we could offer for the cleaning process

on paper machines.





It's what makes us different!

In early 2010, Paprima's team looked at what was available on the market for high-pressure cleaner options, while gathering comments from mills considered as industry leaders.

We soon realized that there were huge gaps in the performance of those high-pressure cleaners and that most of them failed at one point or another. We started our R&D program to transform the cleaning of fabrics.

Each step of the cleaning process was scrutinized, including the angle of the jet (to get the most efficient cleaning method), and the evacuation of contaminants. This

was the inception of the Power-Jet™ Cleaner! The first noticeable characteristic is the head. A square head makes an awkward transition to round piping or a flexible hose. It also has corners, creating areas where contaminants can accumulate. For these reasons, we have aptly engineered a round head. The next characteristic to consider was our curtain of air, which controls and contains the contaminants. This air curtain isn't influenced by the gap between the head and the fabric as a blade would be. Additionally, it creates the initial lift for the contaminants and the evacuation of excessive water. Ultimately, we can't gloss over our ejector. Located within





66 World leader in **state-of-the-art** high pressure water jet technology



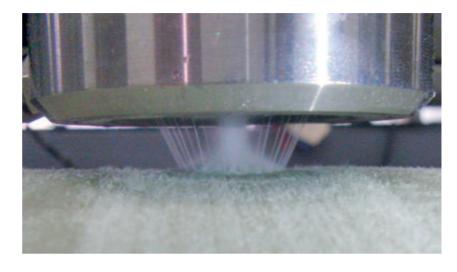
the cleaning head, the ejector actually creates a vortex in the evacuation tube, making its self-cleaning attribute a sought upon characteristic for both maintenance and operations. This fantastic technology is used for wet-end cleaning of fabric as well as dryer felts. However, for dryer cleaning, we added another innovation... What happens with the air being evacuated? Usually nothing, and it ends up being very expensive in the long run. Moreover, it takes up most of the space inside the piping and makes it prone to plugging. Our innovative solution? Simply adding cyclones to our process, which evacuate the air directly inside the dryer hood and leaving only contaminated water to be removed through a small, flexible hose.

The result?

A near-perfect cleaning of the fabric, exceeding papermakers' expectations. This unique process iuxtaposes the benefit of cleanliness with a significant reduction in sheet breaks, lower energy consumption, reduced misting, and huge freshwater savings. In fact, one of our clients in the southern US broke production records with their Paprima-supplied Power-Jet™ Cleaner in operation!

Existing customers have also reported:

 a significant reduction or complete elimination of chemicals required for the cleaning process;



▲ In this close-up view of the Power-Jet $^{\text{TM}}$ cleaner head, we can see the tornado effect that is created and the initial lift it generates.

▼Paprima Power-Jet™ Cleaner in operation on drv-end fabric.

- no adverse effects on fabric life:
- a sustained fabric permeability of 80% or more:
- no wet streaks left from the cleaning process. For tissue machines, this technology can be used for wire and press fabrics with the same results as indicated above. In those applications, a single cleaning head will deliver water up to 2,500PSI, through 20 linear jet nozzles without any mist. Paprima's Power-Jet™ system is a direct replacement of the existing oscillating high pressure showers (even accounting for their mist elimination system). The typical return on investment of a complete system usually lies within 3 to 6 months.



Paprima has been at the center of high-pressure development for the paper industry since 1986, leading the industry in water-jet turn-up and on-machine trimming systems. It was only logical for us to move into high-pressure cleaning systems, even if their operating pressures are only a fraction of our traditional cutting equipment. •



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Technological leadership, continuous innovation and automation: in the context of partnership, they have accelerated our ability to deliver superior performance for our customers.

We're twenty. But what we stand for is ageless.

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Tolmezzo plant

Founded in 1928 to produce cellulose, the Tolmezzo paper mill was bought in 1941 by Pirelli Group: the production began shortly thereafter. In 1986 the paper mill was bought by Cartiere Burgo and from 2014 it is member of the **Mosaico** SpA (a company controlled by Burgo Group). Today, the work model is "integrated", likely: Natural special papers without woos (160.000 ton/year) and Cellulose (40.000 tons/year) used in the paper production process. There are two Continuous Machines (MC):

- MC1 (360 cm wide size, 1.000 m/min max. speed) for food thin special papers (17-45 gsm);
- MC3 (455 cm wide size, 1.100 m/min max. speed) for graphic uses (60-170 gsm).

SAEL, the historical partner of the paper mill

Since the beginning SAEL uses its own drives to supply the system automations. There is a great feeling between the

paper mill technical team and the SAEL engineers, and this is a win-win situation, so far. SAEL constantly trains the Mosaico technicians on using its products: a very useful process for the operators. An open wide relationship.

Investments calibrated for M3 Continuous Machine and its technical evolution

Thanks to the SAEL "REEBORN ONE DRIVE" technology, the MC3 equipment, highly strategic for the entire Group, has been retrofitted re-using the existing Drives.

To reduce the global impact of the investment along the years, SAEL has subdivided into three steps the job, upon demand of the paper mill management. The system architecture has been studied, offered and agreed by the Group. It is based on a modular system (a standard for SAEL) to be upgraded over the entire retrofit process whenever planned. The result is a flexible system that can be modified and upgraded at any time. The first step was made in 2021 – revamping of the



SOLUTIONS, TECHNIQUE AND INNOVATION: THE POWER OF SAEL.

New investments for Burgo group -Tolmezzo plant. Installation of a new sectional drive for MC3

Over the last three years of pandemic, Tolmezzo paper mill has invested on renewing the old Machine 3 Sectional Drive using the SAEL REEBORN System. From today on, this machine has a new life, with a very low impact on the cost of this electrical revamping.

by: SAEL

11 dc motors: from the 7th dryer to the Pope. This year the upgrade involved all the areas: from the Sim Sizer to the Dryers and the addiction of a new inverter for the paper carrying rolls and the Ropes. The next year we will work on the remaining 8 motors of the wet zone, letting spaces for new important upgrades. We also supplied two Redundant Stations with "DCS in Drive SAEL" for the supervisor, management, and control of the drives - the core of the investments made by the Paper Mill, so far.

Strenghts of the Platform ONE Drive system

Launched in 2011, the "ONE Drive" is an innovative technological platform, as much as the alternative to the most popular Drives available on the market. Since the 2011, against the market tendency, SAEL uses a unique control board who fits for all the applications: DC, AC, Chopper, Brushless and Reeborn (Reeborn is

a system who saves the original power section of the existing DC Drives). It is by far the greatest solution having one single spare part for all the equipments. Thanks to the EEProm, in case of fault the replacement of the board can be easily made in 3 minutes: actually, the EEProm supports the "Platform ONE Drive" and get stored all the parameters of the unit to be replaced. The operation can be easily handled by people without expertise. No informatic skills or PC are required. The ONE Drive inverter series, made for paper mill applications, are equipped by Film Capacitors vs. the Electrolytic normally mounted by the competitors: this allows to ensure a long life of the inverter vs. 60.000/70.000 hours of cycle.

66 Customer First and Custom Solutions is our philosophy: **our mindset** 99



No regeneration procedures are required whenever the drives are stocked. Last, but not least, SAEL supports the customers by the remote control installed into the DCS in Drive ONE. Any problem occurred can be detected and quickly solved. The Dna of SAEL is to be customer and application focused. That's the successful key after over 35 years of practice in the automation field.

The energy save with Liquid Cooled Inverters

One of the last targets of SAEL was to hit the frontier of the save energy. In the last 4 years SAEL was the sole company who pushed the Liquid Cooled solution in the paper mill application: Inverters Liquid Cooled, inside of electrical cabinets liquid cooled, as well. After the fourth MC application supplied, SAEL is highly satisfied of all the investments made. The results in term of efficiency and energy savings are above the expectations. Pushed by SACI-PM3 Paper Mill, that already got a liquid cooled MC machine, **SAEL** supplied its first Stock Preparation machine using this technology.

SAEL - Technology development for the customer preservation

The "Intelligent DRIVE" SAEL System, who uses specific inverters for paper mill application, allowed quick adaptation of the control system with implementations and modifications for cascade settings, not available before.

The warrant offered by SAEL to the market self-explains its operative philosophy. SAEL is the unique company in Europe who offers long life systems, confirming the availability of the spares parts for ever, no issues of continuous PC, Panels, PLC, Inverters and Boards changings.

66 Integrated systems and process control solutions for industrial automation 99



Another important plus of the SAEL "Intelligent Drive" AC or DC is the availability of every single component as a spare part, saving a lot of money to the customers: in countertendency to the competitors, who continuously plays with the "phase out" product policy. In the end, there is the *IWSA* - Internet World Sael Assistance - included for any application: this tool allows the technicians to remotely support the application and any issue, eventually. It means that for each station equipped by a supervisor, it is possible to work on BIOS, digital boards, software and Plc modification, and so on ... all in remote mode.





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FROM **ENGINEERING**TO **TURN-KEY** PLANT

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Since Infinity Machine & Engineering Corp. was founded in 2003, Infinity has been committed to reshaping the tissue packaging industry. With a focus on superior build quality and devoted customer service, Infinity has installed machinery in over 20 countries across every continent except Antarctica, becoming one of the most trusted names in packaging machinery throughout the world. With its eye on the international tissue community, Infinity has designed a bundler specifically tailored to the needs of the European and Asian tissue markets, the Optic M1. by: Infinity Italia Srl

he Optic M1 poly bundler will make its debut in 2023 and will be Infinity's most advanced bundler yet. The Optic M1 can produce a wide range of bundle configurations at high speed, giving it the versatility and speed to disrupt the automated tissue packaging market. The flight bars featured on the Optic M1 are synchronized with the indexer, enabling maximum take over speed. While the additional flight bar on the Optic M1 is the perfect tool for stacked, "core up" roll configurations, to allow for further versatility, the second flight bar can be removed and an upender can be added.

The upender enables the machine to bundle rolls stacked on the ends so that the Optic M1 can package a vast array of configurations between the two roll stack orientations. Furthermore, both the second flight bar and the upender units are on casters allowing for quick and easy swaps between the two. The poly unwind on the Optic M1 offers a vast array of features to simplify production.

The unwind is servo driven which enables the poly position to be adjusted more easily, and the poly is loaded on a pull-out cart to take the hassle out of loading.

Combine this with overall improved accessibility and optional auto splice and the poly unwind on the Optic M1 sets the new industry standard.

Infinity engineers have raised the bar for bundle quality as a vacuum lance comes standard on the Optic M1. Located on the seal jaw, the vacuum lance sucks out excess air from the bundle, ensuring the poly is crisp and tight every time.

Reducing the time and cost of machine maintenance was a key area of focus for Infinity engineers while designing the Optic M1. This has resulted in a machine with very few wear parts and many automatic adjustment features. The only manual lubrication axes are the top/bottom seal jaw, cassette width adjustment and the cassette raise/lower, all bearing are lubed for life.

The only wear parts of the machine are the indexer belts, cassette/flight bar timing belts and seal wire. The Optic M1 also features only one valve bank with ethernet feedback, and only three manual





future of packaging is staring you in the face. •

▲ The additional flight bar on the Optic M1 is perfect for stacked, core up roll configurations.

▶ The poly unwind on the Optic M1 offers a vast array of features to simplify production including a pull-out cart for poly loading and optional auto splice.

66 A global vision, focused on tissue and hygiene packaging solutions 99

adjustments. Most adjustments on the Optic M1 are done automatically by utilizing adjustment motors. A defining feature of the Optic M1, that truly sets it apart from other bundlers on the market is its modular capability. Since 2005, **INFINITY** has manufactured bundlers with its industry original Infusion modular system. Designed to overcome the limitations of fixed linear machines, the Infusion modular system allows for different machine units, such as a bundler, bagger or casepacker to be attached to a common infeed module via fixed docking stations. This process can be completed in under a half hour and gives customers the ability to

reduce their capital investment and more efficiently utilize floor space. Accessibility was of the upmost priority in the design of the Optic M1. The pusher on the machine is on a vertical adjustment, which keeps the working height of the machine low, while also increasing the number of pack configurations the machine is capable of. The vertical adjustment also allows for a simplified change to a casepacker module if desired. The modules on the machine feature a French door design, which increases ease of access to machine components, and the discharge of the Optic M1 features a tip down exit gate, improving worker mobility around the machine. Featuring a more accessible design, versatile performance and an increased emphasis on modularity, the Optic M1 poly bundler is Infinity's most advanced poly bundler yet. Look no further because the



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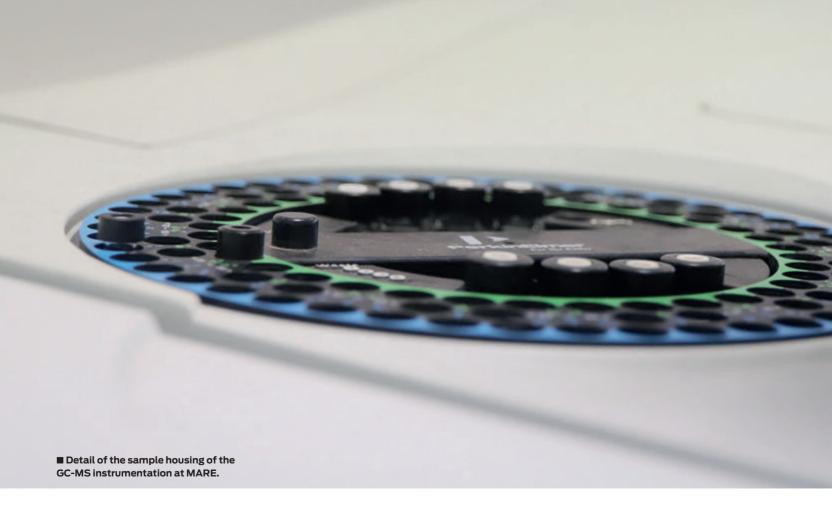
Tailor made CREPING BLADES AND SYSTEMS based on state-of-the-art technologies, guaranteeing highly advanced and best quality paper production.

CHOOSE VALUE-ADDED PRODUCTS: CHOOSE MADE IN ANDRITZ BONETTI.



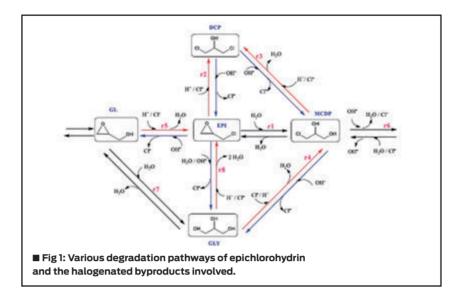
Unwanted halogen substances in paper: MARE's approach

By: MARE SpA









ompliance with regulatory requirements is now an everyday activity for paper manufacturers. In particular, the presence of 1,3-dichloro-2-propanol (DCP) and 3-monopropane-1,2-diol (mCPD) is controlled in tissue paper products, in the manufacture of which polvamidoaminoepichloride resins are known to be widely used for the development of wet strength (WSR). DCPs and mCPDs are part of a larger family of undesirable substances, referred to by the generic term AOX/OX. The final level of AOX/OX found within a roll of kitchen paper on the supermarket shelf is not only a function of

of study with an integrated approach that starts with thorough research at the synthetic and analytical levels and generates continuous improvements at both the production and application levels. One of the best known, and best understood by the market, consequences is the obtaining of gradually more efficient and "cleaner" WSR products thanks to the continuous upgrading of technology and production and purification facilities. In this context, the collaboration between our research group and the **Politecnico of Milan** is fundamental in the projects dedicated to the study of the kinetics

of epichloride side reactions, exemplified in



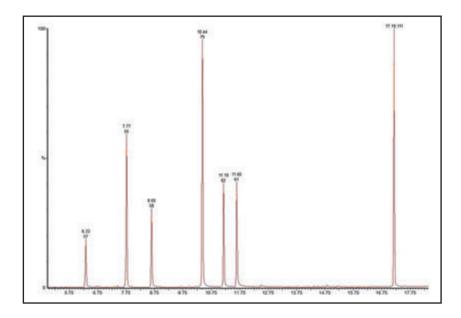
66 Functional and **process solutions** for industry 99



WSR application factors, but originates in several factors. Defining the various contributions to the final AOX/OX content of a tissue product requires a systematic investigation of the production chain (mixture preparation/wet part/ dry part/converting). Conducting comprehensive studies of this kind requires demanding technological resources and close collaboration between WSR and paper manufacturers. MARE has all the analytical tools and expertise needed to conduct this type of investigation and to define potential sources and quantify their contribution. **MARE** works on this type

Fig. 1. Application expertise is equally essential in this context. In fact, the characteristics of the fiber used are the starting point for the design and application of a WSR product, as well as the first object of study to define the AOX/OX contribution determined by the mixture itself. A well-defined use of, for example, carboxymethyl cellulose (CMC) generates an important synergy with WSR, allowing a significant increase in wet strength development. This can result in optimization of WSR dosage and, consequently, better control of residual AOX/OX and application costs. In particularly





▲ Example of chromatogram obtained during studies on halogenated residues.

fortunate cases, the use of our CMC-based products has resulted in WSR dosage reductions of up to 40 percent. Continuous monitoring of the papermaking process plays a key role in achieving and maintaining these results. Uncontrolled variation in a number of cycle chemistry parameters (pH, conductivity, cationic demand, zeta potential, etc.) can adversely

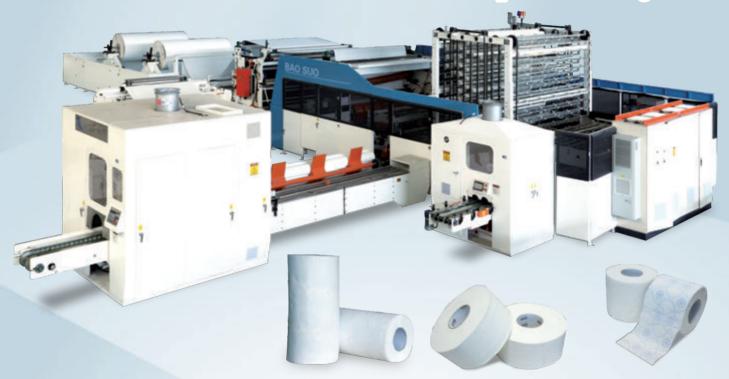
affect WSR performance and the final level of contaminants on the paper. It should be noted, for completeness of information, that treatments other than WSR-based treatments can potentially generate AOX/OX on the paper (freshwater treatment, charge control, Yankee coating, to name a few) in even larger quantities than those produced by the resin. Semi-finished tissue is finally subjected to mechanical and thermal treatments, such as embossing, to be transformed into well-known consumer goods such as a packet of tissues or a roll of kitchen paper, which require further handling, such as packaging and transportation, after which the finished product ends up on the supermarket shelf. Only a comprehensive investigation of the entire production chain allows us to collect a coherent data set. composed of relevant data, from which we can draw valid conclusions about the origin of pollutants on paper and decide on effective actions for their moderation. We sincerely hope that we have succeeded in these few lines in describing MARE's approach to the management of AOX/OX on paper. Only a close cooperation between the paper manufacturer and the chemical additive supplier can enable definitive and decisive results to be achieved.



■Image of GC-MS instrumentation in the MARE laboratory.



YD-PL450SE Non-Stop Rewinding Line



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TKM - The Knife Manufacturers

There is more to us than being "The Knife Manufacturers".

by: TKM Group





Contact TKM and try it out

uring 2020/2021 we added two more tools, to be closer to our customers:
The *TKM Group App*, available for Apple and Android, includes a trouble shooting of the most common problems with the log saw blade application. All our customers can use the app for free. Try it out. To start, we build up a simple but efficient TKM performance centre. TKM performance centre is an easy access channel for our customers to industrial internet applications and remote services.

Our experts have a deep understanding of the cutting applications of your tissue roll converting lines. With remote connections and tools, we provide the needed support and guidance without delay - and more broadly than before. The structure of the website has been completely adapted and designed to be more user-friendly, but not only that, it now offers our visitors an absolute added value. In addition to our range of services, we offer you a detailed desktop solution manual. Discover more and visit our new Solution Finder now.



or more than 100 years, the TKM GROUP as a family business. stands for quality and sustainability in products and services. As the world market leader, it is our ambition to develop highly efficient tools and solutions with innovative ideas and advanced technology, all while setting sustainable trends. The satisfaction of our customers, from the craftsman's workshop to the global industrial company, has always been and still is the focus of our activities. We guarantee optimal customer proximity and competent support through our worldwide network of our own sales, service and production companies as well as through the high qualification and continuous training of our employees. Our motivation is, always, to find the best solution for our customers. We take knowledge and experience from many industries and apply it to our products and services for the tissue paper industry. We transfer these experiences to our customers. therefore increasing the quality of products, optimizing production times and reducing customer cost. In the last editions of TissueMAG you find detailed articles about our well known Log Saw Blades, CBN grinding wheels, bimetal anvil and perforation knives. In

Summary

when handling cutting tools.

Operational Safety has developed enormously in recent years. In many places, safety shoes, safety glasses, high-visibility vests, safety gloves, bump caps and hearing protection are standard when working in production and converting departments.

Nevertheless, accidents occur still today from time to time when handling cutting tools, due to a variety of causes.

TKM has dealt with this topic intensively over

this edition we focus around Operational Safety

66 Maximum service life and optimum cutting edges with reduced dust formation 99





- materials and durability. TKM has designed a simple and effective, but at the same time lightweight and high-quality blade guard. Especially the opening mechanism of the flap and the fastening screws are simple and designed for long durability.
- 3. Safety gloves which are used in most of the plants fulfil the today 's safety requirements but with the razor-sharp log saw blades injuries are still possible. Safety gloves which are purely made from a stainless steel mesh, which protect the operators much better, are very slippery and do not give the user any sense of touch. TKM developed, together with a safety glove manufacturer, a customized version which gives the user a sense of touch, with the fine metal mesh inside (including the fingers) a significant higher grade of safety.

the last 10-15 years and today offers various products to make the handling of cutting tools even safer.

The details

The type of knife that carries by far the greatest risk of injury is the Log Saw Blade. It must be changed frequently and is extremely sharp both, during installation and removal. In addition to the general rules for installing and removing Log Saw Blades, three things have a major impact on the risk of injury:

- a) The cutting edge protection (only during installation).
- b) The blade guard (during installation and removal).
- c) The type of safety gloves.
- 1. Even today, you can still find many
 Log Saw Blades on the market that only have
 a cheap plastic cutting edge protection. This
 gives the impression of safety that does not
 exist. Even a light touch on the edge protector
 causes the blade edge to cut through it. TKM
 has been using a cutting edge protection with
 a metal "Backbone" for about 15 years. This is
 considerably more expensive, but it withstands
 even quite hard contact. Accidents with a new
 blade have no consequences in the best case,
 but at least they are significantly reduced.
- 2. Today you can find many different types of blade guards on the market, different





TotalVision web monitoring cameras and lighting placed at various locations on the machine means all defects and process interruptions can be quickly traced and eliminated from your production line. More information at our website.

www.papertech.ca/tissue-industry











Completing the development of complex projects and receiving customer appreciation for the results obtained is always a great satisfaction. When requests represent a real challenge, it's necessary to find an efficient relationship between the quality of the proposed solutions, the optimization of space and a price in line with customers' demand. These are the elements that guided us in the development of a project requested by GH Production to make two production lines that dealt with palletizing manually more efficient.



orking for more than 50 years in the AFH sector, GH Production is a subsidiary of Global Hygiene Group, a French group specializing in tissue products. The company has developed many business opportunities that have allowed it to expand its market and close 2021 with a turnover of 25 million Euros. The opening of the first tissue mill in Grenoble in 2020 and an ongoing project for a new integrated site in Begles, have stimulated the company to invest in more efficient and automated lines, to follow the dynamic of the group. The customer's need on this project was to complete the automation of two converting lines that dealt with different products and whose end-of-line was managed manually. One, in particular, dealt with heavy products and, for both, the spaces available were limited. At the beginning of its history, **MACDUE** produced only standalone machines. During the last ten years, we established ourselves as leaders in the industrial field for complete lines too. We built a strong reputation on this offer but decided to increase our effort to cover every aspect of product handling, even just end-of-line. Having a single point of contact for the entire system has significant advantages for the customer but poses new challenges to the supplier company: potential concerns



and extra variables that need an adequate structure and reliable after-sales service. The challenge we set ourselves years ago was to offer our customers "turnkey" lines, up to the stretch wrapper. The addition of end-of-line to our offer is why we were ready to answer GH Production's request. We provided the customer with two palletizing islands; one consisting of a robot for boxes and bundle, and the other of two robots, all grippers are developed by MacDue, which can handle display-type bulk packs and bundles. The island includes an automatic pallet picker, the management of the half pallet, and the application of the layers. We designed these islands to interface with the customer's centralized wrapper where LGV vehicles carry the finished pallets.

The supply of custom grippers for industrial and consumer products, depending on the island, was the focus of the project. Very often the end-of-line treats the products too little delicately, causing damage and unacceptable stress for the industrial and consumer sector, especially during the compression and pick & place phase. The challenge is to manage palletization by reducing the impact of handling on products,





▲Left, Luc Brami, CEO of GH Production; right, Stefano Bianconi, Sales Director of MacDue.

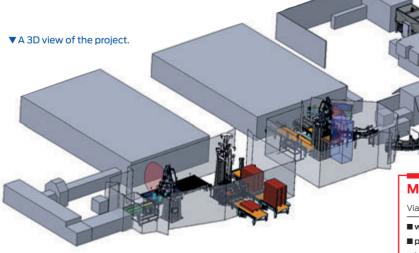
without decreasing the efficiency and speed of the line. The solutions that we have developed in MacDue to meet these needs are a custom gripper and software for intuitive management of the island that allows quick changes of the pallet configuration.

Thanks to this project, **GH Production** has managed to increase the efficiency of the two lines, which have become fully automatic, despite the space limitations. An extra request from the customer was not to stop production: through the checkout in our factory and the customer training in MacDue, we made the startup of the lines much easier; furthermore, we reduced the shutdown time to a minimum because we coordinated with the production department to carry out the project with the

lines almost always in operation. We began working with GH Production back in 2018 with the supply of a single machine.

During the years, we grew our business together and this exciting project marks a further step towards an even closer and lasting collaboration.

Supporting customers by developing automatic packaging machines that can handle a **wide range** of products



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Energy efficiency and saving to offer a quick return on technological investments. This is the innovative approach guaranteed by Mingazzini thanks to more than 90 years of experience.

by: Mingazzini Srl

nnovation is increasingly green, not only for the reduction of environmental impact, but also to free up important resources, thanks to efficiency and energy saving, thus ensuring the return on technological investments through the reduction of management costs. This is the solution proposed by Mingazzini, a Parma-based company that has almost a century of history and a great number of installed boilers at the international level (with more than 10,000 plants), which makes it a point of reference in the market of steam boilers for industrial use. both for the quality of the products supplied and for the advice that accompanies each stage of the process, from conception to design, until the equipment starting up & commissioning. The deep knowledge of the global market and its evolution allows **MINGAZZINI** to respond to new requirements. increasingly perceived as stringent needs. Among these,





energy saving, understood as lower consumption but also greater availability of resources to invest on more strategic targets in a highly competitive scenario. In fact, optimization and cost reduction can allow a greater freedom of action. For this reason, Mingazzini has always been focused not only on environmental issues, but also on customized consultancy for the design of boilers and systems to meet the specific needs of the single customer, in an extremely dynamic way and with an eye to the operation costs as well.

Ecological sustainability is a matter to which Mingazzini responds with increasingly advanced systems, which are high-performing in energy saving and respect of the environment. The maximum focus is on the increase of exclusive systems for energy recovery that are flexible and tailored to the needs of single customers and specific industries, in addition to the development of the most innovative combustion systems with progressive reduction of emissions. If on the one hand it is important to minimize the purchase costs with systems specifically designed and manufactured for the needs of the customer, on the other hand it is essential to help companies to save energy, so as to reduce and optimize energy costs, a relevant expenditure item. The outcome is a very efficient plant, resulting from in-depth technical analysis that allow a detailed study of

production needs and the consequent efficiency of the plant. In this regard, the company has carried out many successful projects, leaving a tangible sign of its know-how in important areas of different industries, with particular reference to food, textiles, paper, pet food, chemical-pharmaceutical, just to

name a few. Below one of the latest examples of the level of efficiency and energy saving that can be achieved. Although 10 years ago, through the direct verification of combustion, a high-performance use of recovery units and the installation of devices for the final control of combustion fumes, a Company had already obtained a net saving of about 10% of power and 5% of natural gas, now the technological evolution according to the concept Industry 4.0 led to the interconnection of power plants and real-time analysis of data.

By connecting the steam boilers to the network and centralizing all the equipment, it was possible to constantly monitor the systems, the performance, the consumption, the levels and all the parameters, in order to ensure the maximum result. With this interface it is possible to control the steam boilers also remotely, adjusting each plant according to the production flows and to the required daily performance, even using a common device such as a computer, mobile phone or tablet, drastically reducing waste and consumption for each plant. An extremely modern and competitive result. coupled with a further added value: the possibility of tracing the specific consumption, that is the kilos of steam produced per cubic meter of natural gas, creating a historical record over time, so as to verify the performance and analyze any deviations, also being able to implement a predictive and smart maintenance in the name of maximum energy saving and respect for the environment. •





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AZMEC: Beyond the simple product

Azmec is not only designing and manufacturing liquid ring vacuum pumps and compressors, but provides a complete assistance from the overhauling to the engineering of new and better solutions to contain costs and energy consumption. A mission carried out from more than 60 years with constancy, efficiency and straightforwardness.

by: Azmec Srl



zmec was founded in 1960 and started with precision machining, while in 1964 began dealing with vacuum pumps and compressors. Today its business is distributed in two workshops: the historic unit in Arenzano (GE) and the more recent unit in Verderio (LC)

operating since 1993. Clearly the synergy between the two sites is real an advantage for granting to the customers the utmost punctuality in the delivery times. "One of our

strength - explains Dr. Claudio Vergani, the General Manager of Azmec - is represented by our flexibility, as well as the quality of our products. Part of our standard production is pre-assembled in our workshops; therefore we can grant the deliveries in a few weeks. Azmec is a small reality, therefore we are able to react with promptness to the requests of the customers. For example, in only 1 or maximum 2 days we can release an offer. Recently we have focused our attention on the service, doing some analysis directly in the papermills to establish which product can be more suitable for the customer and developing our internal engineering department in order to reduce the final costs and maintain unchanged the quality and the performances". In this view, it's important to undersign the recent acquisition from Azmec of the ownership of the company Riva Tecnoimpianti that it's matching with the future strategies of AZMEC the same: Riva Tecnoimpianti is a company present in the market since 1998 and specialized in the realization of light and heavy carpentry components; in this way, Azmec will have the possibility to enlarge its business, to be more competitive, to be able to satisfy in the best way the necessities of the customers; together with the carpentry components, Riva Tecnoimpianti has it's own lines of hydraulic power units

The most significant projects from 2020

that find application in the paper mill industry too.

Azmec works for about the 65% of its turnover for the foreign market and supplies important companies like, for example, Andritz AG (Austria) to which recently engineered and delivered several complete skids type ALC520Z, ALC670Z, ALC400Z destined to new paper machines in Russia and Romania. For this current year a new job is open including skids type ALC670Z and ALC400Z for a new paper machine in Romania. During the year 2020 Azmec has also acquired some important customers in the Italian paper market. With the company Overmade has been defined a long term and still open contract with deliveries at different deadlines for 6 vacuum systems type ALC420Z destined to new paper machine in Saudi Arabia. For the customer Ahlstrom Munskjo

Italia, precisely for the papermill in Sassoferrato, n.2 vacuum groups type AL50/2000 have been supplied to extend the existing plant. The same thing for the historical customer Cartiere di Trevi, to which the supplying of a complete group type ALBV55/2000, was accompanied by the complete engineering and commissioning of the turnkey system. Azmec have also recently defined with the customer Raipaper the supplying of a complete engineered skid type ALZN100/2000 for the papermill in Isola Del Liri and the



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overhauling of the existing old pump ALZ100/2000 and AL40/2000. In the year 2021 Azmec started an important cooperation also with Recard to which have been already supplied a complete vacuum plant type ALC500Z for a new paper machine in Ivory Coast and another plant type ALC420Z and ALC355Z with the final destination in Bangladesh. Last but not least, in the year 2022, Azmec acquired from Toscotec n.2 big orders of ALCZ range vacuum pumps for new paper machines in Bangladesh and Qatar.

The production

The production includes six lines of vacuum pumps, machines available to grant capacities from 150 up to 50.000 m³/h; together with the vacuum pumps, **AZMEC** offers to the customers all the available accessories that's to say the driving systems (pulleys and V-belts, gear reducers when the installed power is more than 355 kw), the discharge separators, the silencers, the pre-separation groups, the safety





We are always looking for the discovering of a **better and improved** product

valves, the self-priming extraction pumps and the dampers just to mention the main parts. The vacuum pumps of the range AL/2000 cover a capacity interval from 150 to 12.500 m³/h; the range ALBV/2000 covers capacities from 2000 to 7500 m³/h and the characteristic of these pumps is to have practically two pumps in one due to the presence of a divider that creates two sections each one available to grant the 50% of the total capacity and different vacuum degrees; the same solution, but with horizontal suction nozzles, is granted from the pumps of the range ALZ/2000 that have the same range of capacities of the range AL/2000; with the size ALCZ, pumps available to work without and with the divider, the capacities reach the maximum of 50.000 m³/h; the range ALBC grants capacities from 450 up to 17.000 m³/h and the range ALB4 grants capacities from 4500 up to 21000 m³/h. A special care is offered from Azmec to one of the problems that is present more and more frequently: the reduction of the noise level of the machines according to the laws concerned to the ambient; to get the best solution, offers to the customers

the covering of the pumps with soundproof panels available to reduce the noise level to 75 dB(A); clearly these solutions can be applied also on machines already installed.

Overhaul service

Azmec recommends to carry out periodical maintenance and overhaul interventions on all type of vacuum pumps and offers a maintenance service for any type or brand of liquid ring of vacuum pumps. It's appropriate to provide a cycle maintenance every 5-7 years depending on the operating conditions and the liquid ring service water, to avoid significant losses in performances compared to the original curves. Azmec is also able to verify, if required, the performances of the pumps already installed. They can lose in 10 years up to 15% of efficiency, therefore an overhauling intervention can be amortized in just one vear. The difference of cost between an overhauling and a substitution with a new pump is about 50%.

The energy saving

Azmec concentrates its consulting capacities also on the energy saving matter and this is much appreciated by the customers. "For example - explains Dr. Vergani - we suggest pumps one size bigger than necessary, in order to use it with a lower speed when the vacuum is not requested reducing the energy consumption; the speed can be increased

only in case of necessity. We also suggest and supply the cooling towers in case little water is available and it has to be recirculated, because the pumps perform better when they work with cold water. Besides we recommend the installation of pre-separator tanks to protect the pumps from contaminating particles". In few words, more than a simple pump supplier, Azmec is a partner capable of providing the right solutions for its customer.

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