

INTERNATIONAL MAGAZINE AND WEBSITE ON TISSUE PAPER MACHINERY AND TECHNOLOGY

TissueMAG

This issue is distributed to Tissue Paper Mills and Tissue Converters in **Europe, Middle East, Africa + bonus countries**



CONTRIBUTORS

| | | | |
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2022

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FOR THE PRODUCTION
OF PAPER AND PAPERBOARD
AND FOR THE CONVERTING
OF TISSUE PAPER**

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INTERNATIONAL MAGAZINE
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MACHINERY AND TECHNOLOGY

TissueMAG

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EDITOR-IN-CHIEF

Gianmaria Pfeiffer

email: gianmaria.pfeiffer@edipap.com

EDITORIAL DIRECTOR

Mariella Nasi

STAFF EDITOR

Fabrizio Vallari

ADVERTISING

Laura Lupi

email: sales@edipap.com

LAYOUT & DESIGN

Francesca Acqualagna

WEBSITE

Francesco Tosi

PRINTER

Logo srl

Padova

EDITORIAL OFFICE



Edipap S.r.l.

Via Pordenone 13

20132 Milano - Italy

phone: +39 02 21711614

email: info@edipap.com

website: www.edipap.com

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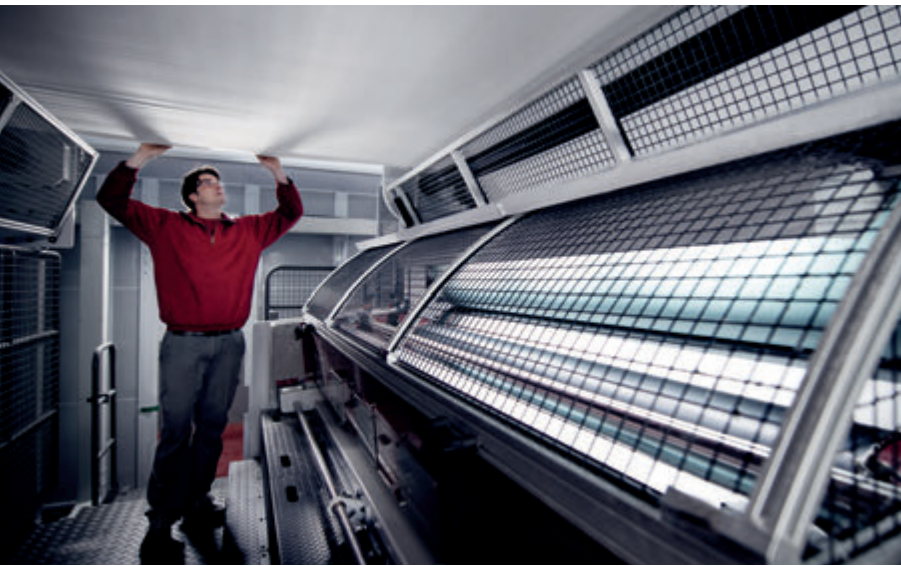
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CIRCULATION

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■ ANDRITZ solutions to reduce CO₂ in tissue production.

ANDRITZ

CircleToZero:

technologies to reduce carbon emissions in tissue production



Even though pulp and paper mills are energy-intensive, our industry is one of least CO₂-intensive due to the wide use of bio-based and renewable fuels. The tissue and towel sector, however, emits more carbon per tonne of paper than most other paper grades, primarily due to

purchased electricity from fossil-fuel sources. ANDRITZ is contributing in many ways to reduce the carbon footprint for tissue production through its “CircleToZero” initiative.



▲ Carlos Gallo, Product Director Tissue and Drying, ANDRITZ.

By: Bob Pühr. Co-authors and interview partners: Carlos Gallo, Product Director, Tissue and Drying
Luca Linari, Managing Director ANDRITZ Novimpianti



▲ Luca Linari, Managing Director, ANDRITZ Novimpianti.

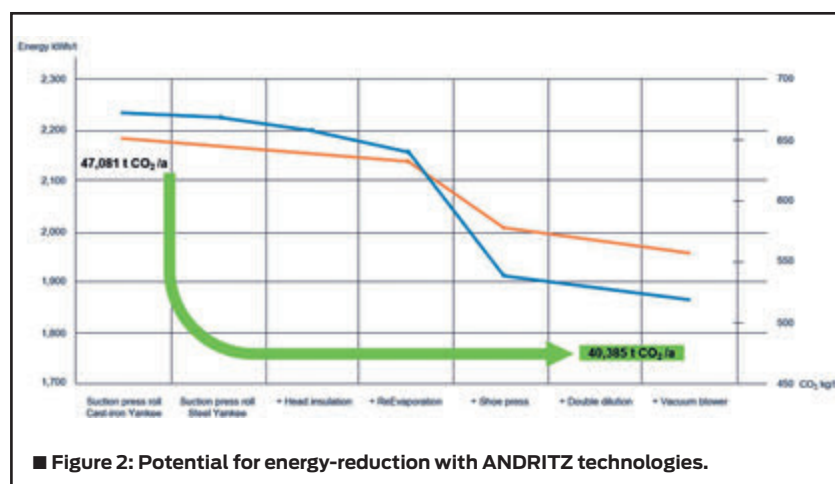
Step-by-step to carbon footprint reduction

ANDRITZ offers solutions to reduce a tissue mill's carbon footprint in the categories of energy, fiber, water, biochemicals and digitalization. By our calculations (Figure 1) we estimate that a "typical" tissue machine using conventional technologies (e.g. suction press rolls and cast Yankee) and producing 200 t/d emits just over 47,000 tons per year of CO_{2eq}. This is for the stock preparation system and the machine itself, and not for other upstream or downstream processes. Some of our technology modules which reduce kW/t, and therefore CO_{2eq}/t, are shown in Figure 2. Implementing these modules, each of which has its own ROI benefits, makes it possible to reduce kW/t by up to 17% and CO_{2eq}/t by about 15%. These are significant reductions.

- Modifying the approach flow system (double dilution) to reduce the energy consumed by the fan pump and screen by about 10%.
- Insulating the heads of the Yankee to reduce energy losses and to reduce steam consumption by about 5%.
- Utilizing vacuum blowers instead of water ring pumps to save about 25% energy in the main motors. The exhaust from the blowers is hot enough to be used in different heating systems and less fresh water is required to operate them.
- Installing a *Rebel* high-performance roll cover on the tissue suction roll can improve sheet

| Utilities | Average consumption | Equivalent CO ₂ emission (*) |
|--|---------------------|---|
| Gas | ~ 600 kWh/t | ~ 132 kg CO ₂ /t |
| Steam consumption | ~ 750 kWh/t | ~ 165 kg CO ₂ /t |
| Electrical consumption | ~ 890 kWh/t | ~ 356 kg CO ₂ /t |
| TOTAL | ~ 2240 kWh/t | ~ 653 kg CO₂/t |
| Total per year for production of 200 t/d | | ~ 47,081 t CO ₂ /a |

■ Figure 1: Typical consumption data for a dry-crepe tissue machine.

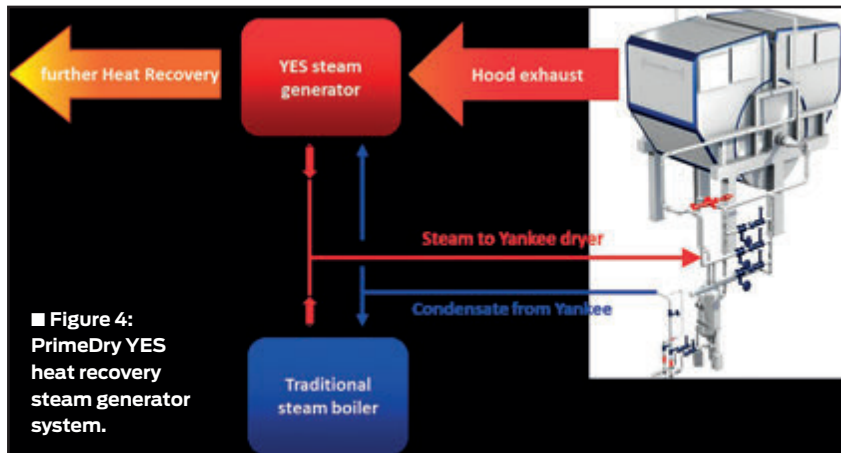


“Flexible and reliable tissue machines that incorporate both experience and innovation”



dryness after the press of 1% and more, allowing a machine speed increase or energy savings in the drying section between 50-100 kWh/t of paper produced. The *Rebel* can operate without water cooling, permitting energy savings up to 25% of the initial roll driving power requirement.

- Installing a *PrimePress XT Evo* shoe press (Figure 3) to reduce fiber consumption and/or save energy. The shoe press is loaded by two pressurized hoses, allowing a mill to fine-tune the nip profile for maximum dryness, or maximum bulk, or somewhere in-between. If the goal is high dryness, the *PrimePress XT Evo* offers about a 6% after-press dryness gain compared to a conventional suction roll – meaning thermal energy savings of up to 24%. If the goal is high bulk at a target same dryness, basis weight or fibers can be reduced up to 10% – reducing the corresponding CO_{2eq} emissions.
- Installing a *PrimeDry YES* heat



recovery steam generator system (Figure 4). Our solution is to use exhaust air from a gas-fired Yankee hood and condensate from the Yankee with a steam generator (heat exchanger) to produce 15% of the steam required for the Yankee, saving up to 5% in thermal energy consumption.

- Installing a larger diameter *PrimeDry* Steel Yankee in combination with a steam-heated *PrimeDry* Hood. Steam generated with biomass is used in both systems resulting in a drying system with zero CO_{2eq} emissions.
- Another possibility is to use biomass to generate renewable bio-syngas to replace fossil fuels when firing the Yankee burners. Sofidel, a major European tissue producer, entered into a long-term collaboration with Meva Energy to build and operate a syngas generation plant at Sofidel's Kisa, Sweden mill, utilizing biomass as the feedstock. This will

enable the mill to reduce CO_{2eq} emissions by 8500 t/a. ANDRITZ Novimpianti air and energy and ANDRITZ burner experts are collaborating in the project, which also involves the Department of Energy of Pisa University.

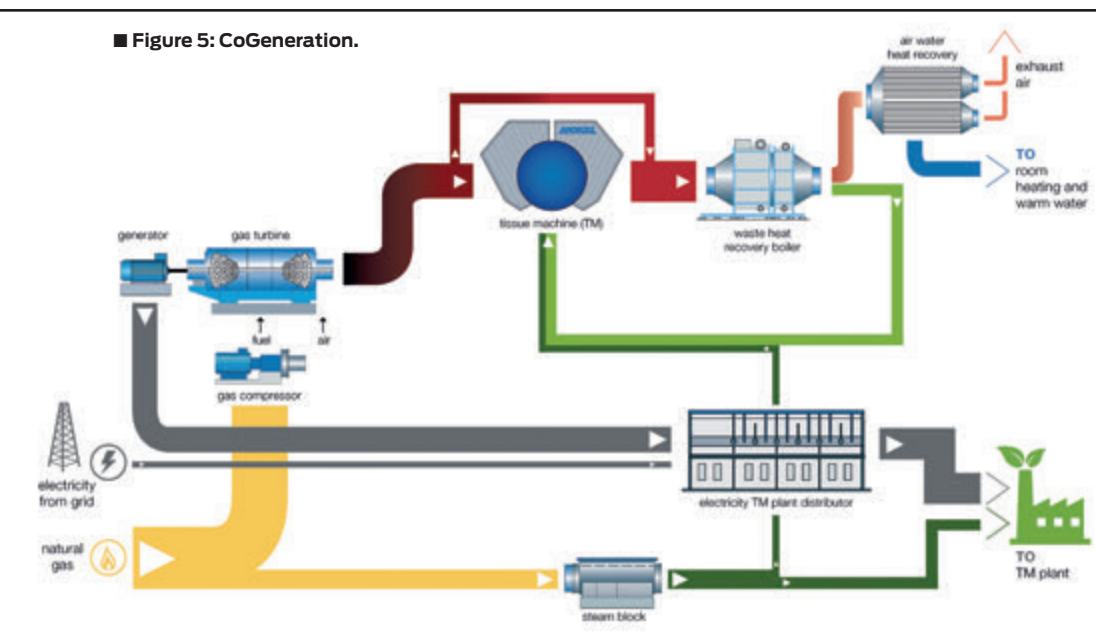
- Some tissue producers are considering on-site cogeneration of electricity, especially when there are no fossil-free sources for purchased electricity. ANDRITZ offers the option to use hot air from the turbine exhaust to heat the Yankee hood, allowing conventional hood burners to be switched off (Figure 5).
- Hydrogen (either purchased or produced on-site via electrolysis) can replace natural gas and significantly reduce CO_{2eq} emissions. Hydrogen can be used to replace 100% of

the fuel used to heat the Yankee hood while also partially replacing the fuel used in a cogeneration system. Combustion of hydrogen provides a direct reduction of CO_{2eq} and CO emissions by about 15%.

For mills located in regions where CO_{2eq} emissions are restricted, but there is increasing consumer interest in higher quality products, a new technology *PrimeLineTEX* machine may be worthy of consideration. The *PrimeLineTEX* produces a "textured" sheet with quality much better than dry-crepe and close to TAD. The required energy is slightly higher than dry-crepe, but about one-half that of TAD. The higher quality of the TEX products, opens the possibility to substantially reduce (up to 30%) the fiber input compared to dry-crepe. Current lab trials at the ANDRITZ Tissue Innovation and Application Center (*PrimeLineTIAC*) in collaboration with a

global leader in chemical supply to develop sustainable and state-of-the-art bio-chemicals for tissue production. These bio-renewable products will contribute to overall carbon emissions reductions. Any tissue mill can benefit from digitalization to improve efficiencies and repeatability. Digital solutions such as ANDRITZ Metris are well suited to optimize production while minimizing a tissue mill's total GHG emissions. ●

■ Figure 5: CoGeneration.




ANDRITZ AG

Stattegger Strasse 18 - 8045 Graz - Austria

■ website: www.andritz.com/tissue

■ phone: +43 316 6902 2014

■ email: tissue@andritz.com



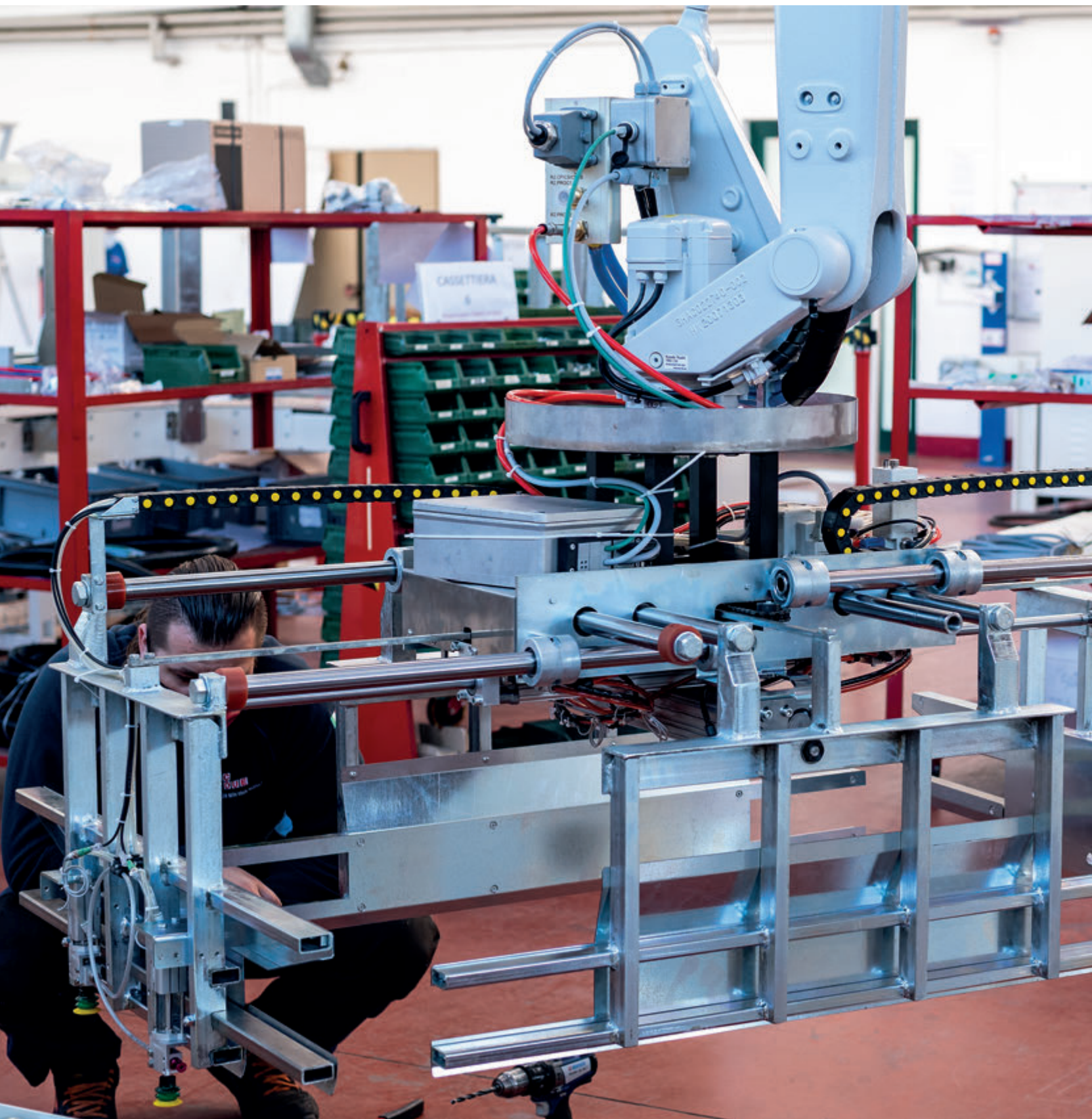
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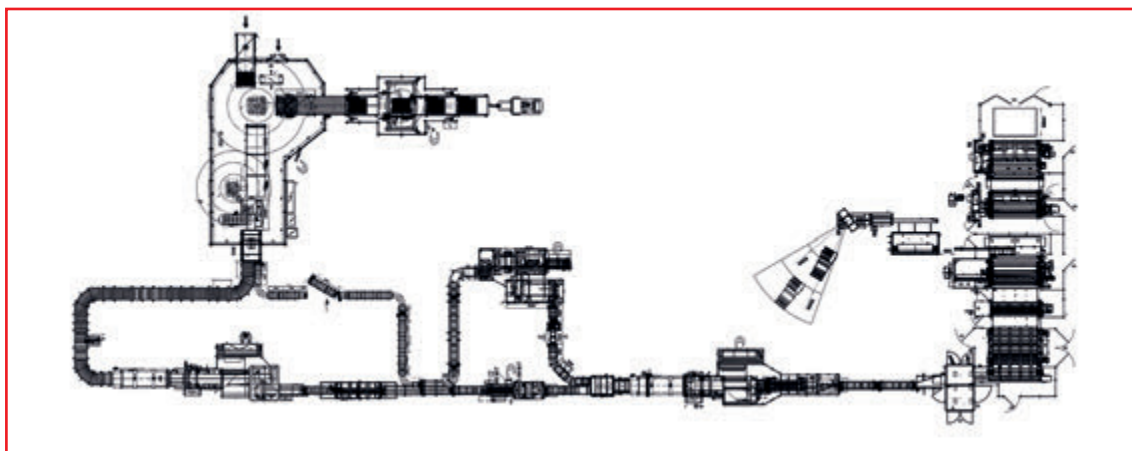
A successful collaboration to help a new customer in the tissue sector

An articulated project is always exciting. Especially when it represents an opportunity to help a customer enter a new sector! This is the starting point for the installation of the latest MacDue line, in collaboration with Maflex for the converting part, at the new GESCA plant.

by: MacDue Srl

The request of GESCA, which was entering the tissue sector for the first time, was to be able to easily operate on multiple types of products while maintaining high efficiency without sacrificing the ease of use of the system. The project we have created allows the customer to respond comfortably to the needs of the market. The range of products that can be made through this line includes bundled toilet paper, kitchen towels in single or double pack or in multibundle or carton box, medical rolls in single or double pack or in carton box. This project has allowed **GESCA** to access important tax reliefs such as the Bonus Sud and the Industry 4.0 Bonus, providing a tangible return on investment in a time horizon that is shorter than the standard. Our partner **Maflex** has supplied a complete HERMES AFH line capable of producing any type of toilet roll, kitchen towel and medical roll. This solution minimizes product changeover times thanks to the combination of rewinder and cutting-off machine with universal electronic presses. Our packaging line had to support this speed of production and format change. The solution we have created starts with the conveyor belts, which receive the product exiting the converting line and bring it to the wrapper. This machine works with POF and PE, offering a very fast system for format change; this choice

■ A custom robot gripper developed by MacDue.



◀ The complete layout of the project.

meets the needs of the Italian market, where single rolls are packed with POF and double or large rolls with PE. The next machine is an Uponder that includes the Twinpack handle applicator for the single or double pack, with the choice of the side where the application is to be carried out. In parallel, a case packer for medical rolls and towels is installed, capable of handling products up to 700 mm in length. The line continues with a stacker that works at a speed of 150 rolls-per-minute to stack toilet paper, going into bypass when other formats are handled. A 28-bundles-per-minute bundler

panel developed to offer an intuitive interface, which facilitates the activity. The whole line has been connected for remote assistance in order to allow quick checks and maintenance support. Upon completion of the installation, we trained the technicians assigned to use the line with a dedicated training period. This customized project created in collaboration with Maflex is the answer to the needs for efficiency and flexibility expressed by GESCA at the beginning of our collaboration. We are thrilled with the results that the customer is obtaining thanks to this high-tech packaging line! ●

▼ Our high-speed wrapper for large diameter rolls.

“ We guide customers in the evolutionary **process** of automation ”

working in PE takes care of packing the multi-collections of loose or individually wrapped rolls from the previous wrapper.

The end-of-line consists of a palletizing island with two robots, with grippers developed by MacDue, which can handle display-type bulk packs, bundles or cartons. The island includes an automatic pallet picker, the management of the half pallet and the application of the layers. A Cyklop CSA950 rotary arm wrapper with a speed of 45 pallets-per-hour completes the job by wrapping pallets up to 2,800mm high. The simplicity of management and format change operations is guaranteed by an operator



MAC DUE SRL

Via Seragnoli 12 40138 Bologna - Italy

■ **website:** www.macdue.com

■ **phone:** +39 051 6014523 ■ **email:** info@macdue.it

■ **LinkedIn:** [linkedin.com/company/mac-due-automatic-packaging-machines](https://www.linkedin.com/company/mac-due-automatic-packaging-machines)

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The Cominter Group recommends the **Maxidry System** by Tecno Caucho Rolls & Covers for suction presses and blind presses

By: Tecno Caucho Rolls & Covers



▲ Production of tissue paper in one of the Cominter Group's paper mills.

For more than two decades, **Tecno Caucho Rolls & Covers** has been using and perfecting multi-layer technology by combining different qualities and elastomer hardnesses in its rubber covers.

This technology, combined with the need to develop an effective solution to improve suction and blind press covers, has resulted in the development of the Maxidry System, based on the Triplex - Multilayer confection system.


This system was designed to increase drying capacity, while also improving paper quality. Thanks to the Maxidry multi-layer cover, the nip contact zone absorbs the Yankee deformations by forming a constant nip along the entire generatrix. This automatically means drying capacity is improved, energy consumption is reduced, paper quality is enhanced and even long fibre consumption can be reduced.

The *Maxidry System* is comprised of three or more cover layers, depending on the specific work conditions of each client and the set position on each machine: the top work layer consists of hard material, the soft intermediate layer has maximum elongation, and the bottom layers are for fixing.


The main advantages the Maxidry System offers the pressing process when manufacturing tissue paper are as follows:

Better quality of tissue paper: Thanks to a reduction in the specific pressure, a reduction in hydraulic pressure and maintaining the contact NIP along the entire generatrix of the Yankee, more paper quires (thickness) can be obtained. This translates to greater resistance and final softness of the paper.

Extended useful life of felts: By increasing



COMINTER
Quality Commitment



TC ROLLS & COVERS

| Kartogroup Paper Mill (Burriana, Castellón) | | | | | |
|---|----------------------|------------|-------------|---------------|----------------------|
| Date | Roll Dimensions (mm) | | | Cover Quality | Roll Model |
| | Shell O.D. | Cover O.D. | Roll Length | | |
| 16/09/2021 | 845 | 895 | 3.100 | MAXIDRY | Suction Press (MP-2) |
| 13/09/2021 | 705 | 755 | 3.100 | MAXIDRY | Blind Press (MP-2) |
| 19/08/2021 | 1.010 | 1.060 | 3.300 | MAXIDRY | Suction Press (MP-4) |
| 13/10/2020 | 705 | 755 | 3.100 | MAXIDRY | Blind Press (MP-2) |
| 16/12/2015 | 705 | 755 | 3.100 | MAXIDRY | Blind Press (MP-2) |
| 09/06/2014 | 845 | 895 | 3.100 | MAXIDRY | Suction Press (MP-2) |
| 14/02/2014 | 845 | 895 | 3.100 | MAXIDRY | Suction Press (MP-2) |

| Cominter Tissue Paper Mill (Hernani, Gipuzkoa) | | | | | |
|--|----------------------|------------|-------------|---------------|----------------------|
| Date | Roll Dimensions (mm) | | | Cover Quality | Roll Model |
| | Shell O.D. | Cover O.D. | Roll Length | | |
| 03/05/2021 | 555 | 605 | 3.150 | MAXIDRY | Blind Press (MP-3) |
| 20/11/2020 | 730 | 780 | 3.250 | MAXIDRY | Suction Press (MP-3) |
| 12/02/2020 | 555 | 605 | 3.150 | MAXIDRY | Blind Press (MP-3) |
| 03/10/2018 | 555 | 605 | 3.150 | MAXIDRY | Blind Press (MP-3) |
| 20/01/2017 | 555 | 605 | 3.150 | MAXIDRY | Blind Press (MP-3) |
| 16/05/2016 | 730 | 780 | 3.250 | MAXIDRY | Suction Press (MP-3) |
| 08/04/2015 | 555 | 605 | 3.150 | MAXIDRY | Blind Press (MP-3) |
| 07/04/2015 | 730 | 780 | 3.250 | MAXIDRY | Suction Press (MP-3) |

the contact NIP, two highly beneficial effects are achieved. Firstly, the pressure on the felt per surface unit is reduced and secondly, the hydraulic pressure is reduced as a result of increasing the effective open area.

Reduced vibration level: Thanks to the exceptional ability to absorb the geometric differences caused by wear of the Yankee and the combination of the Maxidry System's hardnesses.

Increased drying capacity: This is the result of increasing NIP width, increasing contact

▲ Table compiling the Maxidry covers the Cominter Group has acquired from Tecno Caucho Rolls & Covers for its different paper mills.



▲ Profile view of a Maxidry cover where the Triplex - Multilayer confection can be noted.

► Cover press with the Maxidry System during a grinding operation.



Pascual Gómez, Head of Operations at the Cominter Group says: “The Maxidry covers of our suction and blind presses have helped to increase both the quality and quantity of the tissue paper manufactured in our different machines, allowing us to achieve an optimal level of production. The advice and simulations for press sections offered by Tecno Caucho Rolls & Covers have been extremely helpful when it comes to preventing machine stoppages and avoiding possible issues involved in tissue paper production”.

“ Our expertise enables us to offer a very **complete service** ”

along the entire generatrix of the Yankee and configuring the double-section through-hole to aid the Venturi effect and grooving with a trapezoidal section to maintain the open area even under pressure.

Increased useful life of the cover between grinding operations: By developing elastomers with maximum flexibility and resilience in their soft intermediate layer and with maximum resistance to abrasion on the top working layer.

Lower energy consumption: The increased drainage capacity offered by the Maxidry System allows it to directly and considerably reduce energy consumption in the hood.

One of the different manufacturers of tissue paper to have opted for the Maxidry System is the **Cominter Group**, which has been working with Tecno Caucho Rolls & Covers for covers

for its suction and blind presses for several years now. Comprising Cominter Tisú, S.A. and Kartogroup España, S.L., the Cominter Group has a total of three paper machines and seven converting lines distributed between its plants in Hernani (Gipuzkoa) and Burriana (Castellón), producing 84,000 tons per year of tissue paper rolls. The excellent quality of the tissue paper made by the Cominter Group allows it to produce and market a wide range of products - including toilet paper, paper towels, industrial rolls, kitchen rolls, napkins and wipes - through different brands, such as Garbi, Sil and Milmo. At the same time, the extraordinary properties of its products allow it to use different marketing ranges, from hospitality and supermarkets to B2B exports to countries like France, Portugal, the United Kingdom and the United States. ●

TECNO CAUCHO ROLLS & COVERS

Calle Industria 5 - 46930 Quart de Poblet (Valencia) - Spain

■ **website:** www.tecnocaucho.com

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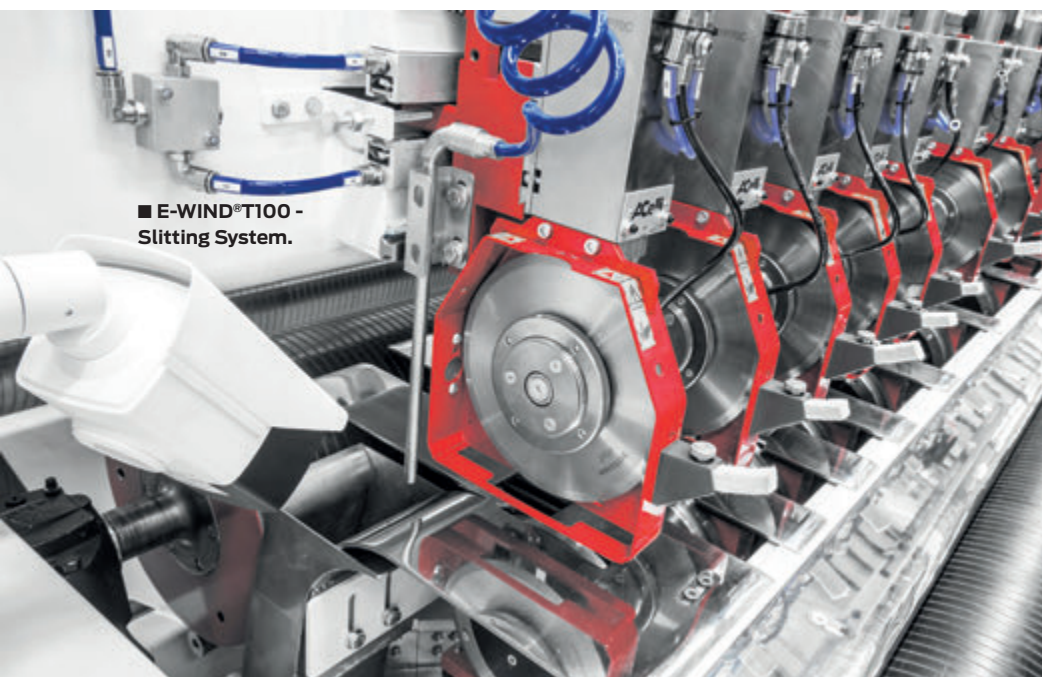
Contact: Adolf Wachter • Phone: +43 676 5045439 • Email: a.wachter@ibs-austria.com
Papertech Europe, Hauptstraße 22, 8833 Teufenbach-Katsch
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How to maintain the softness and bulkiness of tissue during rewinding thanks to **A.Celli solutions**

By: A.Celli Group





■ E-WIND®T100 - Slitting System.



■ E-WIND®T200 Tissue Rewinder.

to preserve the properties of tissue, including:

Roll winding control. A system that is applied on the secondary arms of the pope reel to keep the nip load between the roll and the reel drum at the minimum value necessary for correct winding as the diameter of the roll varies, thus preserving the softness of the tissue paper. The secondary arms are equipped with specific linear position transducers and are operated by hydraulic or pneumatic cylinders, controlled in turn by servo valves and pressure transducers. A control system regulates the thrust applied by the arms to the winding shaft, automatically modulating it during the winding process. At the same time, the system controls the shape of the roll being wound, keeping it perfectly cylindrical and free of defects.

Center Wind Assist (CWA) system.

This system consists of a motor, managed by the sectional machine control and mounted on the end of the shaft, capable of transferring drive torque directly to the roll being wound. In this way the torque that must be transmitted through the nip is reduced, eliminating the need for a high nip load value which would lead to a crushing of the sheet, with obvious consequences on its softness and bulkiness. Like the previous one, the CWA system is also typically applied to the secondary arms of the pope reel, where most of the roll formation takes place, but it can also be applied to the primary arms to optimize the winding quality from the first turns.

Tissue paper is a material that requires special precautions both during production and in the operations carried out in the so-called *end of line*. During rewinding it is in fact essential to maintain the creping and density of the tissue obtained in the upstream process in order to preserve its distinctive softness and bulkiness. To achieve this goal, a series of specific measures must be implemented, such as avoiding excessive pressure on the reel, precisely controlling the elongation of the sheet to maintain its creping as much as possible or using adequate values of nip load.

Solutions for the iDEAL® tissue winders

The pope reels in the iDEAL® product range offered by A.Celli are equipped with solutions specially developed

Solutions for the E-WIND® tissue rewinders

The range of A.Celli E-WIND® rewinders dedicated to the processing of tissue paper includes machines with proven

“ Technologically advanced tissue machines to **ensure excellence** in production ”

quality and reliability equipped with solutions specifically developed to preserve the bulk and softness of the tissue even during this delicate phase. Let's see them in detail, dividing them by section of the machine on which they are installed.

Unwinder

Tension control during roll

unwinding. A control that allows automatic adjustment of the sheet tension, keeping it at the minimum values necessary for the process requirements and thus avoiding transmitting excessive stresses to the reel that can affect the creping. The tension is measured continuously by

relieve the reel being wound of a part of its own weight, in order to avoid the crushing of the product and thus preserving its bulk. For this purpose, the load on the shaft determined by the aforementioned reel is constantly measured by a pair of load cells located on the spindles. The data collected are then transmitted to the control system, which regulates the lightening pressure according to a curve determined by the operator.

Rider roll relieving. The rider roll has the task of stabilizing the finished reel in position during its winding. In order to preserve the softness of the product and avoid its crushing during the process, we install two load cells

Larger diameter shafts. Thanks to the use of larger and more robust diameter shafts, it is possible to increase the lightening force towards the finished reel during rewinding, thus improving the effectiveness of the shafts themselves in terms of maintaining bulk and softness of the tissue paper.

To obtain optimal results during tissue paper processing it is advisable to use machinery built according to the specific needs of each company. This is why A.Celli is able to offer you customized solutions for an optimal management of bulky tissue paper with high crepe ratios, whatever your production needs are. ●

“ Winders, rewinders and **advanced automation** solutions ”

means of a pair of load cells mounted on a specially designed and positioned guide rollers. In case of multiple unwinders, it is advisable to install the control unit on each of them in order to individually control the response of each reel, thus maximizing the final result.

Axial control. In the unwinders, the rotary unwinding motion imparted by the driven belts to the outermost coil of the reels is harmful to the properties of the tissue paper, which is by its nature not very resistant to mechanical stress. The axial control consists in mounting an electric motor at the end of the shaft. This motor is controlled by the sectional control through the continuous measurement of the reel diameter, with optical sensors capable of determining the correct instantaneous angular velocity. By doing so, it will be possible to impart motion to the reel by acting directly on the shaft, without affecting the paper with any mechanical interaction capable of altering its characteristics.

Rewinder heads

Chucks relieving. This solution involves the expandable shaft and allows to



on the two ends of the rider roll. These load cells have the purpose of sending a signal to a special control system which, consequently, regulates the value of the load that the rider roll exerts on the reel during the rewinding phase, thus preserving the characteristics of the product.

A.CELLI PAPER SPA

Via del Rogio 17 55012 Tassignano (LU) - Italy

- **website:** www.acelli.it
- **phone:** +39 0583 98441
- **email:** info@acellipaper.com
- **contact person:** Valter Canelli
- **email:** v.canelli@acelli.it

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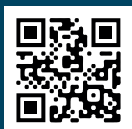


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Körber Business Area Tissue

presents an interfolded napkin that's perfect for wrapping tacos

Thanks to MTC ITF omni taquera the MTC ITF line interfolded has a new solution with which it's possible to create facial products, towels, folded toilet paper and the vacuum folded napkins on a single machine.

by: Körber Business Area Tissue



▲ Product transfer.

The MTC ITF series interfolders make use of the most advanced electronic and mechanical technologies to always guarantee the quality of the finished product in every converting context, combined with high production capacity, reliability, and high efficiency.

These folding machines were conceived to be tailor-made for the customer, with high levels of customization. In fact, customers can choose the size of the final product as well as various other options such as for example the new solution: MTC ITF omni taquera. Körber Business Area Tissue's latest innovation, in fact, enables to create the complete line of interfolded products (facial, towels, folded toilet paper, napkins), including napkins for wrapping tacos, with a single machine. **Stefano Anelli, Körber Business Area Tissue**

Fold Sales Manager comments: "The South American market needed to have a napkin specifically designed for wrapping tacos. From this need and from the collaboration between the sales office, research & development, and specialized technicians, the MTC ITF omni taquera was born, an extremely versatile solution that can be installed on the MTC ITF omni lines that allows to produce



“ Shaping **your success** in tissue ”

■ MTC ITF omni taquera detail.



▲ Vacuum folded napkins.

all the interfolded products, including the napkins for tacos, with a single bending head". Ideal for companies that work with diversified clientele, the taquera option can be integrated on all MTC ITF omni lines and offers a competitive advantage for all those companies looking for a flexible and versatile solution that's capable of responding to changing market needs. This is, in fact, an unprecedented solution in the fold business that enables tissue manufacturers to capture new business opportunities, enter new markets or geographies or finally rapidly adapt to sudden requirement changes in existing industries. MTC ITF omni taquera combined with automatic packaging of napkins in a portable dispenser with serial extraction is a very contemporary solution because it allows to preserve the hygiene and safety of the finished product while avoiding contamination of the wipes. MTC ITF omni taquera is unique in its kind and it represents a significant breakthrough in terms of flexibility and capital expenditure control. Anelli concludes: "Thanks to MTC ITF omni taquera

Körber Business Area Tissue confirms its role as a company that is attentive to offering its customers cutting-edge and innovative solutions. The know-how acquired over the years in the fold sector and the continuous desire to create highly performing products has allowed the company to develop a competitive product with high growth margins. The solution created for the South American market, in fact, can be used in different sectors with similar product needs". ●



KÖRBER TISSUE FOLD SRL

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Toscotec's global leadership of turnkey tissue projects hits record high: more than 20 since 2015

By: Toscotec SpA



■ Toscotec's turnkey tissue line at Sofidel America, USA.

Toscotec has been awarded a new turnkey supply order for an *AHEAD 2.2* tissue line by the Bangladeshi consumer goods manufacturer

City Group who is entering the tissue market. The new tissue mill will be erected in Hoshendi Economic Zone near Dhaka, and it is planned to start production in 2023. "When we set out to enter the tissue market, we did a careful evaluation of machinery manufacturers at global level looking for a supplier of turnkey projects who could also provide all the assistance we needed to succeed - says **Md. Imran Uddin**, Director of Planning & Business Development at City Group. We decided on Toscotec because they offered the highest guarantee of advanced technology and wide experience in giving full-on support to newcomers in tissue" - added Md. Imran Uddin.

designed to preserve the bulk and softness of the mother reel. City Group ordered an extensive service package including detailed engineering, erection supervision, training commissioning, start-up assistance, and YES-CONNECT-VISION Augmented Reality remote assistance system.

Undisputed market leadership rooted in unique capabilities

Since 2015, Toscotec has sold more than 20 turnkey tissue projects across the world. Its experience in managing complex projects such as turnkeys has been built by over 20 years and more than 30 different projects. This kind of expertise is rooted in two essential assets. The first is a large team of in-house professionals that work on the design of the complete plant, from the fibre and water processes, the plant layout, the entire tissue machine including the electrical plant and control system, up to the rewinder. Only

“Challenge the status quo”

The turnkey supply: a complete tissue plant, one single supplier

Toscotec's turnkey supply to City Group encompasses the entire tissue making plant, from the complete stock preparation and fiber recovery systems, the patented TT SAF® Short Approach Flow with double dilution, the full electrification plant, to Toscotec's proprietary control system, and all associated auxiliary systems. The *AHEAD 2.2* machine has a design speed of 2,200 m/min and a production capacity of over 40,000 tpy. It is designed for superior drying efficiency through the combination of the latest generation design of both TT NextPress shoe press and TT SYD Steel Yankee Dryer, as well as TT Hood with multistage energy recovery. **Toscotec** will also deliver the new OPTIMA 2200 slitter rewinder

machinery manufacturers who have such considerable internal resources have the actual capability to manage turnkey projects. The second asset is the ability to provide paper mills with the necessary technical expertise, support and experience related to every detail of the turnkey supply, so that they can stay focused on their core business and significantly reduce the fixed costs linked to an in-house technical department. As a result, the turnkey supplier must have a full team of experts coming into play to deliver on every single technical task, including engineering, project management, equipment selection, coordination of sub-suppliers, manufacturing, pre-erection, logistics, on-site erection, commissioning, and start-up, up to the achievement of guaranteed performances. Based on these unique

capabilities and experience, Toscotec is recognized as the global leading supplier of turnkey tissue projects.

A fully customized engineering design as fil rouge of Toscotec's projects

Toscotec's turnkey supplies have been delivered and installed in four continents, including Asia, Africa, America, and Europe, often requiring complex logistic operations in remote areas, as well as compliance to local machinery manufacturing standards. Their one common denominator is fully customized engineering design. Toscotec's renowned flexibility and constant communication with customers play an important role in the successful completion of complex projects. Turnkey projects often are greenfield supplies that start with the erection of a brand-new building, but they may also be a new tissue line to be installed inside an existing building. If this is the case, Toscotec takes design customization to a whole new level, as it must consider the constraints of the existing building, or - as it is for turnkey rebuild projects - of the existing tissue machine. Toscotec's rebuilds effectively extend the life of existing plants and allow tissue manufacturers to achieve a



■ Toscotec's turnkey tissue line at Essel Kâğıt, Turkey.

high degree of optimization with a limited budget.

Capitalizing on turnkey supplies: plenty of choice

Turnkey projects offer so many advantages to tissue producers that they truly are left spoiled for choice. The guarantee of the supplier's full accountability vis-à-vis the entire scope is acknowledged by paper mills as one of the key benefits. Toscotec

has consistently demonstrated its ability to successfully manage complex projects and deliver on the demanding performances of the entire plant. The fact that many of its turnkey contracts are repeat orders is clear evidence of this ability, which is also incremented with the experience gained on every new project. A second key benefit is represented by the energy efficiency focus across the entire plant. The full width of the scope allows Toscotec to push the envelope on the design and choice of equipment of the production line and deliver the highest efficiency. Toscotec delivers a third key advantage as turnkey supplier in offering complete packages of stock preparation and fiber recovery systems as well as digital solutions that are entirely designed and manufactured by Voith. ●



■ Toscotec's turnkey tissue line at Cartiera Confalone, Italy.

TOSCOTEC SPA

Viale Europa 317/F 55012 Marlia (LU) - Italy

■ website: www.toscotec.com

■ phone: +39 0583 40871

■ contact person: Giulia Fabbri, Global Marketing & Communications Manager

■ email: giulia.fabbri@toscotec.com

ARE YOUR PRINTED FOOD CONTACT MATERIALS SAFE?



Paper, packaging and other food contact materials & articles (FCM&As), as established by the Regulation (EC) N° 1935/2004, shall be manufactured in compliance with Good Manufacturing Practice (GMP) so that, under normal or foreseeable conditions of use, they do not transfer their constituents to food in quantities which could:

- *endanger human health; or*
- *bring about an unacceptable change in the composition of the food; or*
- *bring about a deterioration in the organoleptic characteristics thereof.*

The **risk of potential migration of substances to food** may involve substances used in the manufacturing process of FCM&As, (IAS, Intentionally added substances) or impurities in the substances used or reactions intermediate formed during the production process or decomposition or reaction products (NIAS, non intentionally added substance). In the case of printed FCM&As, there may also be a **specific case of migration defined “set-off” phenomenon**.

SET-OFF MIGRATION RISK

The “Set-off” is the transfer of substances from the outer layer of materials and articles to the inner food contact layer through direct contact and not via diffusion through the material. Set-off may occur where there is a contact between the outside and inside of the material or article during, for example, storage and transport. Such direct contact may occur when materials are wound in reels or stacked in sheets or when articles such as trays, cups, etc. are nested inside each other.

Regulation (EC) n. 2023/2006 on Good Manufacturing Practices (GMP), establishes that printing inks applied to the non food-contact side of materials and articles shall be formulated and/or applied in such a manner that substances from the printed surface are not transferred to the food-contact side, ***through the substrate or by set-off in the stack or the reel***, in concentrations that lead to levels of the substance in the food which are not in line with the requirements of Article 3 of Regulation (EC) No 1935/2004.

HOW TO ASSESS THE RISK?

The technical standard UNI/TS 11788:2020 is an efficient tool for evaluate the finished product, the production process and the set-off in order to ensure that any substances present on the printed surface is not transferred to the side in contact with foodstuffs.

The method shall be applicable for flexible packaging, paper and board packaging and rigid plastic packaging.



**EVALUATE THE SAFETY OF
YOUR FOOD CONTACT
MATERIALS, CONTACT
OUR EXPERTS!**

**ECOL STUDIO IS THE FIRST LABORATORY IN ITALY
ACCREDITED FOR THE TECHNICAL STANDARD
UNI/TS 11788:2020.**

An innovative technical partner that offers a 360° service

Not just “satisfying” the customer, but contributing to his growth. With this aim, OMET is working as a “Full Service Provider” for its customers, stripping off the robes of a simple machine manufacturer to wear those of a technical partner working with a 360° service with pre and post sales consultancy, and supply of a complete production line, from roll to case.

by: OMET Srl

■ The new OMET Tissue facility.



Contemporary markets require a growing differentiation to stand out from competitors. The concept of “servitization” we’ve been hearing about arises from the need to add value to the basic offer, and to get out of the “commoditization” that inevitably leads to a price competition. Today, product’s value is given by the experience perceived by the customer that depends on the whole service built around the product.

In this sense, OMET today has become a “Full Service Provider” that gathers the customers’ needs and guides them in the design, construction and production of a complete line from the roll to palletization, including primary and secondary packaging. **OMET** is therefore going well beyond its long-standing expertise in the paper converting from roll to end product. The converter has to interface with various suppliers and partners to build the complete line, with the risk of delays and failures that inevitably damage production. With a single supplier who takes care of the whole process, the converter can plan his investment with more precision and efficiency, trusting OMET as a guarantee of technological know-how and experience.

In the field of folded products, OMET offers complete lines for converting, connected to machines for primary and secondary packaging. The primary packaging is made by film or paper (wrapping machine or paper wrapping machine for interfolded towels or facial tissue horizontal cartoner). Then the product is directly sent to the secondary packaging: packaged products are grouped and placed in cardboard boxes (cartoning machine) or in plastic bags (bagging machine). It is also possible to add a shrink wrapper machine to proceed with an additional secondary film packaging. At the end of the line, OMET can place a palletizer with a robot: the most requested solution is a robot, but a Cartesian axis system is in any case effective and efficient for some products.

OMET has developed its own range of solutions for primary and secondary packaging, perfectly suitable for its production lines. But OMET also offers customized solutions for automatic packaging and cartoning, in partnership with specialized and selected suppliers. OMET lines are completely customizable for the customer, according to its needs in terms of product, volumes and budget.



■ Customization of the final product possible on OMET machines.

“ A solid **competitive advantage** on the pursuit of excellence, responsible and sustainable innovation ”



◀ All OMET lines operate with a coordinated control and an Industry 4.0 perspective.



◀ OMET offers complete lines for converting, connected to machines for primary and secondary packaging.



▼ From the reel to the finished product - OMET Full Service Provider partner.

“ Expertise in tissue ”

A supplier that operates as a *Full Service Provider* guarantees the necessary flows to saturate productivity, by exploiting the electronic integration and interconnection between the various machines on the line.

All OMET lines operate with a coordinated control and an Industry 4.0 perspective, thus maximizing effectiveness and efficiency by minimizing waste and downtimes through preventive maintenance.

But that's not all. Beyond its technologically advanced converting machines, OMET offers a series of services based on the most cutting-edge digital technologies, to increase the usability of the product and the exchange of information between customers and suppliers. The final aim is to raise production efficiency and make the customer grow.

Some examples are the NOVA app for customer assistance, equipped with augmented reality; the interconnection of machines in an Industry 4.0 perspective with the possibility of data collection directly from the company operating system; and the digitization of the warehouse for a prompt distribution of spare parts and 24h assistance. ●



OMET SRL

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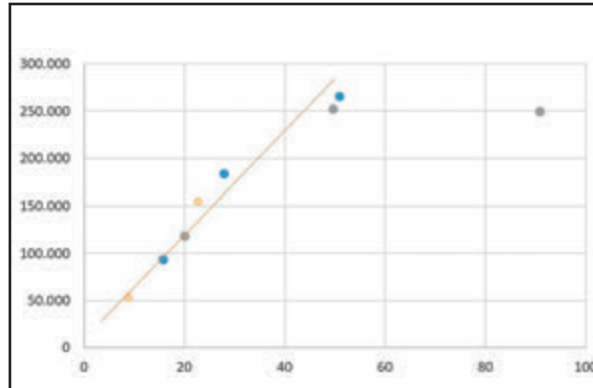
Tissue & Paper Machine



An example of MARE's systemic and comprehensive approach to problem solving in paper making.

by: Mare SpA

As a matter of fact, no other term rather than “organism” can better describe a paper mill process. Actually, if we may lead you into such a sequence of comparative examples, pulping may be seen as the “mouth” of such an *organism* where the raw ‘food’ is chewed with water, the stock preparation can then be imagined as the “stomach” where bolus is pre-digested and made ready for the final use, then the machine is the “organ” where such a precious nourishment is turned into tissues, similarly to what a living body would do. Water plays an outstanding role in all this, being the key transport lifeblood used to deliver the treated “food” where it has to be used. As any body fluid, water will have to be depurated after use, so the paper mill “organism” will be equipped with *kidneys* of a variety of shapes and natures (DAF units, polydisk, etc.). In all this, the managers and operators of the mill are, all together as one, the head, arms and legs of this imaginary body. As an organism will be checked, for example, by blood work or temperature check, so the paper mill circuit will be and, as such an organism will be subject to infections and to the undesired ingestion of harmful substances to be eliminated or, generally, dealt with, a paper mill circuit could suffer about these events as well. One of our customers asked us to implement exactly this kind of global approach on one of its high speed tissue machine, where the mill suffered from a generally low performance as highlighted by an internal benchmarking process. The initial work done aimed at identifying the root cause of such a reduced performance through the analysis of the cause of breaks and general undesired production losses. It was agreed, after this initial survey, that the basic explanation for the lower comparative production results stayed with felt performance.



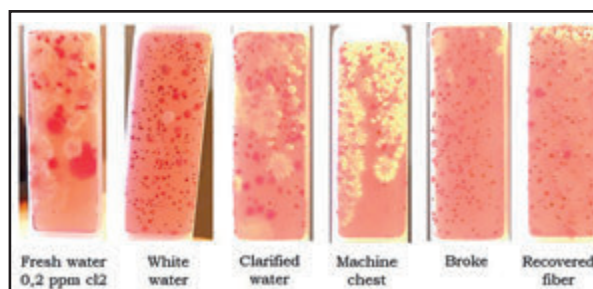
▲ Picture 1: Dispersion graph where an analysis of the eventual correlation between ATP and turbidity is done.

Our technical experts started from this point and highlighted that the primary cause, although not the only one, of the poor felt performance came from an unsatisfactory quality of the clarified water used for clothing conditioning. The next step was to understand the reason behind such

a poor clarification and come to an operational proposal. In picture 1 you can see a correlation between the turbidity of the superclarified water and its ATP content (adenosine triphosphate is a direct measurement of the abundance of micro-organisms into a fluid). It came out strikingly clear there was a correlation between turbidity and the microbiological quality of the water. The analysis via microbio slides confirmed a rather uncontrolled situation, as can be seen

“Steeped in history, **developing** the future”

▼ Picture 2: Culture beds appearance after process sampling before the trial.



from picture 2. Another relevant pieces of information which we could get from picture 1 was that turbidity and ATP were seemingly uncorrelated over a certain value of turbidity, meaning that the process was also subject to changes in colloidal coagulation. Another “brick”

was added to **MARE** proposal by analysis of a felt sample. Picture 3 shows the analysis of a felt removed from the machine (first column). The data showed clearly both inorganic and organic

| | Initial conditions | First felt cut a few days after the start of the trial | Second felt after the start of the trial | Third felt |
|--|------------------------|--|--|-----------------------|
| Ash 525 °C % dry | 0,58 | 0,48 | 0,44 | 0,24 |
| Ash 900 °C % dry | 0,54 | 0,42 | 0,32 | 0,18 |
| Visual aspect ashes 900 °C | White powder | White powder | White powder | Brownish powder |
| Extracted with methylene chloride % dry | 0,39 | 0,36 | 0,33 | 0,29 |
| Extracted with isooctane after acid hydrolysis % dry | 0,49 | 0,48 | 0,46 | 0,44 |
| Extracted with acetone % dry | 0,41 | 0,43 | below detection limit | below detection limit |
| GCMS on solvents extract (identification) | Sterols Fatty acids | Sterols Fatty acids | Sterols | Sterols |

▲ Picture 3: Analysis of felt samples collected in sequence; it is clearly appearing that the felt samples turned out cleaner while the trial progressed.

contamination. Based on this, we proposed our customer a multi-component approach based on the following points:

- Substitution of the incumbent program for microbiological control with one based on different active components and dosing strategy;
- Substitution of the current antiscalant on fresh water with a chemical providing a higher level of protection on the utilities;
- Substitution of the incumbent program for the control of anionic trash with one more performing in the specific process conditions met in the mill;
- Substitution of the incumbent continuous cleaning chemical program with a batch-on-the-fly one, paper side;
- Implementation of a continuous dispersing treatment on the internal side of the felt.

Picture 3 shows how the contamination of the felt changed with time, during the trial.

Picture 4 shows, on the contrary, the percentage variation between a sample of a felt used before the trial and one used while the trial was going on. The comparison was made between two felts from the same supplier, same product code and used for a similar amount of days on the machine. We hope that with this article we have been able to bring you inside the way that MARE is approaching complex problems. Please contact your local MARE sales representative for more details. ●

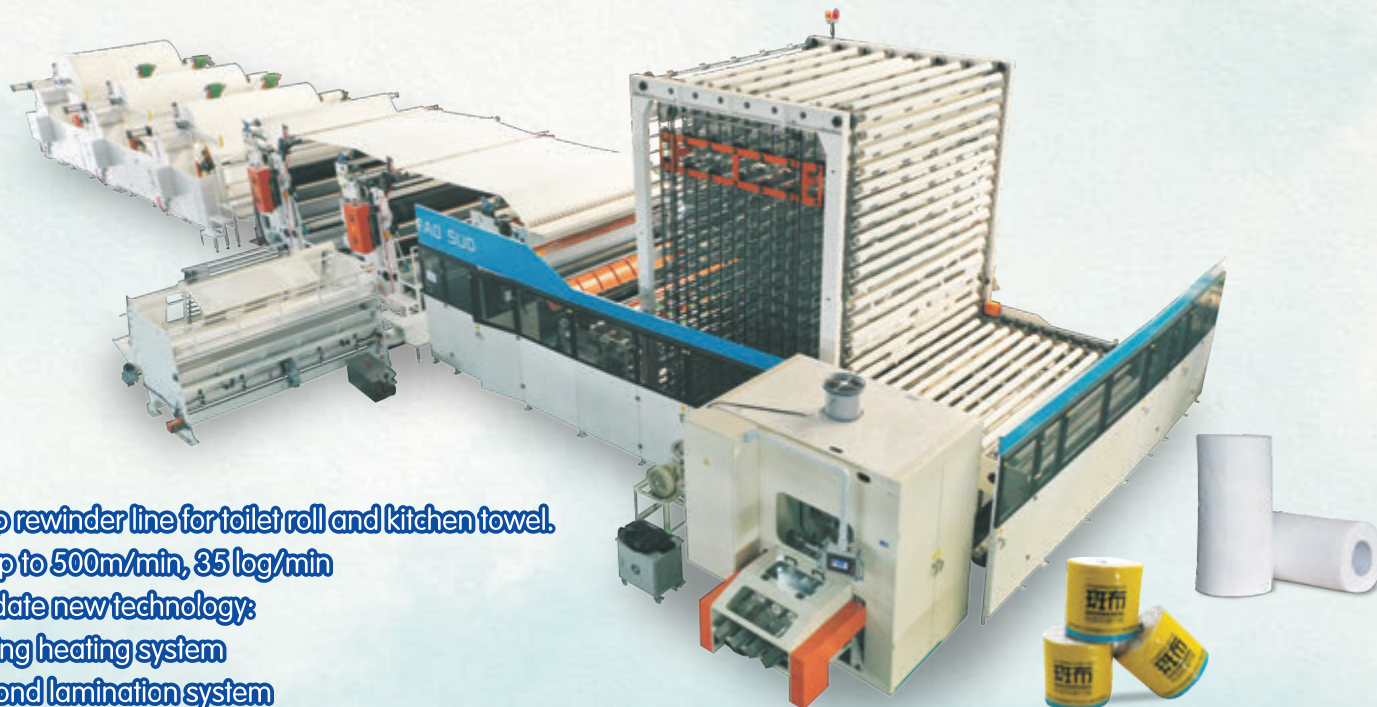
| | MARE |
|---------------------------|-------|
| Days worked | +1,6% |
| Breaks | -26% |
| Machine global efficiency | +3,2% |

▲ Picture 4: In this picture you can see a relative comparison between basic performance data of two felts from the same supplier and with the same product code, one used before the trial with MARE chemical programs and one after. The +3,2% on global machine performance comes from the reduction of the number of breaks and average shorter times to regain production after a break.





YD-PL600C Non-Stop Toilet Roll/Kitchen Towel Rewinder Line



Non stop rewinder line for toilet roll and kitchen towel.
Speed up to 500m/min, 35 log/min
With update new technology:
Embossing heating system
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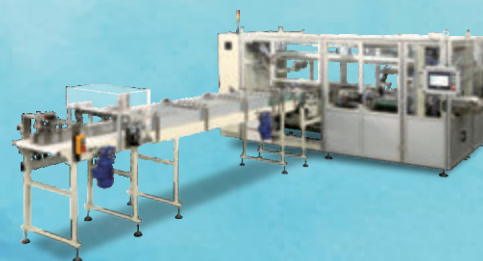
BaoSuo Enterprise Provide You The Turnkey Solution For Tissue Production



Tissue Machine



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IMA TMC's end-of-line solutions for damage-free tissue rolls

In 2021, TMC's financial and technological commitment, for palletizing systems, was widely recognized with an average of about one packaging line sold per month worldwide. In most cases, the lines involve the palletization of bulk products with the use of the new NEST gripper. The projects involved both multinational companies and individual manufacturers, allowing IMA TMC to see its technology applied to different market conditions. TMC is globally acknowledged for its attention and receptivity to the multiple needs of the market. IMA TMC knows that no two systems are the same: the peculiarity of the treated product and the space requirements of each manufacturer are elements of uniqueness that characterize each line. For this reason, a wide range of customization possibilities distinguishes TMC's palletizing and end-of-line solutions. High performance and control of maintenance costs are the cornerstones that guide the company in the design and construction of its lines. When handling tissue products, it is essential to rely on technologies that allow damage-free palletizing. Traditional compression and suction technologies are ideal when handling products of a certain stiffness but may not be suitable for handling very delicate or soft products such as bundles of paper rolls. In this sense, TMC has

■ Gripping Head with Nest System.

“ Innovative solutions to solve the complexities related to the **packaging and handling** of Tissue and Personal Care products ”

IMA TMC (Tissue Machinery Company) analysed market requests seizing new opportunities to become a main contractor for complete packaging lines in the Tissue and Nonwoven industries, from primary packaging up to palletizing.

by: TMC SpA



accepted the requests of many producers, who complained of excessive stress on the product during the compression phase, by developing the new NEST: a patented layer gripping head solution that uses unidirectional chains, lifting products from below. NEST technology

“ The commitment to R&D allows IMA TMC to offer **cutting-edge solutions** to the market ”



innovates the traditional pliers in addition to having all the standard characteristics of a bottom-gripping plier, the product is supported and not crushed, stressed, or deformed by contact. NEST has the additional advantage of having the same overall dimensions both in withdrawal and in storage.

This makes it possible to have up to 50% less space than a parallel opening gripper and to be able to create multi-line and multiproduct palletizing solutions in smaller spaces.

NEST is fast, precise, and reliable even in harsh environmental conditions, such as dusty or wet

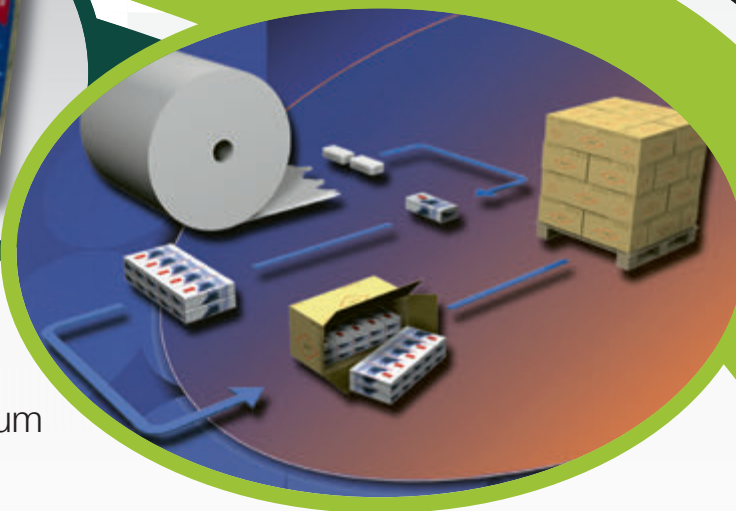


surroundings. All movements are servo-driven to obtain maximum precision and speed and it is made entirely out of aluminium and carbon to reduce weight without decreasing strength. TMC has engaged in important investments over the last four years, both in human resources and the startup of new projects.

This commitment has led to the development of advanced technologies for end-of-line solutions, from stand-alone palletizing islands to the design of more complex automation systems. These systems integrate the pallet handling area, pallet wrappers, labelling machines and rail vehicles or LGV vehicles to the packaging and palletizing lines for interlocking with manual and automatic storage systems.

For over twenty years, IMA TMC has been offering the most innovative solutions to manage and solve the complexities related to the packaging and handling of tissue and personal care products. From converting to palletizing, TMC supplies complete packaging lines for tissue rolls, baby diapers, adult absorbent briefs, and light incontinence products. ●

NEWS COMPLETE HANDKERCHIEF LINES WITH EFFICIENCY AND PRODUCT QUALITY AT THE TOP OF THE CATEGORY



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.



TKM. The Knife Manufacturers

There is more to us than being
“The Knife Manufacturers”.

by: TKM GmbH

■ TKM Group Headquarters.



For 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 and CBN grinding wheels. In this edition we focus on a product that causes a lot of downtime and adjustment time during installation: **the bimetal anvil and perforation knife.**

Summary

Each toilet paper and kitchen towel roll needs a perforation. As a standard, four to six anvil knives work with one perforation knife. As the anvil knives cannot be adjusted individually, the width tolerance plays an important role. The same steel grades have been used for many years: M2-HSS and M42-HSS whereby TKM has focused on the higher quality M42-HSS for many years. Now there is the possibility of using an improved material.

“Industrial **knives** for your production plant” ”



The details

The main task for bimetal anvil knives is to achieve the longest possible life time with at the same time shortest possible adjustment time after a knife change. TKM works on that task from two sides:

a. Width Tolerance of the bimetal knives.

The steel manufacturers deliver the bimetal coils with width tolerances of up to ± 0.03 mm. For a set of anvil knives, this means a possible difference of one knife to the other of up to 0.06 mm.

Since the knives can only be adjusted as a complete set to the perforating knife, the anvil knives touch the perforation knife differently. This has two negative consequences: Firstly, one or several anvil knives wear faster as they touch the perforation knife with a higher impact. The entire set needs to be changed. Secondly, you as the customer have more difficulties and need more time to adjust the anvil knives to the perforation knife during the installation.

The solution is to manufacture anvil and perforation knives with a width tolerance of ± 0.01 mm: the adjustment after the installation is shorter; the wear of all knives is lower. As a result, the converting line works with a higher efficiency.

b. Steel Grade of the bimetal knives. While superior steel grades were introduced in other industries many years ago, only two different HSS grades were available for bimetal knives for many years. TKM has recently introduced a higher quality steel for bimetal knives: the so-called powder-metal HSS. The steel has the following properties: Higher wear resistance compared to standard HSS; better toughness at the same hardness compared to standard

■ TKM Bimetal Perforation Knives.



HSS. In other applications, the powder-metal steel achieves **up to twice the life time** compared to standard HSS.

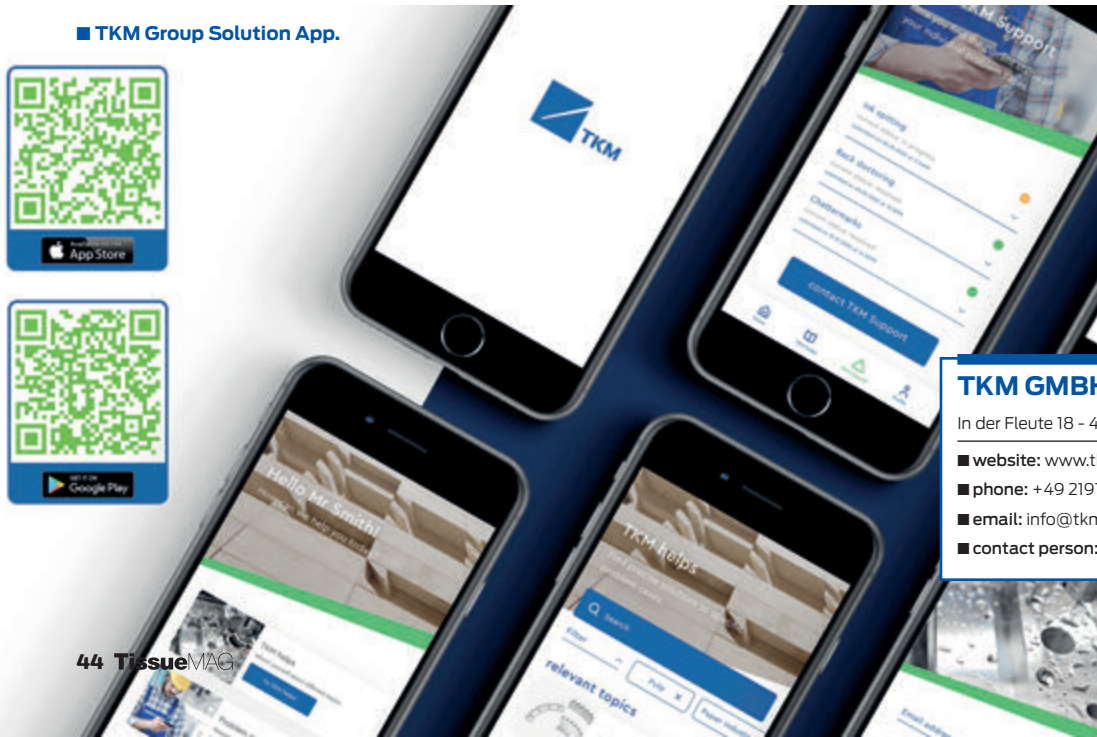
To achieve the best possible performance of your roll converting line we have combined a) and b) and sell the superior steel grade only with a width tolerance of ± 0.01 mm.

Contact TKM and try it out

During 2020 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 relaunch of our website www.tkmgroup.com. 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. ●

■ TKM Group Solution App.



TKM GMBH

In der Flute 18 - 42897 Remscheid - Germany

■ website: www.tkmgroup.com

■ phone: +49 2191 9690

■ email: info@tkmgroup.com

■ contact person: Thomas Friede

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IM CONVERTING: “IM FOLD PLUS”

new generation of
interfolding lines.

Energy saving and efficiency
increase are the goals
achieved thanks to a
R&D team work



■ Interfolding line.

IM Converting is based in the paper district of Lucca - Italy, and it was founded by a team of engineers and skilled technicians with over 20 years of activity and knowledge in the field. It is young, but it was “Born with Experience”.

by: IM Converting Srl

It has not been many years since IM Converting entered the market, and this company is already talked about a lot. The company is located in Lucca paper district, which is one of the most important realities worldwide for the production of Tissue and related machinery and services. This is how **IM Converting** projects were born: machinery designed and built around a fundamental idea, that is the reduction of energy consumption of the entire production line and of the use of polluting materials. Thanks to constant and meticulous experimentation “in the field”, combined with a lean and versatile company structure, IM Converting has managed to approach this problem in a creative way, as is typical of much of Italian entrepreneurship. The result is a series of impeccably built machines, which have their own reason for being both in stand-alone mode and as part of a line. Modular machines therefore, which allow to be adapted to multiple needs, being able to be easily inserted into existing lines, thus allowing the customer to optimize the investment and to gradually manage it at will.

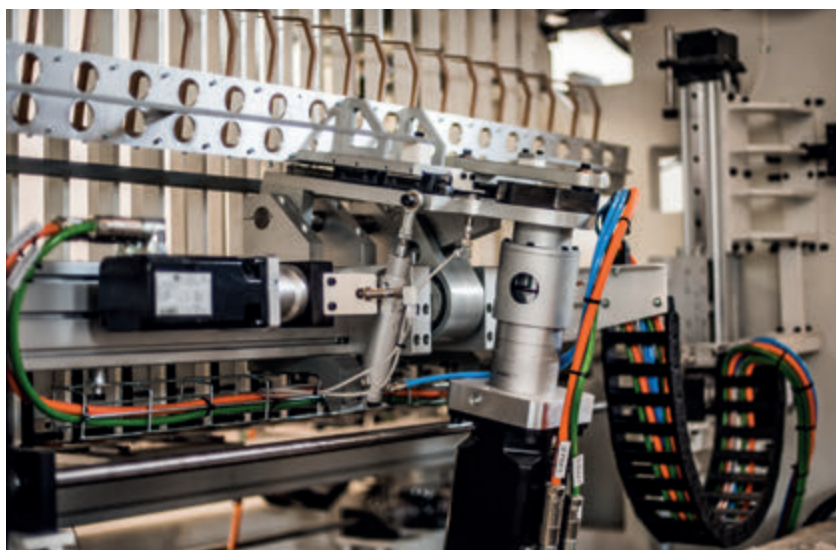
Thus was born **IM fold**, the interfolding line for towels, toilet paper and facial tissues, which thanks to a patented mechanical folding system, obtained from a careful internal design and development in production, allows to obtain a very high efficiency ratio and a perfect fold of the product even for difficult to handle and high basis weight papers; further targets reached are energy consumption approximately two thirds lower than competitors' machines and high-level production speeds.

In fact, the IM Converting technology allows the use of a vacuum generator, necessary for the paper transfer phase in the folding area, very small in terms of absorbed energy power and in



▲ Folding mechanical system.

▼ Automatic transfer.



“ IM Converting, the Made in Italy answer to **global challenges** ”

size, easily installed in very little space, therefore also suitable for all those companies that value space as a cost. Thanks to the experience gained in production and to a recent investment in research and development, we have patented the evolution of the consolidated mechanical folding system. This last generation of our folding head allows to obtain a considerable increase in production speed (as it is being demonstrated by the first tests on pilot unit) keeping the same low consumption, thus further improving the production efficiency of the line which will position our machines at the top of the market. In addition, thanks to the newly designed system, it has been possible to reduce the time for production set-up and maintenance operations, thus increasing the overall efficiency of the line. Another challenge sustained by IM Converting and a very successful milestone reached is the **IM hug** folded product logs wrapper. In fact, IM converting managed not to be caught unprepared, and was able to skillfully transform a problem into an interesting opportunity: *offering more GREEN solutions by reducing the use of plastic wrapping material.*

IM hug is an intelligent answer to the problem: it is in fact one of the very few technologies that allow you to wrap / pack logs of folded products using paper instead of plastic, obtaining a truly green packaging with very high level performance (Up to 22 logs /min) with use of only 5Kw of electricity, thus maintaining the peculiar characteristics that distinguish us in this case as well.

Furthermore, due to the continuous need for production efficiency sought by users, systems have been created aimed at increasing the non-stop working autonomy of the plants, with the use of packaging paper unwinders for reels up to 1.2m in diameter which allow a only reel change per shift, accumulation systems for logs and an internally developed software that allows the interaction between the machines of the plant by automatically adjusting the speeds, allowing to manage the accumulation and yield of both bulk and packaged products, in case of micro-stops of the plant. So IM Converting is a company that produce innovation and looks to the future of tissue converting by offering increasingly efficient machines but with attention to the environment. ●

IM CONVERTING SRL

Zona Industriale Renaio Via Ghivizzano snc 55025 Piano di Coreglia (LU) - Italy

■ **website:** www.imconverting.com

■ **phone:** +39 0583 1802122

■ **contact person:** Mauro Della Santa (Head of sales) - Marco Martini (Ceo)

■ **email:** mauro@imconverting.com - marco@imconverting.com

■ Packaging solutions.



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Valmet 
FORWARD



▲ With 11 EP Turbo Blowers, Progroup's PM3 in Sandersdorf-Brehna, Germany, is the biggest RunEco installation in the world. The paper machine produces 750,000 tons of containerboard annually, 100% from recovered paper. Our other latest new machine projects in Europe include Hamburger Spremberg PM2, Palm Aalen PM5 and Mondi Ruzomberok PM19.

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

Together with Nash, another Ingersoll Rand brand, **Runtech Systems** is the only the only company that can supply both liquid ring pumps 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. Producing vacuum is essential, but also a complex and cost-intensive process. The cost of energy used by a vacuum system over its

lifetime exceeds its purchase price many times over. Vacuum system optimization projects provide a very efficient way to reach both cost reduction and sustainability targets.

Toward a smaller carbon footprint

Many companies are committed to reducing their CO₂ emissions before 2030. Saving 1.5 MW in the vacuum system equals a 4,000-ton CO₂ savings per year on average. Runtech looks at energy-saving projects from a wide perspective. It is not only about the vacuum pump or the Turbo Blower in the basement. Our target is to understand what happens at

Thinking beyond the basement

Runtech Systems, an Ingersoll Rand brand, is a global provider of engineered systems tailored to the pulp and paper industries. Runtech's patented solutions include energy efficient vacuum system and heat recovery optimization, runnability optimization, dewatering, doctoring and cleanliness optimization as well as ropeless tail threading, including related services, spare parts and paper machine audits and consulting.

by: Runtech Systems

the machine levels and what might be wrong or causing problems on the paper machine. Understanding the dewatering process is key to a well-functioning vacuum system.

Energy-efficient and economical paper production with RunEco vacuum solution

RunEco EP Turbo Blowers are designed to operate efficiently across a wide range of vacuum levels and air flows. It allows paper mills to optimize vacuum levels. High speed motors, driven by frequency converters, allow a typical RunEco blower to provide vacuum levels between 30 and 73 kPa (9" and 21" HgV).

A wider range of impeller designs allows highly efficient levels across the operating range. This means that the amount and the usage of throttling valves can be reduced to a minimum. The result is energy savings of 30 to 70% when compared to traditional vacuum systems.

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

“ Engineered solutions for pulp and paper industry worldwide ”

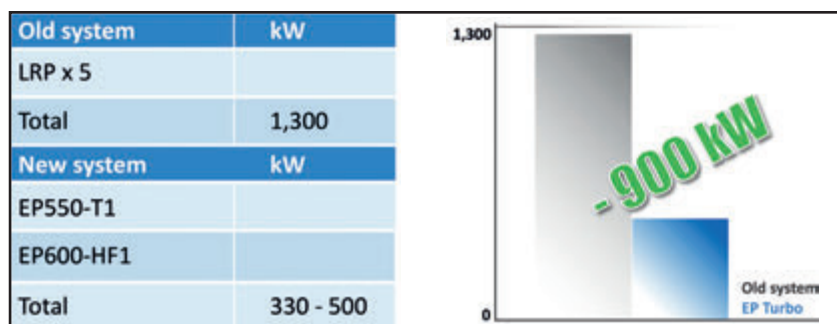


◀ EcoFlow dewatering measurement system opens a window to the process. More than 600 paper machines have been equipped with EcoFlow.

effective and don't have the adjustability that is needed to optimize them effectively.

Discover the potential of your machine

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 optimized dewatering and minimized power consumption. Vacuum levels are measured at the vacuum pumps and blowers to identify problem areas. The dewatering elements



Reliable dewatering - the basis for runnability

Each vacuum element in the machine requires a certain amount of air flow to operate at an ideal vacuum level. The needed capacity is dependent e.g. on felt life and type, paper grade, basis weight, machine speed etc.

To achieve this challenging goal we need reliable dewatering measurements.

EcoFlow dewatering measurement system is designed to measure real time water flow accurately while not sensitive to entrained air or foaming. These devices are used both under vacuum (in a separator drop leg) and in atmospheric conditions.

Dewatering and doctoring are not only related to energy consumption, but play a major role in 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 lot of paper machines have them but they are not

▲ Confidential tissue machine is a double-width tissue machine in Europe. With a target to improve energy efficiency and profitability, the existing vacuum system of five liquid ring pumps, consuming altogether ~1300 kW, was rebuilt with two EP Turbo Blowers. The turbo operation was optimized with the help of EcoFlow dewatering measurement system enabling a reduction of up to 900 kW during normal operation. All energy efficiency targets have been reached and sealing and cooling water consumption fully stopped.

such as flat boxes, save-all pans and uhle boxes are reviewed. Specialists study pressure and bleed losses to analyze the energy consumption and evaluate if the vacuum levels are too high. With the experience of thousands of audits and dewatering studies at paper mills, we are able to benchmark the effectiveness of existing vacuum systems, dewatering equipment, suction elements, fabrics and felts. Today, close to 900 Turbo Blowers have been sold globally. 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

Kastarintie 27 - 35990 Kolho - Finland

■ website: www.runtech.fi

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Vasilios Papadopoulos, C.E.O. of **MAXI S.A.** talks about the partnership with Italian company **RECARD SpA**

Mr. Vasilios Papadopoulos, CEO and chairman of the board of MAXI, granted **RECARD** an interview where he talks about the company's history and future, analyzing the effects of the pandemic and outlining a perspective on tissue products and market development.

MAXI is a strong company that grew despite the economic crisis that dramatically struck Greece in 2008. How did the company face the pandemics at first, and how does it face it today?

Maxi was founded more than 30 years ago and has meanwhile established a leading position in the market. The milestone year in its history was 1988, with the company foundation firstly as a commercial business and soon after as a manufacturing entity. Over the years - with continuous investments in state-of-the-art equipment - we reached a production capacity of 68.000 tons p.a. of Jumbo Rolls from 2 paper machines with 20 converting lines downstream for producing Rolls and Folded products for the consumer and professional sectors. The dominant market position, strong financial base, the high production efficiencies achieved and, last but not least, the comprehensive product

portfolio has enabled MAXI to weather the storm of the financial crisis without detrimental effects. Today, MAXI SA is a leading force in paper production and processing. Focusing on our customers' ultimate satisfaction, we continue with the sustainable development of quality products, investing in highly trained human resources besides our prime mechanical equipment.

During the last year and a half, how did the pandemics change the needs of the Greek and international markets on which MAXI operates?

Hygienic Paper demand has proven to be relatively inflexible in developed markets. Any loss in the away-from-home sector due to lockdowns was compensated by an increase in demand of consumer product demand. Moreover Maxi strive to produce and supply products of the highest quality that meet our customers' needs maintaining their dedication

► The assembling of the Tissue Machine seen from above.

“ We design innovative solutions for a **sustainable future** ”



MAXI tissue products renewed its trust in RECARD. They commissioned the Italian company to design and build a whole new plant for the production of 40,000 tons of tissue. The plant will be started this autumn in MAXI's facilities in Katerini.

by: TissueMAG

and trust. This quality market segment has also proven to be resilient during the pandemic.

How do you think Covid-19 had an impact on the tissue products? Do you see such changes affecting the future as well?

We focus on investing in new papermaking facilities, thus improving quality and efficiency all the time. This, coupled with our wide product range with a mix of branded and private labels, helps create the resilience in market changes mentioned previously.

According to your experience in the B2C world, do clients tend to prefer low-cost products or is high-quality still decisive in their choices?

We always keep to a mix of both. One product category offers bulk; another offers a loyal customer base. The answer, in our view, lies in the mix of these two.

Which one of your brands is currently the most successful among customers?

This would be our MAXI brand by far.

This is the third PM developed with RECARD (including the Papyros S.A. machine bought, installed and subsequently sold to a third party). What are the technical aspects and services that contributed to building trust in the Italian brand RECARD?

In our opinion and experience, RECARD offers, on the one hand, a unique combination of high technology for this kind of plant with great



▲ Vassilis Papadopoulos, CEO of MAXI, with Riccardo Campo, General Director of RECARD, during the survey of the new paper mill construction site.

attention to detail. On the other hand, as a family company, it can offer a “personalized” service that bonds customer and supplier in the long term. In short, we get a meticulously built, highly efficient machine producing high-grade tissue and a supplier who is always there for us in the long term.

The start-up of the PM2 (currently under construction) scheduled for October 2021 will allow MAXI to...?

...to cover all of Maxi’s converting department needs while serving our valued clientele for jumbo reels even better.

What does the years-long collaboration with an Italian company like RECARD mean for MAXI?

It means we have faith in the equipment and that the people in Lucca will be there to help us whenever needed. ●

▼ Partners of Greek company MAXI S.A. with Recard’s General Director during a survey of the paper mill construction site in Katerini. From left to right: Elias Papadopoulos, Vassilis Papadopoulos, Riccardo Campo, Athanasios Poullos.



RECARD SPA

Via della Torbola 55019 Villa Basilica (LU) - Italy

- website: www.recard.it
- phone: +39 0572 43067
- email: info@recard.it
- contact person: Ing. Alberto Tomelleri, Sales Director Recard

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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 straightfowardness.

by: Azmec Srl

Azmec was founded in 1960 and started with precision machinings, while in 1964 began dealing with vacuum pumps and compressors.

Today its business is distributed in two workshops: the hystoric unit in Arenzano (GE) and the more recent unit in Verderio (LC) operating since 1993. In the Arenzano workshop, extended on a covered area of 1200 m², the liquid ring vacuum pumps have been produced untill the opening of the new production site in Verderio that is still today the main reference unit for the design and production of the whole ranges. Clearly the synergy between the two sites is real an advantage for granting to the customers the utmost punctuality in the delivery times. The castings are machined through CNC tool machines

and the tests are done in the new internal testing room, fitted out with the most updated instrumentation and available to test machines having an absorbed power up to 250 kw.

"One of our strength - explains Dr. **Claudio Vergani**, 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 mantain unchanged the quality and the performances".

The most significant projects from 2020

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 Srl has been defined a longterm and still open contract with



▲ Vacuum pump group ALZ100 for papermill in Italy.

◀ Vacuum pump group ALBV55 installed in papermill in Italy.

deliveries at different deadlines for 6 vacuum systems type ALC420Z destined to new paper machine in Saudi Arabia. For the customer Ahlstrom Munksjo Italia SPA, 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 overhauling of the existing old pump ALZ100/2000 and AL40/2000. In the year 2021 Azmec started an important cooperation also with Recard SpA 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.

The production

Azmec 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 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

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



◀ Vacuum pump group ALC500Z for papermill in Ivory Coast.

▼ Vacuum pump group ALC520Z for papermill in Romania.



“ Azmec - high efficiency, lower energy consumption ”

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, AZMEC 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 year. 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. ●

AZMEC SRL

Via Piave 79 23879 Verderio (LC) - Italy

■ website: www.azmec.it

■ phone: +39 (0)39-514323 int. 3/4/5

■ contact person: Miss Solange Cortellini, Business Unit Director

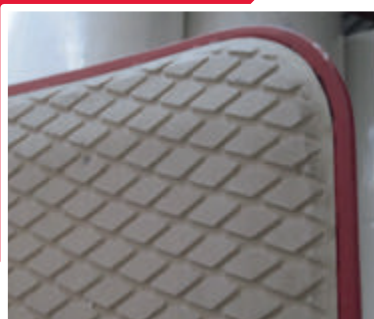
■ email: solange.cortellini@azmec.it

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Tissue clamps are always built to be able to handle large diameter rolls; they also have higher and wider contact pads to reduce surface pressure on the soft paper. A full paper roll clamp range has been designed for automated guided vehicles (AGVs).

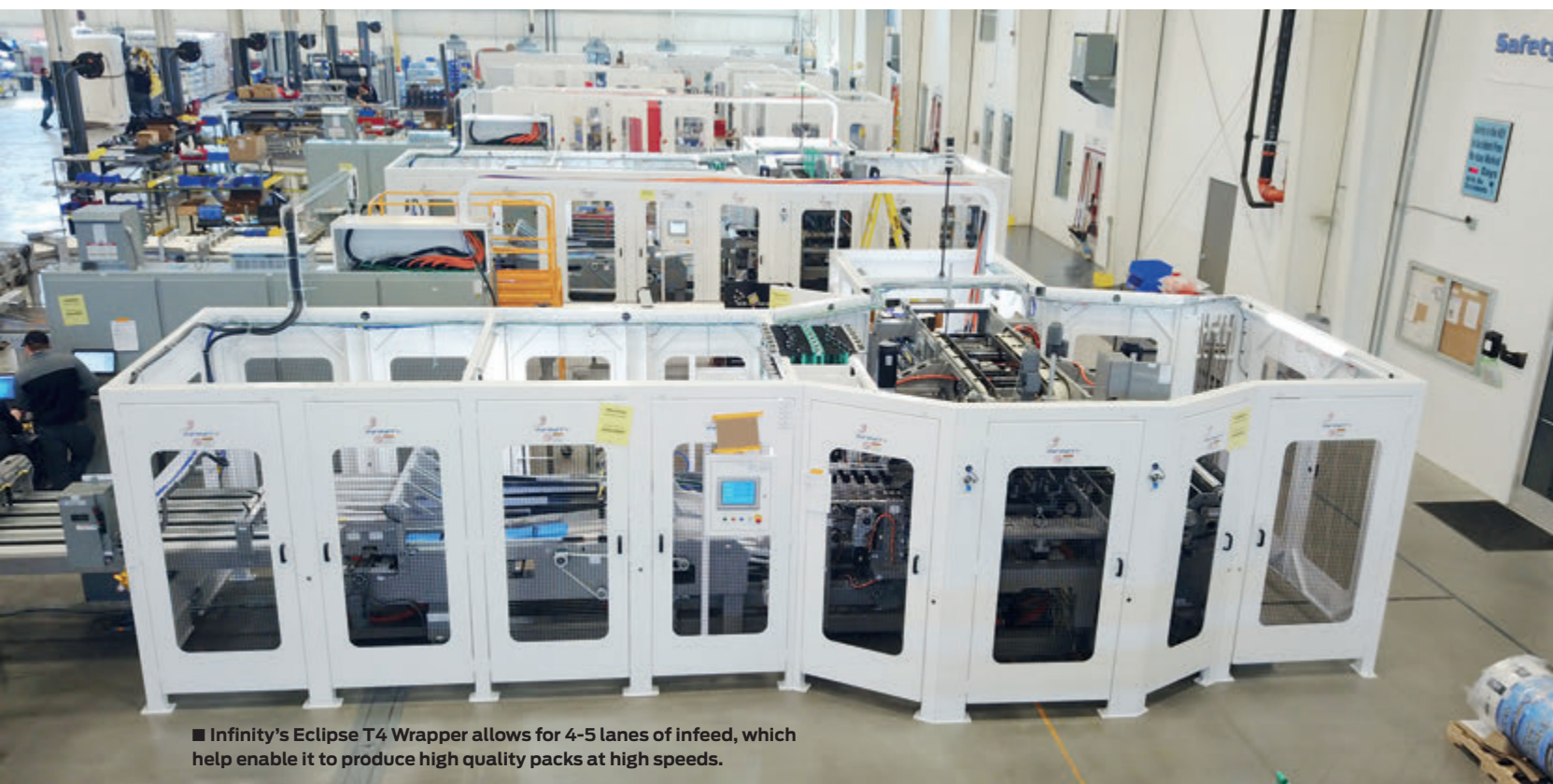
To achieve safety, increased productivity, and Tissue paper roll DAMAGE-FREE HANDLING in your operations, get in touch with your nearest Bolzoni Auramo Representative, and schedule a free site survey. Our Sales Engineers will advise you on the latest and innovative paper handling solutions, which best fit to your particular applications.



WEPA invests in Infinity equipment for multiple locations

WEPA, a leading tissue product manufacturer in Europe, recently purchased seven machines from Infinity Italia for their facilities in Troyes (France), Swalmen (Netherlands) and Piechowice (Poland).

by: Infinity Machine & Engineering Corp.



■ Infinity's Eclipse T4 Wrapper allows for 4-5 lanes of infeed, which help enable it to produce high quality packs at high speeds.

Infinity is supplying two Eclipse T4 Wrappers and two i18 Bundlers for WEPA's Troyes facility, one Eclipse T4 Wrapper and one i18 Bundler for WEPA's facility in Swalmen and in Piechowice, WEPA selected an Infinity C-15 Casepacker for their folded products division. WEPA was drawn to Infinity's equipment due to its unique combination of American ruggedness and Italian design refinement. The i18 Bundler is a perfect fit for WEPA's facilities as it was designed specifically with European markets in mind. The poly bundler features an integrated diverter and flight bar system for easy product collation, as well as an automatic poly reel splice and poly pull out cart for safe and quick poly loading. In addition to this, an active vacuum comes standard on the i18 Bundler. Excess air is sucked from the bundles pre discharge resulting in a tight, crisp poly wrap. Another advantage of the *i18 Bundler* is its compatibility with Infinity's Infusion modular system. By utilizing the fixed infeed section, the i18 can be coupled with modules, such as an Infinity Casepacker or Bagger. The modules are

moved in and out of the docking station which gives **WEPA** ultimate secondary packaging flexibility without taking up any additional floor space. The "industry original" Infusion modular system was designed by Infinity engineers to overcome the limitations of fixed linear machines while reducing capital investment. As trends in packaging are continuously evolving,

“ A global vision, focused on tissue and hygiene packaging solutions ”

Infinity's innovation allows WEPA to quickly adapt to market changes. As for primary packaging, WEPA ordered Infinity's Eclipse T4, which is known as one of the most durable wrappers on the market. Infinity's commitment to efficiency is on full display in the Eclipse's overhead system. The Eclipse T4 utilizes a durable AT20 belt and only 24 trolley sections, this decreases the changeover time

“ At Infinity Machine, **we innovate** then we perfect ”

between different package configurations. Additionally, Infinity's Eclipse T4 is designed to accept four lanes of infeed and can run an optional fifth. The infeed lanes also have wide diameter capabilities, ensuring the Eclipse will keep pace with new product developments in the Troyes and Swalmen facilities.

Infinity's reach in Europe was further increased by WEPA's purchase of the C15 Casepacker for their Piechowice facility. Infinity's C15 boasts an extremely straightforward design which allows for a 20-minute changeover between case sizes and configurations. Although the machine's design is simple, its build is robust as the frame and guarding are both constructed using steel. The C15 is also capable of speeds up to 300ppm per index arm, providing maximum efficiency at the infeed of the machine.

A defining feature of the C15 is the machine's fully positive case erection. Vacuums are utilized on both sides of the case providing a consistent case opening. The positive case erection is perfect for large and small cases, cases with bad score marks as well as cases that are glued together. This design feature will allow

WEPA to run at optimal efficiency. Echoing WEPA's industry 4.0 efforts, the transaction with Infinity didn't end with the machine purchase. Emulation engineers from Infinity offices traveled to Swalmen and will be traveling to Troyes to provide Virtual reality training to WEPA employees.

This included a fully interactive VR machine changeover, which allowed WEPA employees to become familiar with their machines weeks before they arrived at their facilities.

Infinity also equipped the machines with a data collecting and remotely accessible eWON device. This enables WEPA to track production times, faults, and speed. This information will be accessible remotely through email notifications or web browsers. The Troyes facility will also have light annunciation on their i18 Bundlers to provide changeover assistance. The light annunciation illuminates change-over points on the adjustment scales. WEPA's recent investment reflects Infinity's growing reach in the European market and is further proof Infinity is the global leader in automated tissue paper packaging machinery. ●

▼ The Dual Rotating Cassette on Infinity's C15 Casepacker allows for faster speeds across a wide range of formats and overall smoother control of product.



INFINITY MACHINE & ENGINEERING CORP.

2249 American Blvd - De Pere, WI 54115 - USA

■ website: www.infinitymec.com

■ phone: +1 920 965 0222

INFINITY ITALIA SRL

Via Buozzi 55 40057 Cadriano di Granarolo (BO) - Italy

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Do you want to know more? Welcome to our stand at Miac Lucca/Italy, October 12 - 14, 2022.

Revamping and compliance of a tissue rewinder

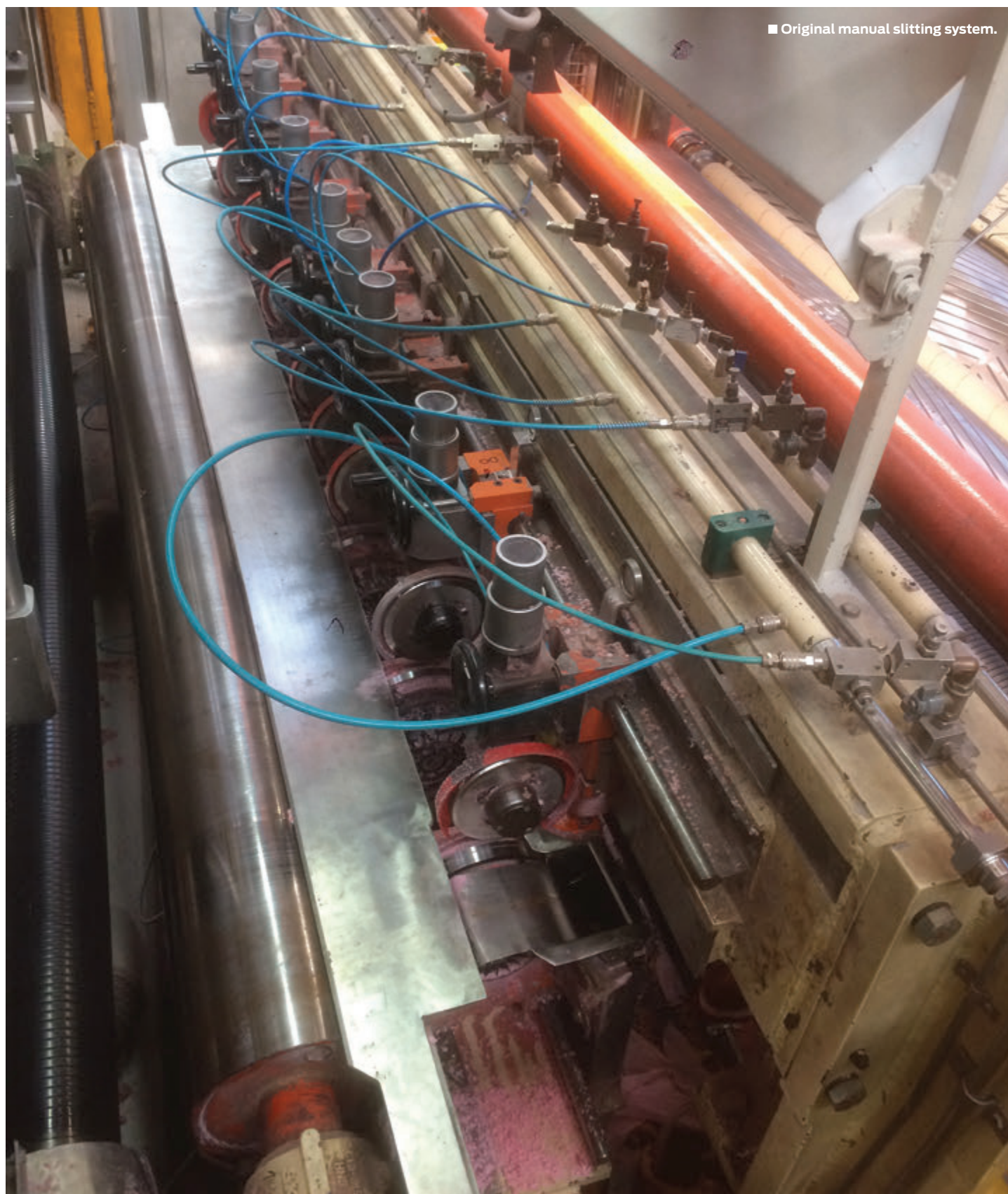
By: Tecno Paper Srl



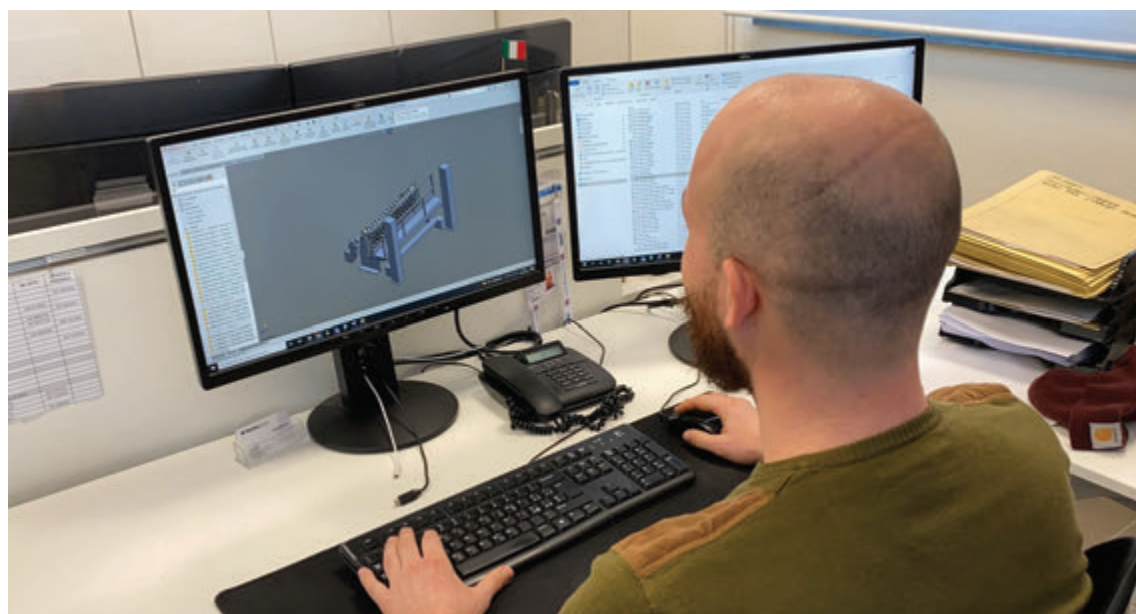
■ New slitting system installed.

Tecno Paper boasts many years of experience in the world of paper mills and in addition to the production of rewinder and winder, it specializes in the reconstruction and modernization of sections of paper mill machines. Thanks to the experience gained in the field, we can respond to specific customer needs, intervening in certain sections of the machine, in order to improve its characteristics from different points of view such as efficiency, productivity and last but not least the safety aspects of the modification. In this case, an important group operating in the world of tissue products, asked us to evaluate among the various possible options, the best solution for replacing the existing slitting system in one of the rewinders present in the Lucca plant. The continuous and different requests from the market, in terms of product formats, have highlighted the customer's need to install a new slitting system with automatic positioning, instead of the existing manual one, which can guarantee the right flexibility to meet production needs. It was therefore necessary to carry out a feasibility study made by our technical office. So we went on site to get all the dimensional measurements necessary for the replacement of the cutting unit, maintaining in this specific case, the same geometry relating to the paper passage and to the other accessory elements such as tangency rollers; on the other hand it was necessary to revise some parts in the trimming section, because they are closely related to the cutting geometry. The project was developed by **Tecno Paper** with the help

“ Tecno Paper - **Your needs,**
our innovations ”



■ Original manual slitting system.



◀ Design phase.

▼ New touch screen for setting.

“ Tecno Paper is a company with a dedicated **customer oriented** philosophy ”

of a 3D design software, in order to make the installation as quick as possible for obvious production reasons, checking in advance all the elements involved in the modification, from the mechanical components to the electrical and pneumatic wiring. We supplied to the customer an evaluation risk document, related to the new slitting system. In addition, we supplied even the necessary documentation needed for the integration process on the existing customer's machine. Tecno Paper therefore did the installation of the new slitting system, having at its disposal specialized technicians who work in the paper mill every day, taking care of the maintenance on all the machines involved in the processes of paper production. Thanks to the complete set of special instruments available, such as laser aligner and theodolite, the new unit was installed in a very short time. The final result is a perfect fitting of the new automatic slitting system in the existing machine, that allows the customer to face continuous production changes, with positioning time of the 14 slitting units in less than 15 seconds. This setting phase is done in total safety by the operators, thanks to a new operator touch panel installed on the existing console positioned inside the control room. The revamping described in this article is only one of the possible modifications that can be made on existing machines. The targets of these interventions are increasing the efficiency of



the machines, improving the qualitative characteristics of the finished products and adapting the existing machines to the level of safety required by current regulations.

These are the reasons why the request of revamping interventions on paper machines, rewinders and winders are increasing day by day. Tecno Paper over the years and in the face of the experience gained, has proved to be the ideal partner for these types of projects. ●

TECNO PAPER SRL

Via S. Martino 36 - Fraz. Marlia - 55012 Capannori (LU) - Italy

■ website: www.tecnopaperitalia.it

■ phone: +39 0583 299023

■ email: info@tecnopaperitalia.it

■ contact person: Paolo Baldaccini

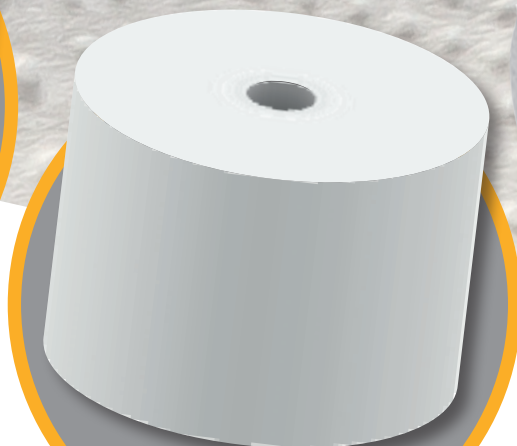
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Futura and Plusline: a partnership decades in the making

By: Matteo Giardini and Sergio Tonarelli

Futura is 20 this year and what a lot has happened in two decades. Not least the integration with **Plusline**, one result of which is the integration, for the first time, of converting and packaging in a single line, to simplify the production process. It is a process that drives innovation through automation, performance, product quality, safety and space optimization. Simplification is the ultimate goal and the main objective for our customers' production.

One key benefit is upskilled operators in a safer, more rewarding role who will migrate from operational functions on the machine to technical control via a monitor. The goal is to have one technician for packaging and one technician for converting. These are no longer classic manual line operators, but professionals responsible for checking the proper functioning of a fully automated, self-adjusting line.

Automated handling

With *Andromeda*, in 2013, we launched the first automatic reel handling system on a converting line. Today, in addition

to the optimization of reel management, we can offer the possibility of automatically replacing the embossing rollers and performing maintenance operations from the unwinding area to the rewinder, including cleaning the core. In fact, the *Andromeda* system also provides for the total automation of the handling of the finished reel and its cleaning with the machine running.

Automated core reel management

With *Camallo*, we have made it easier to load, unwind and exchange coreboard reels by eliminating human intervention, creating a totally touchless, faster and totally safe process, with a quick return on investment. *Camallo* can manage up to 16 reels and be retrofitted on any coremaking system.

Automated rewinder control

With the new *Sferica* we have fully automated the process of winding adjustment, setting new standards for the market. Much more than a simple camera, *Sferica*'s vision system measures the position of the log during winding, calculates





any error compared with an ideal situation and automatically sets winding parameters. It is a virtual operator which continuously supervises production parameters, adjusting them and, if necessary, activating alarms.

Automated blade change

With the new automatic log saw blade change, monitoring and sharpening system, which operates while the machine is running, we have further optimized production by eliminating any manual intervention and making the process more efficient.

Compact layout, efficiency and product quality

With *Together* we have gone further and completely

revolutionized the end of line by truly integrating converting and packaging. *Together* receives the logs directly from the rewinder, generating packaged shelf-ready rolls. The result is an unprecedented level of process continuity, which ensures a substantial increase in speed and simplification of the production flow. It is a unique system that integrates trimming, roll cutting and packaging by eliminating choke belts and conveyor belts. This guarantees compactness of layout which saves up to 65% of space for each line. The improved layout and the absence of choke belts also eliminates slowdowns and bottlenecks, which are among the main causes of roll damage. This is why *Together* is the most gentle machine on the market in terms of product handling and is therefore ideal for cutting and packaging structured paper rolls such as TAD.

■ Zero Deflexion Steel marrying roll.



■ Sferica rewinder.



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

Sustainability and safety

With our *JOI Hydro-bond* we have made the product more sustainable (no glue or chemical agents) and above all, the embosser area safer, eliminating oil spills and roll contamination. JOI Hydro-bond allows, even at high production speeds, the perfect adhesion of toilet paper plies with the use of water alone and no addition of glue. It is thanks to the exclusive “Zero Deflexion” steel marrying roll, with its ability to compress the fibers homogeneously over the

entire surface and thus fully exploit the “adhesive power” of water, that we can guarantee a more hygienic finished product, which is soft and ecologically superior. All of our innovations have the ultimate goal of achieving maximum production efficiency, which leads to greater energy efficiency and therefore to saving resources for companies and the planet. These concrete, targeted innovations, are relevant to people's daily lives and, in the long run, will become the new market standards. ●



■ Andromeda System.

FUTURA SPA

Via di Sottopoggio, 1/X 55012 Guamo (LU) - Italy

■ website: www.futuraconverting.com
 ■ phone: +39 0583 94911
 ■ email: info@futuraconverting.com

PLUSLINE SRL

Via Balzani 14 40069 Zola Predosa (BO) - Italy

■ website: www.plusline.it
 ■ phone: +39 051 199812
 ■ email: info@plusline.it

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excellence in tissue

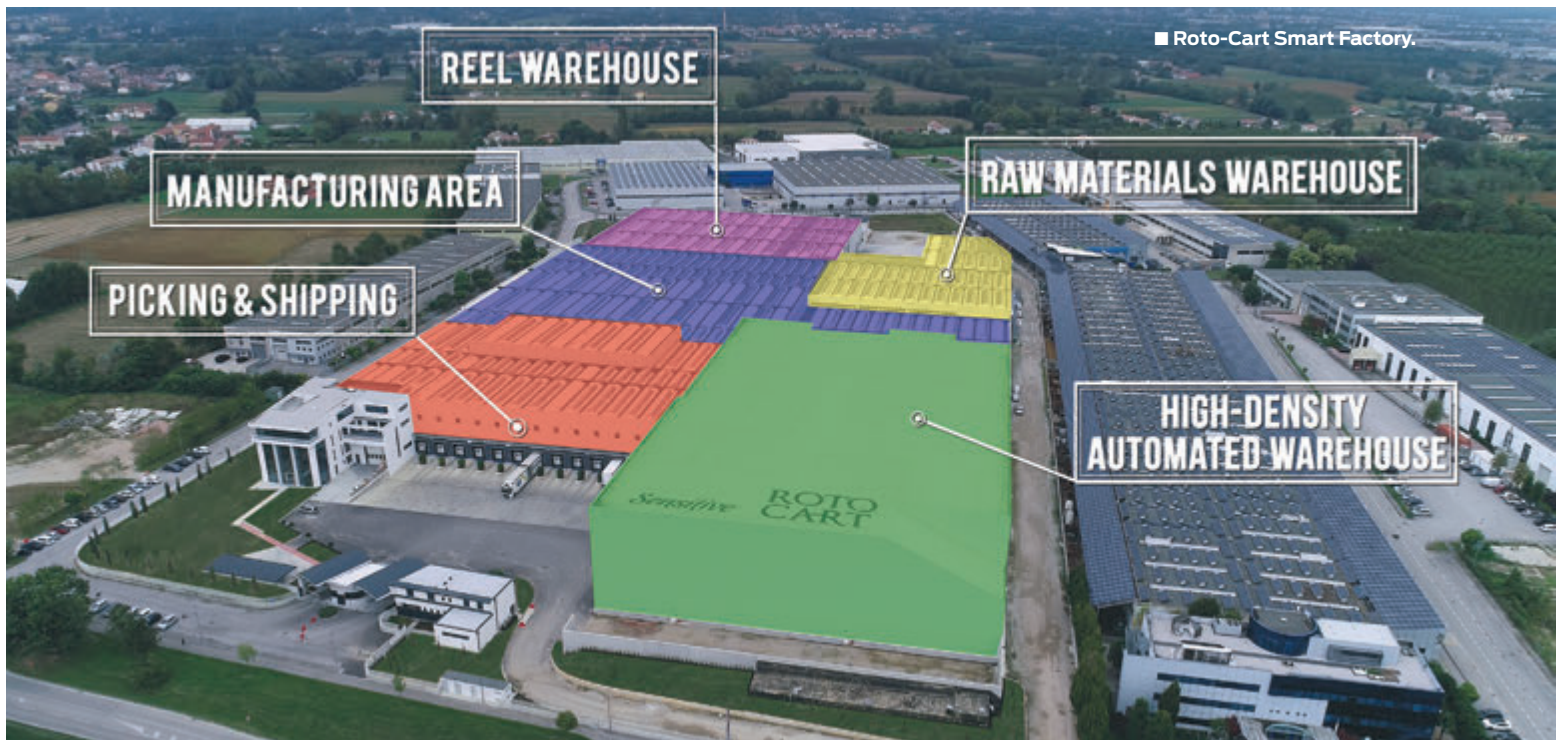
ACelli

A.Celli has long-standing, proven expertise in the construction of complete tissue plants. Basic and detail engineering, electrification and automation are performed by internal engineer teams to optimise the overall plant performances. All activities are oriented to offer proven and granted solutions through extensive research and development activities that, since the foundation, have been of strategic importance for the company.

SMART FACTORIES & DISTRIBUTION CENTERS Up-to-the-minute solutions for tissue plants

Continuous innovation is making the factory of the future a reality in the present with new scope for customization and sustainability.

by: E80 Group





■ Unicorn, the patented next-generation laser-guided vehicle.

Over the years, **E80 Group** has been developing state-of-the-art technologies that integrate the supply chain operations within tissue factories and distribution centers.

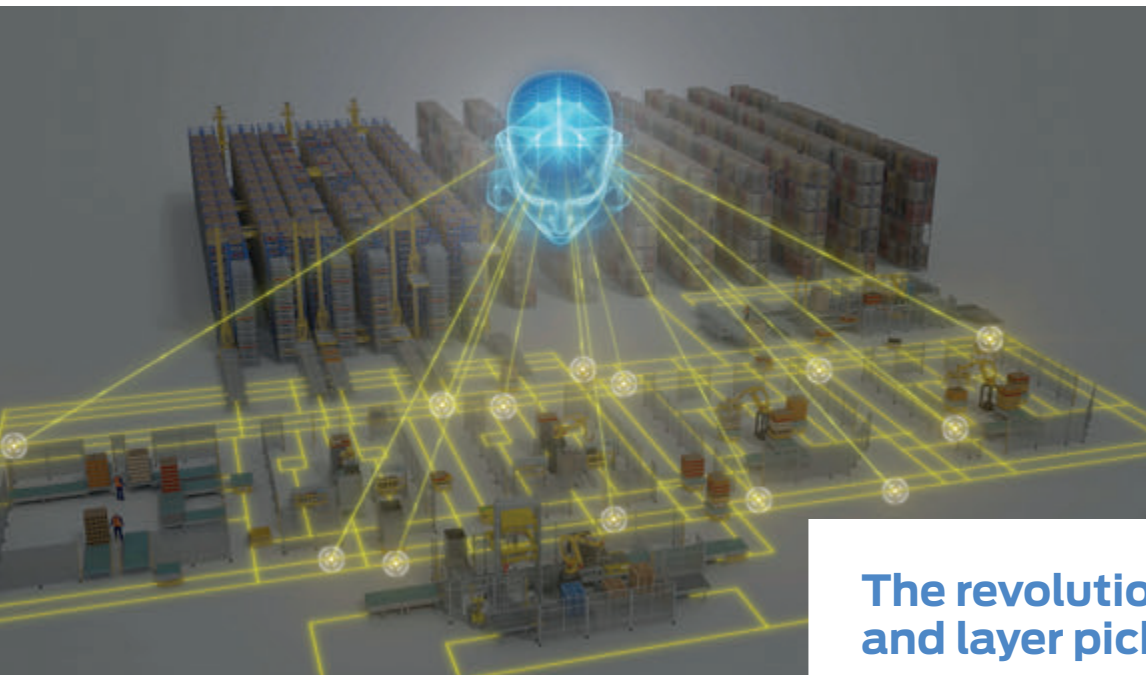
Massimo Bertuccio, E80 Group Sales Director for the tissue and robotic division, explains:

“Our area of expertise is in integrating the entire plant thanks to automatic and laser-guided vehicles. Starting from the automated handling of incoming material; the end of the line for palletizing, wrapping and labeling of finished products thanks to our robotic systems; transporting and storing products inside high-density automated warehouses and storage solutions; up to shipping and automatic truck-loading.” He adds: “On top of that, our software platform SM.I.LE80 is like the conductor that synchronizes

and supervises in real-time all the intralogistics flows, communicating simultaneously with the customer’s ERP.” Connecting and integrating all operations within the plant and therefore avoiding bottlenecks and downtime, E80 Group’s automated and laser-guided vehicles (AGVs/LGVs) are always on the cutting edge in terms of efficiency, flexibility and reliability. One of the latest developments is *Unicorn*, the LGV that further boosts the operational performance of tissue facilities.

“Unicorn is the definitive answer for parent reel manipulation.” highlights Massimo Bertuccio. “Thanks to the two chucks that act inside the reel core, Unicorn does not damage nor does it stress the parent reel, guaranteeing total integrity of the paper”. The results achieved are tangible: significant reduction of waste and 7% optimization of warehouse

“E80 Group brings cutting-edge **intralogistics technology** to the tissue industry”



◀ The patented automatic layer and case picking solution.

space, thus using the existing footprint to its best advantage.” Moreover, safety devices fitted on the LGVs boost the overall plant safety. The latest patented technology SmartDect increases the ability of LGVs to detect tagged people and manually handled vehicles moving in the surrounding area, reducing and often eliminating any type of risk related to incorrect and unexpected behaviors. Increasing the entire facility reliability, LGVs are connected with E80’s high-density automated warehouses and storage solutions, giving customers the advantage of being more flexible, while also decreasing the high-energy consumption that would be required by hundreds of meters of conveyor belts.

E80 Group’s end-to-end solutions perfectly integrate all the processes within a tissue plant.

In order to connect even more the production activities, the Group has developed a project in collaboration with **Gambini**, an Italian flagship for the design and development of converting lines for hygiene and personal care tissue products: E80 Group and Gambini together will be able to supply a fully automatic converting line.

“We will soon introduce a cutting-edge system that brings the parent reel to the rewinder and retrieves the spent core when the operation is finished: all the operations of loading and unloading of the jumbo rolls and handling of the spent cores inside the unwinder will be automatic, eliminating any hanging paper reel. This fully automated operation will increase the lines efficiency and the safety of the operator, as it will avoid having reels suspended”, concludes Massimo Bertuccio. ●

The revolutionary case and layer picking solution

Automating picking operations is one of the most ambitious goals in logistics, a fact that has pushed E80 Group to undertake big investments in Research & Development, launching a new project called T.R.A.Y.S - Tridimensional Robotic Assortment Yard System. EAGLE T.R.A.Y.S. is an innovative solution that automatizes multi-shaped and multi-dimensional picking for factories and distribution centers in different sectors. This technology includes AGVs and robotic systems, that - through universal grippers, vision systems and by communicating with SM.I.LE80 software - palletize and depalletize pallets of products and non-homogenous packages, satisfying the increasingly specific and variable needs of the market.

E80 GROUP

Headquarters:

Via G. Marconi 21 42030 Viano (RE) - Italy
8100 Monticello Avenue - Skokie - IL 60076 Chicago - USA

■ phone: 0039 0522 762011

■ phone: 001 847 3297717

■ website: www.e80group.com

Tissue department contacts

Gary Urban, Key Account Manager E80 Inc.

■ email: urban.g@e80group.com

Massimo Bertuccio, Sales Director Tissue & Robotic Division E80 Group

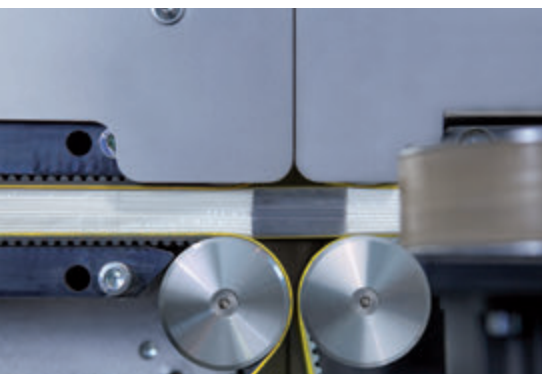
■ email: bertuccio.m@e80group.com

Maurizio Orsetti, Tissue Sales Senior Manager E80 Group

■ email: orsetti.m@e80group.com

She has no clue about our unique
vacuum folding technology.

She just feels better.



Tissue Fold

Handkerchiefs and facial tissues accompany us in life and fulfill our needs for hygiene and skin care. For decades, W+D has been setting benchmarks as a global leader in tissue handkerchief production technology. We offer the fastest and most efficient machines to convert and wrap highest quality handkerchiefs.

Our machinery portfolio also contains flexible and competitive interfolder machines, sought after by marketer of bulk and boutique quantities of interfolded tissue.



CONTACT:

sales.hygiene@w-d.de
bicma.com

SAEL - Eczacibasi Consumer Products Papermill (Turkey). Automation and drive rebuilding of the Jagenberg vari soft 76-22 tissue with 4 unwinders

On december 2021, the machine started up by the pulper and automation control system modernization. The rebo achieved the 98% of efficiency without mechanical modification: a result above the expectations.

by: Sael Srl

Another Sael/Sinergy application for the most important Turkish Papermill Group. The long experience and knowledge of SAEL - today SINERGY strategic partner - in the Papermill industry, drove this important Group to sign the order. The job was made using standard Siemens PLC vs. the original solution with microprocessor units owned by Jagenberg with S5-Symadine PLC, as much as the ABB drives vs. the SIMOREG by Siemens - to a higher performances. Since years, **Eczacibasi Consumer Products Papermill** invests on high performance and technology solutions. That's why chose **SAEL/SINERGY** after a deep benchmarking of competitors.

Historical background of Eczacibasi Consumer Products

Turkey's first manufacturer of tissue paper products. Since 1969, when they inaugurated Turkey's first tissue paper plant, Eczacibasi Consumer Products has led the growth of Turkey's tissue paper market.



Selpak, Solo, Silen and Servis tissue paper brands are used in three out of five houses in Turkey. For over half a century, Selpak has introduced Turkey to new standards of softness and absorbency while creating a notable shift in consumer behavior by improving hygiene awareness throughout Turkish society. Per capita tissue paper consumption has increased from about 20 grams at the beginning of the 1970s to its current level of 6.5 kilograms, and Selpak has played a pivotal role in this change. The market leader in Turkey of branded tissue paper, Selpak is used by millions of consumers in more than 60 countries today. In addition to producing Selpak locally in Azerbaijan and UAE, Eczacibasi Consumer Products have sales teams in Morocco, Iraq, Ukraine and Kazakhstan. Current research in their export markets Consumer research in different markets indicates that Selpak is the first brand that comes to mind in the “premium - top quality” segment. Building on leading position in the Turkish market and extensive expertise in personal care, Eczacibasi Consumer Products made a significant overseas investment in 2021 to a converting plant in Morocco. This

facility, Eczacibasi Group’s first investment in Africa, began test operating in December 2021 and will facilitate the company’s international expansion.

SAEL/SINERGY is an awarded automation system “Taylor maker”, reliable, flexible with a high technical background. That’s why Eczacibasi Consumer Products went for this partner. The flexibility of our system and the open-source software automation (no Black Boxes) using Siemens PLC, showed benefits and savings since the beginning. Another important, and win-win decision of the Papermill, was made on having ABB Drives. The turn-a-key solution by SAEL/SINERGY the involved the whole process : from the engineering to the replacement of the existing electronic boards, by the newest 1500 SIEMENS PLC. The philosophy of SAEL is to concentrate the control into a PLC vs. the use of single boards for different applications and regulations.

The winder drive

The new electrical cabinet manages the 12 dc motors at 400V of the Winder, as well as the remaining motors and



▲ Unwinding stands of the Jagenberg winder - IPEK KAGIT (Turkey).

actuators. To meet the customer requirements, the system automation is based on our SAEL Winder via "WINCC" Scada. Thanks to this system the operators can troubleshoot before any intervention. To a quick machine restart in case of Restart in case of fault, the electronic tech can access to the system, remotely, driving the machine operator whenever and wherever he is. In this system at Eczacibasi Consumer Products, the computing and drive/plc ref generation, were originally based on many Siemens boards managed via old PLC units. The customer declared its dissatisfaction about the system mentioned above, as much as concerned for the unavailability of the spare parts. The elimination of this architecture has been the "go" for a new rebuilding.

▼ Electrical cabinet of Automation and Drive using ABB DC DRIVES.



“ The spirit of **improving** ”



Beside the new electrical cabinet, other components have been supplied, like: PLC CPU—I/O Remote and Boards-Drives (one for each size used).

Thanks, for the contribution of **ELKODA** Engineering and Automation Company since the beginning of the project. It is the official service point of SAEL/SINERGY since 2021 in Turkey. The company provides electrical and automation engineering for industrial automation solutions. With the professional contributions of ELKODA, Sael/Sinergy will be stronger in Turkey to access and support its customers. ●

▼ All the staff involved on the reconstruction - IPEK and SINERGY.



SAEL SRL

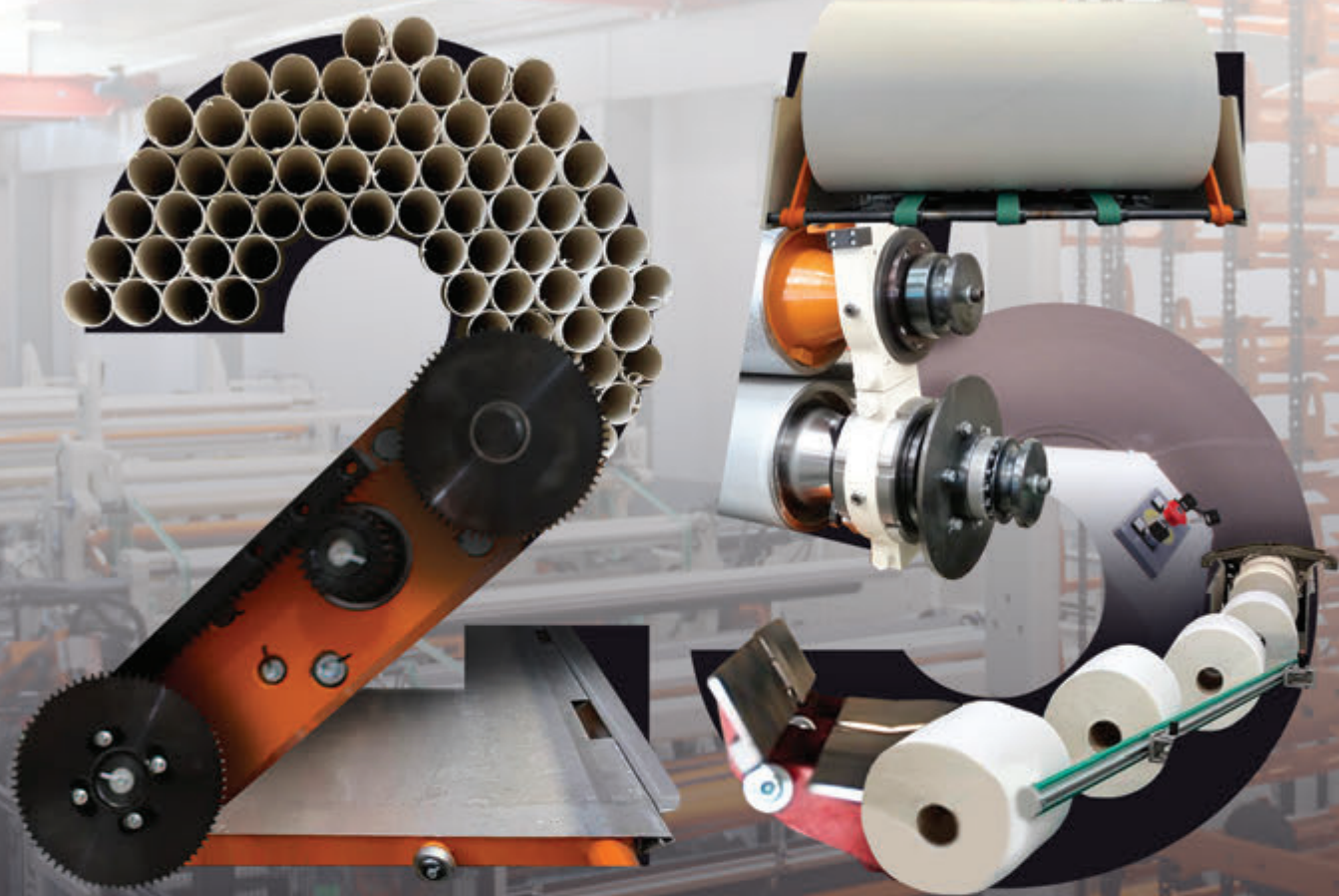
Via dei Genieri 31 36040 Torri di Quartesolo (VI) - Italy

■ website: www.sael.it

■ phone: +39 0444 582499

■ contact person: Paolo Andrichetti - Domenico Forestan

■ email: paolo.andrichetti@sael.it - domenico.forestan@sael.it



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MAFLEX Headquarter
Phone: +39 0583 316 820
Viale S. Concordio, Trav. III, n. 199
55100 Lucca - Italy

MAFLEX America Inc.
e-mail: maflexamericasupport@maflex.it
Phone: +1 920 347 9169
2218 American Blvd De Pere, WI 54115 - USA

MAFLEX

www.maflex.it | info@maflex.it

Amotek & EuroVast, a joint success story



■ Production at EuroVast
plant in Holland with
Amotek PB192 bag filler.

EuroVast S.p.A - the leading Italian company for the production and conversion of paper over 30 years - offers products in the European market in both the consumer and AFH sectors. Amotek and EuroVast have worked closely since 2008, and this partnership recently culminated in delivering the latest Amotek toilet paper roll bag filler - model PB192 for the EuroVast NL Branch, the Dutch plant.

by: TissueMAG

In this interview Mr. **Umberto Romano**, General Director of Euro Vast S.p.A. and Amotek's management talks about the companies' history and future together; outlining the latest goals achieved for increasing the productivity of the tissue products for Northern Europe thanks to their successful cooperation.

Mr. Umberto Romano, who is EuroVast Group today?

We can describe EuroVast Group with three words: expertise, enterprise and sustainability. EuroVast today represents an excellence 100% Made in Italy in the tissue sector with 30 years of experience in the industry. I recently joined as Managing Director of the Tissue division started by my father, Vincenzo Romano. He has been CEO and MD of the Tissue division since he created it in 1992. EuroVast SpA Group has four paper mills and five converting plants, two of which based out of Italy: one in Liverpool (UK) and another in Oss (Holland).

What are the company mission & vision?

For all companies in the group, the growth parameter has always been related to respect of the environment as well as the continuous research of the perfect formula to optimize profit and cooperation. The environment is an economic and social priority for the planet. EuroVast is contributing with a virtuous production policy through "Green" industrial investments.

What are your target markets and what policies do you have in place?

EuroVast's success as main partner of the

distribution chains in Northern Europe confirms the company's flexibility and ability to react quickly to a market that is more demanding every day. The European consumer is becoming increasingly sensitive to a more sustainable world and the circular economy - and EuroVast is investing exactly in this direction.

For example, our Dutch factory in Oss is powered by 100% renewable energy sources and covers the needs of Belgium, Luxemburg and part of Germany and France. EuroVast has an annual

“ Fully **automated solutions** for packaging of soft hygienic disposable products and consumer goods ”

production capacity larger than 140 tons of tissue, currently employs 300 people and our workforce continues to grow.

Why did you chose Amotek?

We needed to strengthen our presence in Northern Europe to meet the increasing need for tissue products. Therefore, we decided to further invest in our factory in Oss, which represents a strategic asset for the growth of our group as main partner of the distribution chains in Northern Europe. Our partnership with Amotek dates back to the early 2000s. Over the last two decades we have developed several projects together for our tissue division - each Amotek machine brought an improvement to

our production confirming the reliability of their packaging systems. Having this urgent need to increase production and to guarantee high quality standards, our choice for packaging was obvious. Amotek proved once again to be a trusted partner, able to offer a tailor made technological solution that also satisfied our environmental policy in a very short time.

Mr. Mike Solazzo, Sales & Service Director of Amotek, how did you find the right technical solution for EuroVast?

We immediately understood that the ideal solution for their need of high quality and increased productivity was our new model Amotek PB192: innovative, smart, flexible, sustainable with sturdier frame. We had already started developing this new packaging system with the goal of meeting production peaks of our partners as well as guaranteeing the usual technical reliability of our Amotek machines.

Mr. Massimo Zanotti, Technology Director of Amotek, how did you manage to complete the project in such short time?

We immediately took charge of the project in order to create a synergy with EuroVast team and to understand their technical needs in detail. The joint efforts of the Amotek and EuroVast technical teams played a key role in the success of the project. Despite the difficulties of Covid restrictions and the very limited deadline, we managed to deliver the machine on time and offered the support needed to obtain stable production even before the full line was completed. Following the installation, we kept a constant line of post-sale assistance that helped to reach the common goal of going into full production on time.



▲ Vincenzo and Umberto Romano.

▼ EuroVast SpA NL Branch premises with Amotek PB192 in production.

Which are the main feature of the new Amotek PB192 bag filler?

The Amotek PB192 bag filler is based on the top selling machine PB182 for Toilet Paper and Paper Towel. Its flexible machine setting from single to double lane, quick and easy size changeover, and top performance at products output up to 150 ppm (productivity realistically increased by 30% at same lapse compared to PB182) are undoubtedly the main innovations. Amotek has also focused its R&D on sustainability and has

achieved a consistent material savings in bag thickness to offer its partners eco-friendly materials together with a reduction of packing material up to 30 percent compared to the standard of use worldwide.

The bagger has also detections systems to grant energy saving. We enjoyed the cooperation and would like to thank all the EuroVast team for the renewed trust in Amotek. ●



AMOTEK SALES & SERVICE SRL

Via Piemonte, 5 40069 Zola Predosa (BO) - Italy

■ website: www.amotek.com

■ phone: +39 051 6186811

■ email: sales@amotek.com

FACE UP THE VACUUM



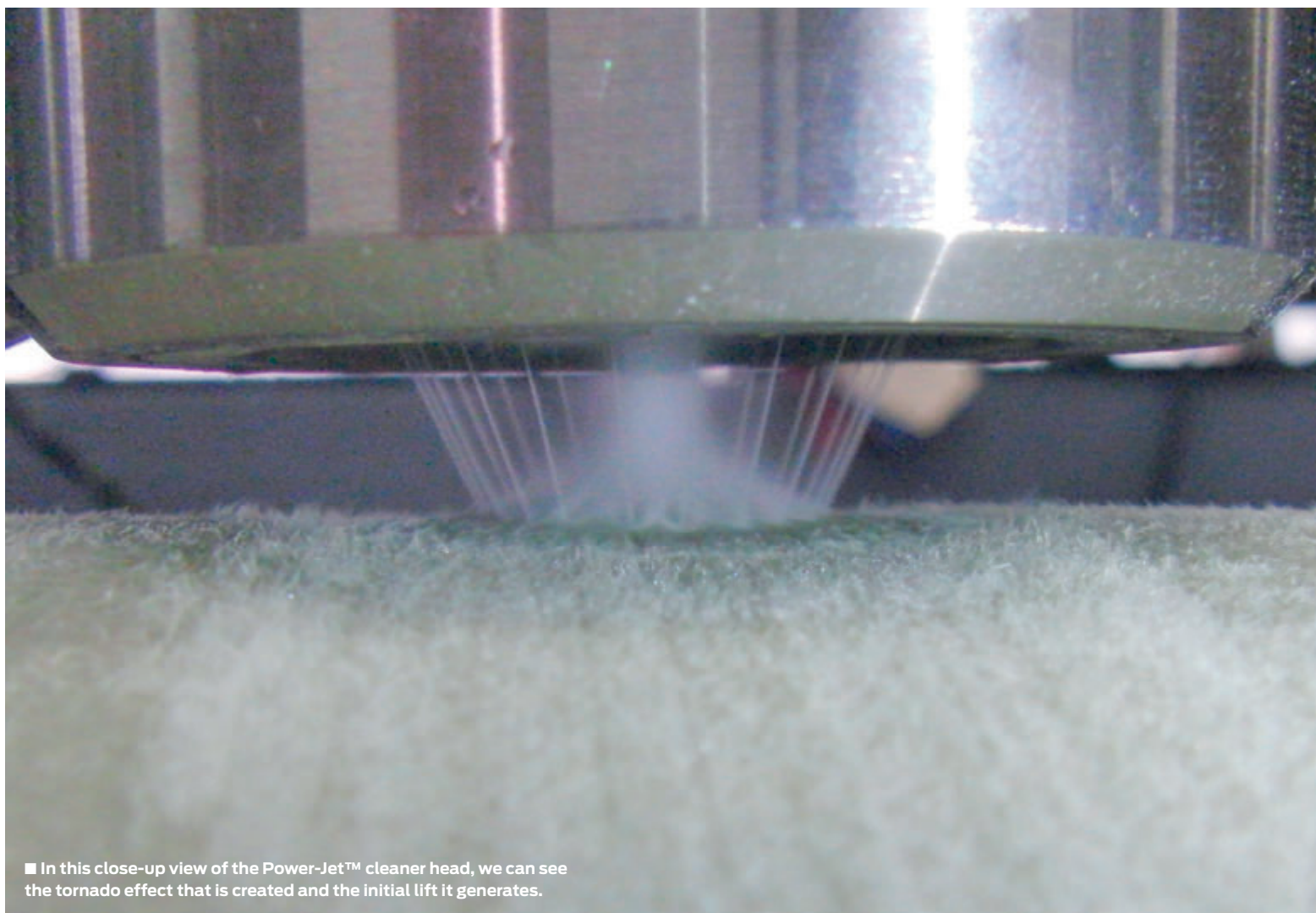
TOGETHER TO IMPROVE

Thanks to the acquisition of MTK, Oradoc can now offer an even wider range of products and services addressed to the paper industry, to provide its international customers with increased added value. New challenges, new opportunities!

ORADOC.NET

ORADOC
BOOSTING PERFORMANCES

Paprima Industries pushes the boundaries of high-pressure fabric cleaning



■ In this close-up view of the Power-Jet™ cleaner head, we can see the tornado effect that is created and the initial lift it generates.

Water 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!

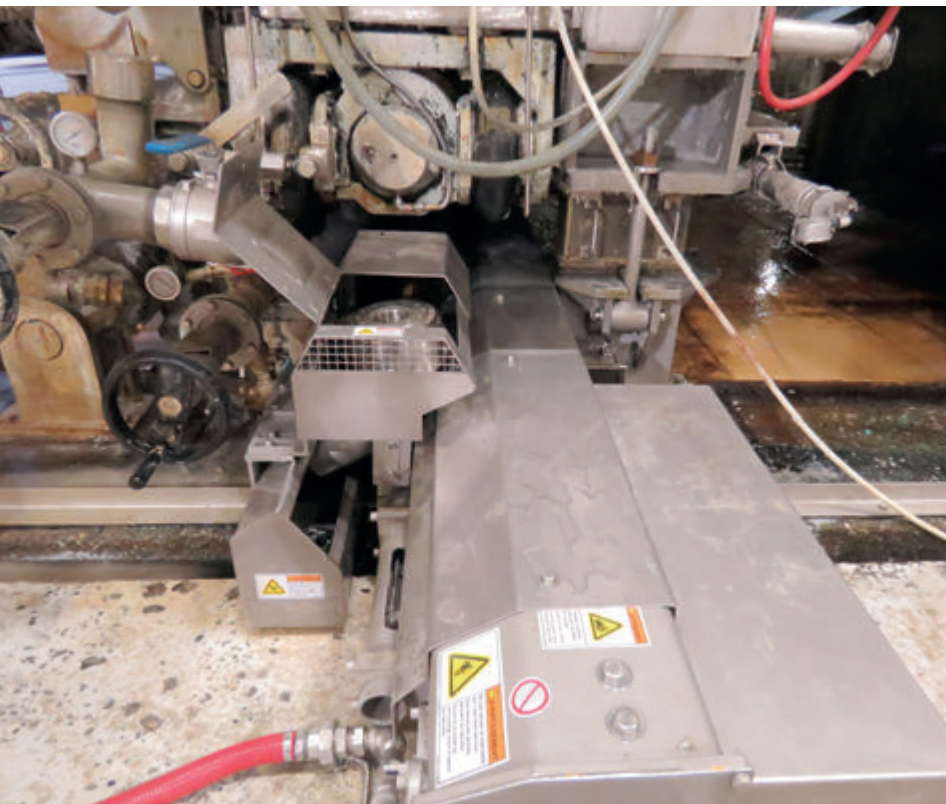
In early 2010, Paprima's team looked at what was available on the market for high-pressure cleaner options, while gathering comments from mills considered as industry leaders. We soon realized that there were huge gaps in the performance of those high-pressure cleaners and that most of them failed at 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 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.

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.



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



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 juxtaposes 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;
- no adverse effects on fabric life;

▲ Paprima Power-Jet™ Cleaner installation for operation on wet-end fabric.

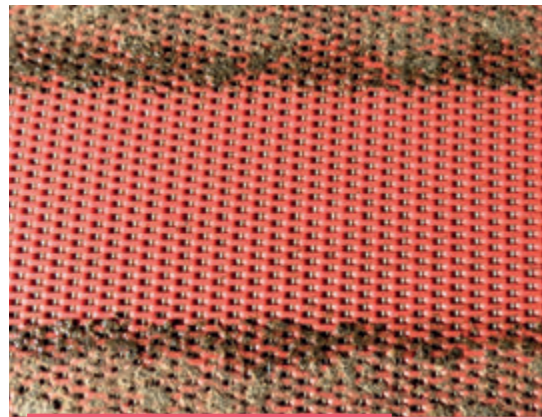
► Typically, the Power-Jet™ Cleaner will maintain fabric air permeability at 80% of the as-measured permeability of a new fabric - for the life of the fabric.

“ Innovative new products and solutions for paper machine optimization ”

- 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.

It all makes sense!

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. ●



PAPRIMA INDUSTRIES INC.

75 Guthrie - H9P 2P1 Dorval (Montréal) - Québec - Canada

■ website: www.paprima.ca

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ANDRITZ

PANIKER

“Engineering in Adhesives” celebrates its 100th anniversary

Having begun its journey providing adhesives and products for the leather and footwear industry, PANIKER has managed to develop a wide portfolio of products with different technologies, including a high performance and complete range of adhesives for the Converting industry. Located in Barcelona, Paniker's manufacturing facilities are spread over a surface area of 12,000 m² and include 27 production lines, with a production capacity of 44,000 tons/year. It currently has a workforce of 45 employees, of which 7 belong to the technical department. Since 2000, it has been part of the prestigious Beardow Adams Group, a multinational company specialising in hot melt adhesives with production plants in the UK, Germany, the US and Sweden. With a specific plant for the manufacture of the tissue range of adhesives, currently, **PANIKER** is able to produce 15,000 tons/year only for this market. These adhesives are intended to cover the manufacture of the entire tissue final product: from the fabrication of the tube winding, passing through the lamination of the layers of the paper, to the pick-up and tail sealing of the roll. This range of adhesives are clean, versatile and above all: market proven.

The tissue market and changes in consumer behavior

In this centenary, there have been many significant changes in consumers: from basic and functional product ranges to boutique products, with *à la carte* colors and textures. Moreover, the significant increase in tourism in all corners of the world generated an expansion in the consumption



■ Paniker facility, part of the Beardow Adams Group, located in Barcelona - Spain.

On February 3, 2022, the Barcelona-based company dedicated to adhesives reached the magic milestone of 100 years old.

by: Paniker S.L.



“ Leaders in **liquid and solid adhesives**. Company founded in 1922 ”

of products that meet the needs of increasingly enthusiastic travellers. As the tissue market and its technologies have been evolving, PANIKER, as manufacturers of adhesives, have noticed these changes and have accompanied our clients in their needs, providing R&D services together with tailor-made products.

How the pandemic changed the tissue market

In the first months during which the pandemic emerged, there was a large growth in the consumption of tissue items, in part due to the change in consumption habits caused by the lockdown. Being part of a necessary and high priority sector, PANIKER knew how to adapt to the health measures, so we could continue serving our customers in those markets considered essential. At the same time, all the markets linked to tourism and the hotel industry paralyzed their activities, causing a drop in the consumption of articles linked to this sector. As the situation seems to be improving, we can only expect that the markets severely affected by the pandemic, recover their usual volume of consumption.

Circular economy and the new goals for the tissue adhesives

It is increasingly important to keep the focus on caring for the environment. In this sense, all actions, even the smallest, have an impact. At PANIKER, we are working closely with our suppliers on the formulation of adhesives within the framework of the circular economy. Many of our new projects involve research and developments both in water-based and hot melts intended for the wrapping of the toilet and kitchen rolls with paper, instead of plastic film.



◀ Quality Control checking the parameters for lamination glues.

Despite being a change already to be fully implemented within the industrial frame, we must be anticipating the future needs of the market. Also, by taking other steps, PANIKER is committed to reduce the carbon footprint and unnecessary transport of the used IBC/GRG. Our own new cleaning facilities allows us to recover and reuse the provided IBC, within the local territory.

100 years have passed and looking for the future

With a century of experience in the market, PANIKER has now become a reference in the manufacture of liquid adhesives both Spain and in the rest of the world. Paniker' facilities in Barcelona – Spain currently produces water-based, solvent-based and polyurethane adhesives. Behind each adhesive, there is significant technological knowledge: for each new development or application, substrates to be bonded must be known in depth, as well as the equipment that use the adhesives. Moreover, industrial production nowadays has not only to be fast and efficient but environmentally friendly. As a result of this long journey, our customers value quick and personalised technical service above everything. This know-how allows PANIKER to provide quality adhesives along with an excellent lead time. ●



◀ In our R + D + I laboratory we work to optimize the performance of our adhesives to the maximum.

PANIKER S.L.

Ctra. Barcelona a Sta. Creu de Calafell 68 - 08830 Sant Boi del Llobregat (Barcelona) - Spain

■ website: www.paniker.com

■ phone: +34 936 402 116 - email: paniker@paniker.com

MICROLINE

Packaging & Automation



Very Personal Tissue

We have been working in the Tissue sector for more than twenty years, offering design, assembly and marketing of packaging machines and complete lines with bespoke solutions to satisfy specific requirements and special needs.

Our goal has always been to improve customer efficiency and productivity by installing new systems or reorganising existing ones.

Microline manufactures a vast range of machines for the tissue sector:
Case packers • Bundlers • Shrink Wrappers • Flow Wrappers and Palletisers,
supported by conveyor systems and collators.



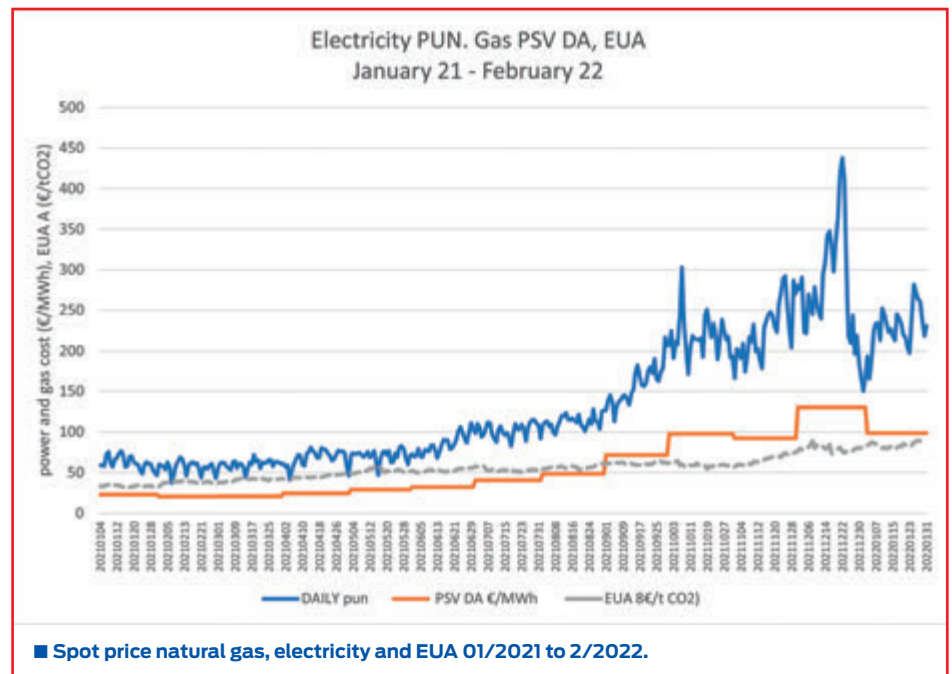
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40011 Anzola dell'Emilia - Bologna (Italy)
Tel. +39 051 6166696
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info@microlinesrl.it - www.microlinesrl.it

Solar Turbines: CHP from energy price mitigation to SMART H2

Designing and producing energy generation systems for the industrial sector requires balancing production needs and energy availability, in a perspective that must look at the energy mix as the best possible solution. **Solar Turbines (Caterpillar Group)**, historical manufacturer of energy generation systems for the industrial sector and present all over the world with more than 16,000 gas turbines installed, is already ready to face current and future scenarios.

CHP and fluctuations in the price of energy

The international geopolitical situation and the recovery of economic activities are causing sudden and unexpected fluctuations in the prices of methane gas, electricity and CO₂, putting the entire industry in difficulty, especially the energy intensive manufacturing sectors such as that of paper production. The pulp & paper sector, including the tissue production sector,



has been using CHP (Combined Heat and Power) technology for years. Solar demonstrates how this, also thanks to the application of its highly technological gas turbines, continues to be the most effective and efficient

solution, especially in a period of strong tensions on the price of energy. Solar gas turbines with direct drying system are particularly suitable to meet the needs of the tissue sector. They use the exhaust gases of the turbine

Efficiency and flexibility make Solar Turbines gas turbines applied to CHP plants ideal for the tissue sector even in the uncertain energy scenarios of these months. The technological development of the group, however, looks to the future and is already ready for the energy of tomorrow: hydrogen.

by: Solar Turbines Switzerland Sagl

directly in the drying section of the paper machine and, as **Benoît Fécamp**, EAME Strategic Growth and Market Development Manager of Solar Turbines explains: “they guarantee a number of advantages: a clean exhaust end product, low emissions and, above all, a significant increase in the energy efficiency of the system, which is between 80% and 90%. The direct drying system allows a reliable and stable production of electricity and heat, and also guarantees maximum flexibility, covering all operating modes of a paper mill”. One important fact for paper manufacturers is also the possibility of retrofitting. “Our GTs can be installed on both new plants and on existing tissue machines”.

The economic sustainability of CHP

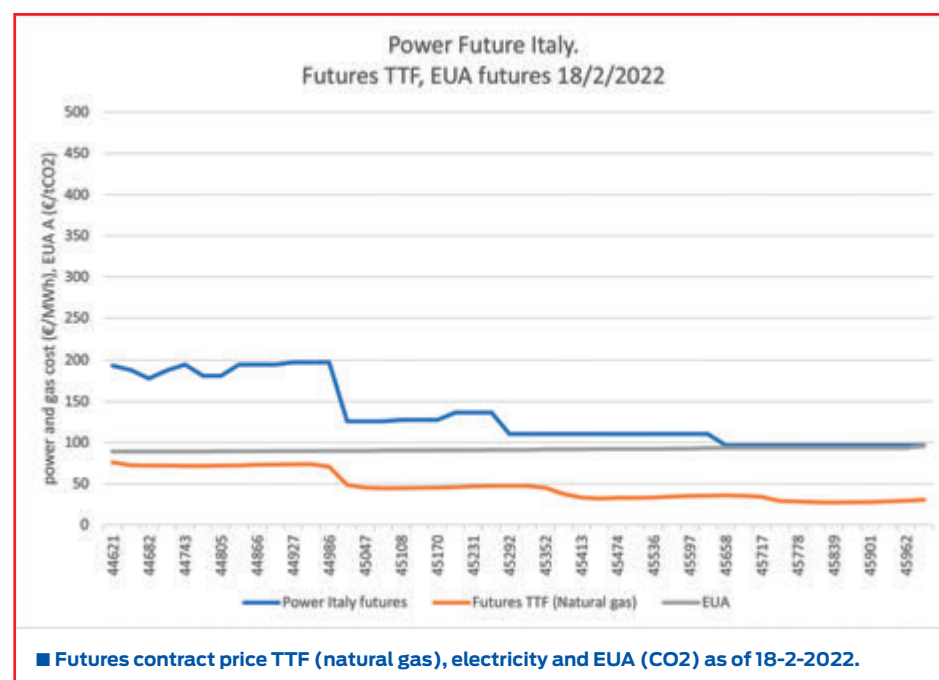
Already under normal market conditions, the comparison between a conventional generation system and a CHP system demonstrates the advantage of the latter. With fluctuating markets and high energy and CO₂ prices, like what has been taking place in Europe since late 2021, the figures prove that relying on CHP technology still offers a tissue paper mill considerable savings.

Cash flow simulation Q2-2022

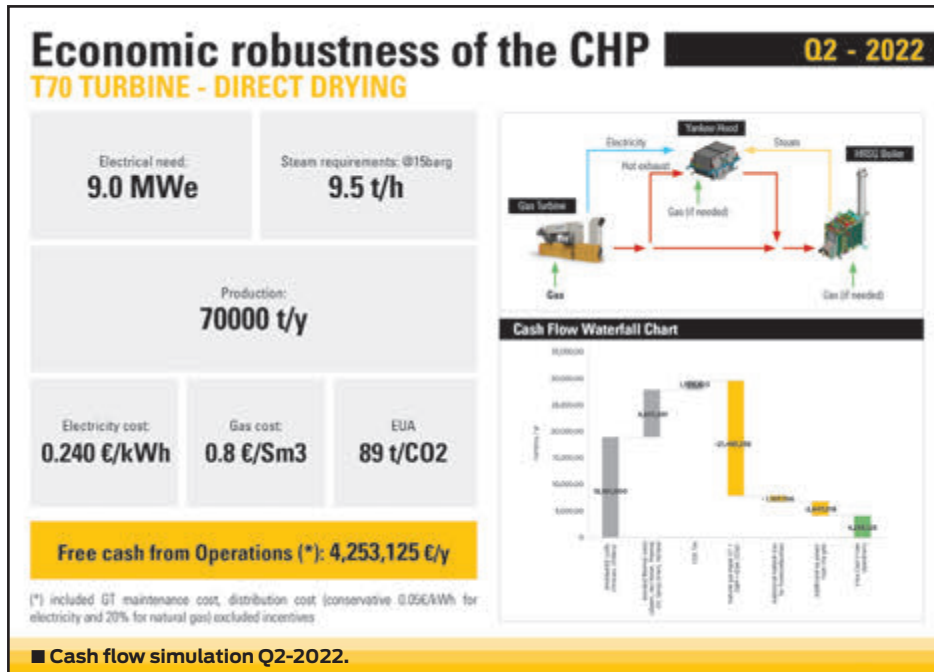
Taking as an example a CHP system with a T70 direct drying turbine and a production of 70,000 t/y, with a demand of 9 MWe and 9.5 t/h of steam at around 15 barg, in a context of prices at the beginning of 2022 around € 0.240/kWh for electricity, € 0.8/Sm³ for natural gas, and 89 t/CO₂ per EUA emission quota, an annual primary savings (free cash from operations) of € 3,381,000 was calculated.

Cash flow simulation Q4-2024

Even assuming, as analysts argue, a lowering of energy costs within the next two years, with prices in 2024 of € 0.90/kWh for electricity and



“Powering the future through innovative energy solutions”



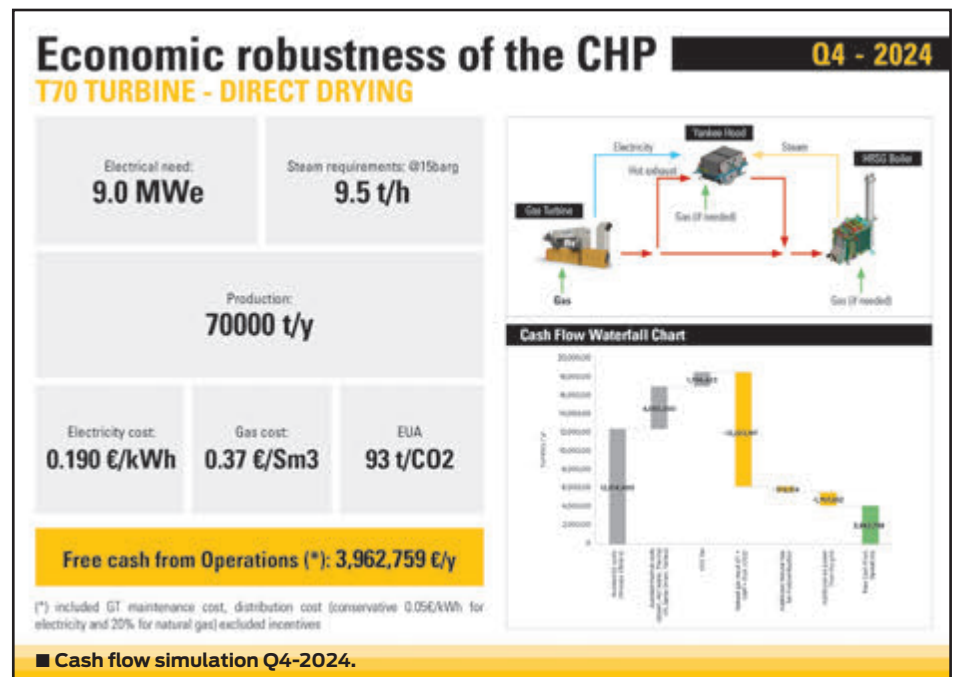
“ Innovative gas turbine solutions ”

in the pipelines. Our goal is to arrive at SoloNOx DLE gas turbine models capable of burning 100% hydrogen”. Another key issue is the digitization of the plant. “Our digital systems allow you to communicate with the outside world and adjust the operation of the CHP plant and the gas turbine according not only to the demands of the production cycle but also to external factors such as, precisely, the cost of energy sources. This - Fécamp concluded - will allow the paper mill to do what is needed when it is needed”. In the most economically and eco-friendliest way. ●

€ 0.37/Sm³ for gas, and assuming an increase in the cost of CO₂ as a result of sustainable development policies, with an EUA of 93 t/CO₂, the savings would amount to € 3,704,000 per year.

Trends of the future: hydrogen and digitization

The vision of Solar Turbines is not limited to the present, however, because the energy scenario is destined to change. Mixing energy sources will be increasingly necessary, especially in view of a greater diffusion of renewables which are not predictable. “Our gaze is directed to the future - said Fécamp - to the trends of tomorrow which are hydrogen, biogas, digital and CCUS (Carbon Capture, Utilization and Storage), topics which paper producers are watching with interest”. Solar's experience in hydrogen technology, which began with the first H₂ turbine models in 1985, already numbers 55 operating units with over 2 million hours of operation. “Our technologies are already equipped to operate with gas mixtures with 20% H₂ content, which is the maximum concentration expected to circulate



SOLAR TURBINES SWITZERLAND SAGL

Via Campagna 15 Rizzano, 6595 - Switzerland

- website: www.solarturbines.com
- phone: + 41 91 8511511
- contact person: Benoit Fecamp, Market Development Manager
- email: benoit_fecamp@solarturbines.com

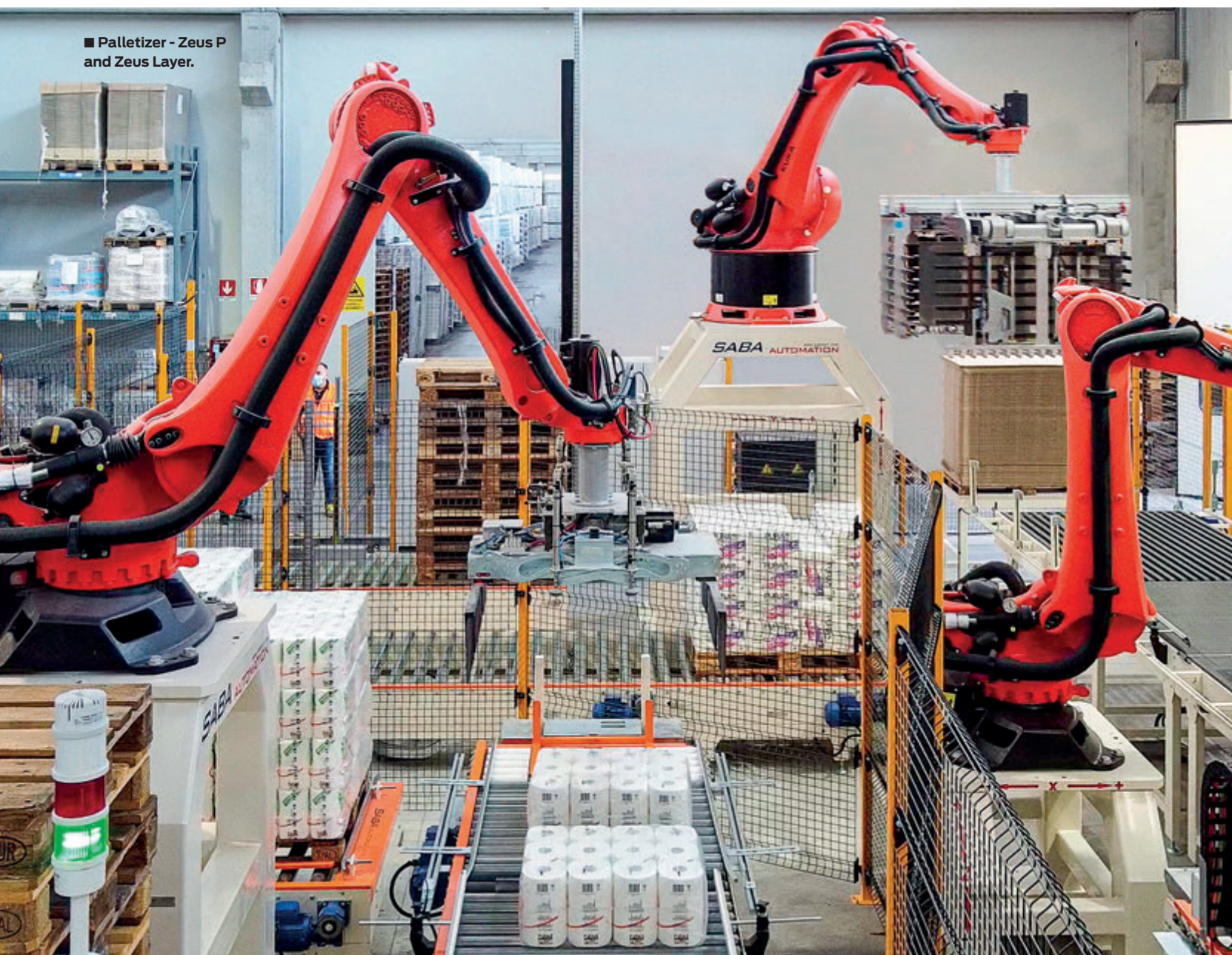
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■ Palletizer - Zeus P and Zeus Layer.

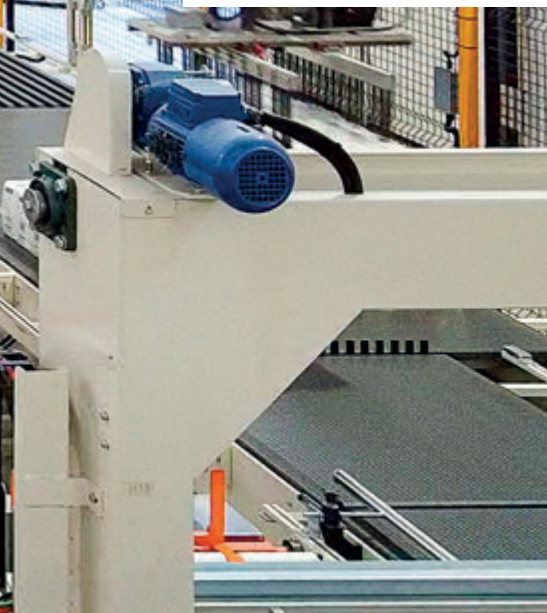


Since 2005 **SABA AUTOMATION** has been designing and implementing, in close synergy with its customers, integrated solutions capable of responding to market needs. The company offers customised end-of-line automation solutions for the tissue industry. For this purpose, it manufactures palletising robots, a wide range of transport systems for products and pallets, automatic wrapping machines, labelling machines, and warehouse entry and exit areas. Automatic guided vehicles complete the range of end-of-line solutions. As **Alessandro Pollini**, Sales Director

of SABA AUTOMATION explains - “sharing objectives with customers is not simply selling machines but solutions. Thanks to the know-how acquired in the various sectors where we operate, we examine production flows, products, logistics in the area concerned and in the factory, all the data, etc., understanding how to improve process automation”. The real “top of the range” are undoubtedly the ZEUS automatic robotic end-of-line systems, designed for palletising products, coming from packaging, carton packing, bundling and bag filling machines, namely folded products (napkins, handkerchiefs, inter-folded paper towels) and rolls

SABA AUTOMATION, let the future surprise you

End-of-line solutions for the tissue industry by: SABA AUTOMATION Srl



(rolls of paper for household and industrial hygiene use). These solutions are extremely fast in terms of cycles per minute and can serve even lines with a very high production output. Particular care has been paid towards design of the pick-up implements both for unpacked and packed tissue products. These special grippers grasp the product without causing any kind of deformation; this drastically improves quality of palletising. All grippers are motorised with the robot's interpolated axis to ensure adequate handling of such a delicate product as is tissue paper. The size changeover system adopted is much more accurate

than the typical pneumatic systems so that the gripper does not damage the product.

The **ZEUS** series is divided into two types: **P Series** and **Layer Series**. The former is a single anthropomorphic robot, which picks products individually or arranged in rows; the latter consists of a robot (or two robots) that form layers and a second robot for palletising. The latter can pick and place one or more layers simultaneously.

PAL management software has been optimised, and is provided with interfacing to an INDUSTRIAL PC to make line operation easier still and allow for better control over all

end-of-line stages. Thanks to the combination of robot and software, SABA AUTOMATION robotised palletising systems offer more advantages in terms of cycle time reduction, adaptability to different products and elimination of downtime. Operators no longer have to deal with heavy palletising work and no longer have to perform size changeover operations since a production order can be called up and uploaded in an instant. In accordance to the principles of *Industry 4.0*, this software can be interfaced with the latest management software so that data can be duly exchanged. Digitisation of machines, flexible and automated format changes, remote management and control of production. In addition to solutions featuring anthropomorphic robots, SABA AUTOMATION designs and builds **BD CARTESIAN ROBOTS**. These are compact solutions, with a high performance, ideal for lines handling paper napkins, handkerchiefs and inter-folded paper towels. Cartesian robots designed to operate in three shifts for 365 days a year, with low maintenance requirements and high efficiency. This series also adopts the software solutions available for the Zeus series.

Constant improvement and development

Despite the pandemic, 2021 - in the same manner as 2020 - has been a very satisfactory year for SABA AUTOMATION. The company has consolidated its presence in the end-of-line market dedicated to the tissue industry. Significant orders

“ We develop **technical solutions**, according to your production process ”

were acquired, both nationally and internationally. In order to maintain this “steady growth”, SABA AUTOMATION is giving more attention to support and additional services.

Our team is constantly researching and developing

new solutions to facilitate production and use of equipment. Curiosity and the will to become better and better are the driving force of our company. In other words, we never sit back and relax but always look forward. Passion guides us and we want to involve our customers in this attitude.

Reliable and efficient even at a distance. In order to continue to offer maximum support in an international context conditioned by recent events, SABA AUTOMATION has undertaken a series of initiatives aimed at granting its usual reliability and efficiency. To ensure full business continuity, it enhanced its online services: Thanks to these tools, combined with established procedures, the company can now and in the future respond to all service requests from Italy and abroad. ●

SABA AUTOMATION SRL

Via della Fisica 23/25 41042 Fiorano Modenese (MO) - Italy

■ website: www.sabasrl.com

■ phone: +39 0536.920907 - email: info@sabasrl.com

■ contact person: Mr. Alessandro Pollini, Sales Director

■ email: pollini@sabasrl.com



Events and news

● We will be at MIAC in Lucca from October 12th to 14th 2022, where, besides meeting our staff at the stand, it will be possible (by appointment) to visit a company and see SABA AUTOMATION technology at work.

● We will soon be presenting further innovations for end-of-line systems; because only with innovation and a start-up approach can we build our future. Visit our website, our YouTube, LinkedIn, Instagram and Facebook channels... keep in touch.

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ECO Wrap 1050: **a new flow wrapper** **with market appeal**

■ The product receives careful handling, including at the outfeed.



Microline is an Italian company specialising in the design and marketing of automatic machinery and line-automation solutions. The company possesses a high degree of technological expertise, specialising in tissue product packaging. This is the target sector of the ECO Wrap 1050, Microline's latest product: a horizontal packaging machine with the emphasis on efficiency.

by: Microline Srl

Genesis and development

Simplicity need not mean low quality. For years, **Microline's** construction mantra has been the greatest possible simplification. This means our machines are very sturdy and need less maintenance, without sacrificing any of the care that goes into designing and producing each individual component. The ECO Wrap was created in line with these principles, to meet a specific need voiced by the tissue market: low speed units, whose key features are reliability and service economy.

What it does

ECO Wrap is a machine for wrapping "AFH" rolls or folded products using plastic film. It is able to use a wide range of

packaging materials. The machine creates perfectly sealed bags, allowing a broad series of product configurations. This type of packaging is especially well-suited to pre-packaged paper rolls for industrial use and individually packed folded products. The packaging process does not generate any wrapping material scraps or rejects, which cuts out disposal costs and allows a significant saving of wrapping material.

How it works

The ECO Wrap works in accordance with an operating principle that is simultaneously simple and effective. Products coming from the saw or the wrapping machine are fed by a

▼ ECO Wrap is Microline's new bagging machine.





“ Machines for tissue - rolls and folded paper products ”

system of conveyors, oriented and taken into the machine in a single line by means of a system that arranges them in the desired configuration. The products are then placed in the lifting unit for layering, if required, and placed in a bag. The bag is closed at the next stage. This is done by overlapping and sealing the packaging material at the top of the bag, before the film is sealed crosswise by folding the flaps inside the bag. This machine can pack up to 6 bags per minute, in a wide range of configurations.

Efficiency behind the name

The ECO Wrap does not merely save packaging material, it also allows energy saving: the flow wrapper creates high quality bags that are tight-fitting and do not necessarily require the use of a shrink tunnel. Lastly, the one-piece design allows fast commissioning of the machine, which can be very quickly installed. It can also be rapidly configured for start-up. This avoids prolonged line stoppages and improves production efficiency. ●



▲ The machine's flexibility lets you create different size bags.

MICROLINE SRL

Via Emilia 33/c 40011 Anzola dell'Emilia (BO) - Italy

■ website: www.microlinesrl.it

■ phone: +39 051 6166696

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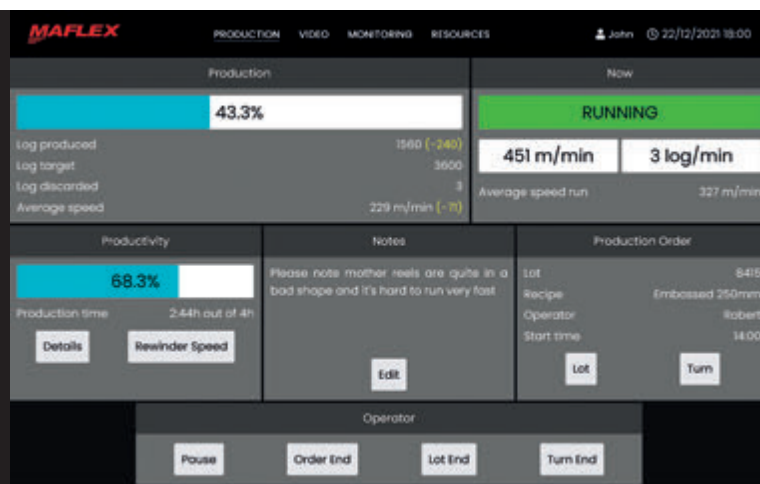
TECHNOLOGY
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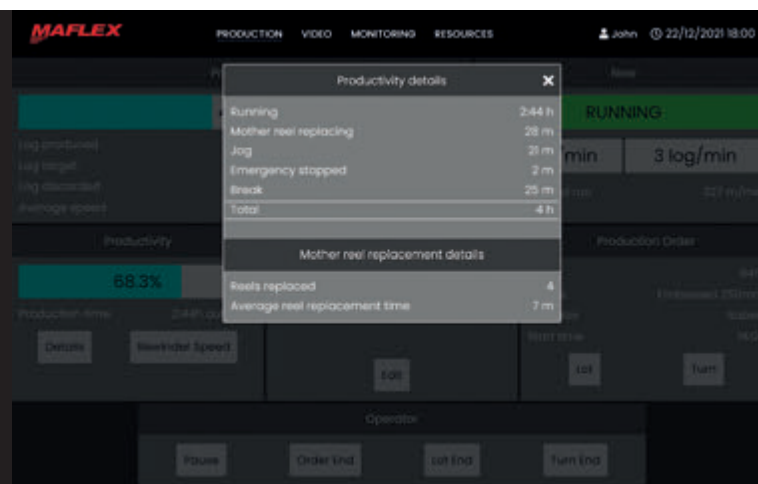
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▲ Current production shift.



▲ Productivity details.

PEGASO: MAFLEX

By: Maflex

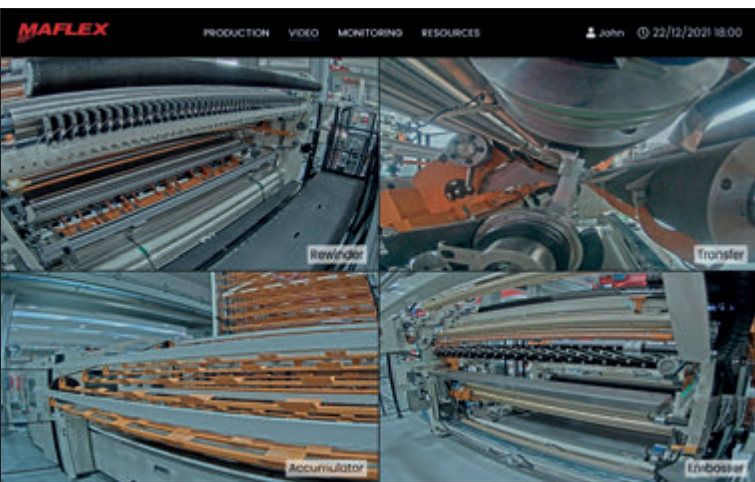
Since 1997, Maflex has been providing converting solutions to customers worldwide, working as a flexible and dynamic company. The last few years have been very important to the growth of the company, thanks to numerous enhancements on the machines. In 2018 Maflex introduced the HERMES rewinder with the tool-less product changeover (also available on the “little sister” ARES). In 2019, Maflex introduced the HERACLE embosser featuring an automatic embossing roll exchange system. In response to multiple customer’s requests, the Maflex R&D Department was tasked with making the machinery more interactive and accessible. The answer was the launch of PEGASO!

PEGASO is the system which allows a **Maflex** line to be fully managed by remote. It is your production assistant, your data recorder, your “work simplifier”. Let’s take a deeper look at PEGASO’s main features.

Production assistant

- The system allows you to see the current production shift: through its large touch screen, the system allows the line operator to view, at a glance, all production data in real time.
- It provides detailed information about production for the last 30 days, taking into account operator shifts, batch numbers, production orders, product recipes, etc.
- When given a list of production orders to be carried out, the system provides the sequence in which orders have to be worked out in order to minimize set up time and thus increasing machine productivity. Thanks to the Reel Management System, the type and quantity of parent reels can be determined automatically by the production orders entered into the System. This creates optimal production and logistics.

“ Shaping technology on **your goals** ”



▲ Video live view.



▲ Axis monitoring charts.

Smart Supervision System

- The machine speed can be regulated automatically, so it can best utilize the accumulator and prevent the user from running the log saw machine faster than necessary, avoiding energy waste and reducing components wearing.
- Production can be reviewed at a later time, broken down by shift, operator, etc. to review efficiency and uptime. The system can also keep track of each batch number for retrospective review, to investigate any quality concerns from the customer.

Video manager

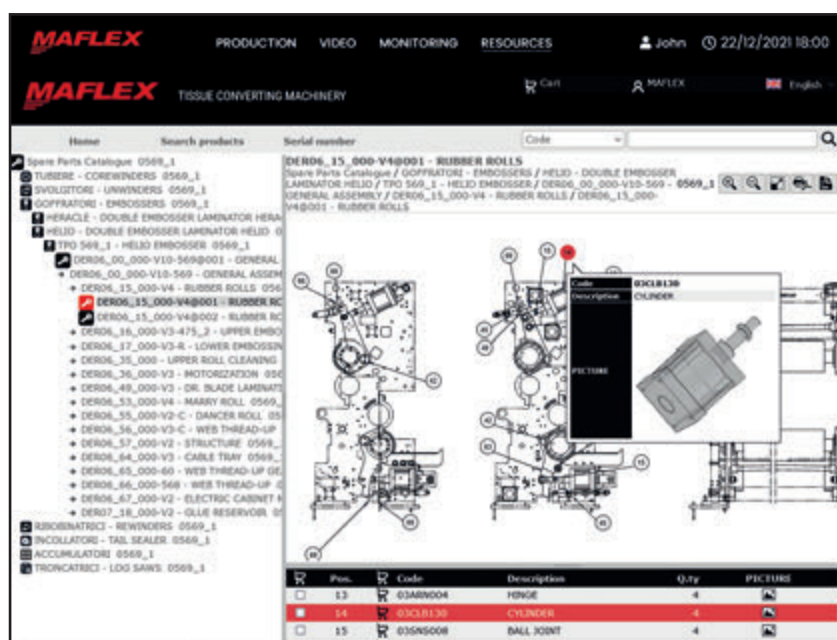
The integration of Pegaso with the Maflex "Smart Camera System" allows:

- Fine-tuning the most important movements of the machines (transfer system, perforation, rewinding, etc.) by means of a sophisticated high speed video system which lets the user review the videos in slow motion or even frame-by-frame.
- Providing a video production log system, keeping a history of the last 2 weeks. It is possible to review every production batch

with images that guarantee quality and production with each shift.

- View the line remotely. Thanks to the cameras

▼ Spare parts online catalogue.



“ We provide **dedicated solutions** to special needs ”

installed on the line, the Production Manager always has the opportunity to remotely check the live recording of machines.

Monitoring

- It keeps track of the lifetime of mechanical and electronic devices and lets the user know when an item is close to the end of life, so that the availability of a replacement component can be ensured. Thanks to this monitoring, the predictive and scheduled maintenance will minimize the unpredicted/catastrophic stops in production.
- It monitors electrical devices and lets the user know if any anomaly, like an excessive current drain, is detected. This is done automatically, but the user can also observe electrical data in real time.
- It helps the user understand HMI thanks to operational guide. Each operation is explained in detail for the operator, with video and photo references, as well as useful instructions for use and maintenance.
- All the most important data, such as temperature, consumption or alarms are stored in a black box, always accessible if needed.

Resources

- When an alarm shows up on the HMI panel, Pegaso can provide guided diagnostics with additional information about the event and suggest the actions needed to solve it
 - Pegaso lets the user to easily access the machine documentation: all manuals for maintenance operations (mechanical, electrical, and pneumatic diagrams) and all exploded views of the components that are specific to the converting site, are available to the user.
 - Pegaso has also a cost estimator task. By entering details of the costs of electricity, raw material and labor, it is able to estimate the cost for each roll produced. This provides up-to-date references that the Production Manager can share with the sales department.
 - It provides the user with a direct link to the online spare parts catalogue, where the user, upon login, can search for a replacement component and place an order.
- Lastly, Pegaso can be accessed by

multiple users from multiple devices at the same time, with each user having their own perspective of the system based on the user privilege level. For example, while the operator is working on the machine, the manager can insert the next production order to be carried out, or analyse the line production data to identify efficiencies/deficiencies throughout a production cycle. Pegaso is now available on all new Maflex converting lines, but it can also be installed on existing machines. ●



MAFLEX HEADQUARTER

Viale S. Concordio Trav. III 199 55100 Lucca - Italy

- website: www.maflex.it
- phone: +39 0583 316820
- email: info@maflex.it

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■ Hermes line.



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The softer, the better!

■ The sensory feeling of tissue
is of paramount importance.

“ Your challenges,
our mission ”

In the modern consumer world, the sensory feeling of tissue is of paramount importance. Therefore, one of the most important quality factors differentiating tissue products is softness, which includes 'bulk' and/or 'surface feel' parameters, particularly for grades such as facial and bathroom tissue. With softness being such an important component of tissue, producers and their suppliers are continuously striving to provide improved strength-softness qualities by innovating with raw materials, machine design and operating conditions - without compromising sustainability considerations.

by: BIM KEMY AB

Since softness is a key consumer purchasing characteristic of value-added tissue products, the challenge has always been how to measure it. To answer this, we need to understand what we mean by hand-feel. It's a combination of multiple elements such as real softness, smoothness, stiffness, and compressibility.

In the past an assessment of softness used to be determined by an experienced panel of people. This test was time-consuming, and the results could be highly subjective. Over time, progress has been made and advanced new monitoring instruments have given us the ability to quantify tissue softness quickly, accurately, and cheaply. The results correlate closely to human testing and provide numerical data for QC and Marketing use. Factors such as culture, personal preferences, and personality can now be eliminated. However, it's clear that Softness panels and HUT (home user tests) will always remain. Consumers are human after all and not machines.

The perceived softness of the tissue is controlled by many factors including fibre selection, formation and creping, as well as the external use of chemicals (e.g. surface conditioners) to enhance quality. The secret lies in the

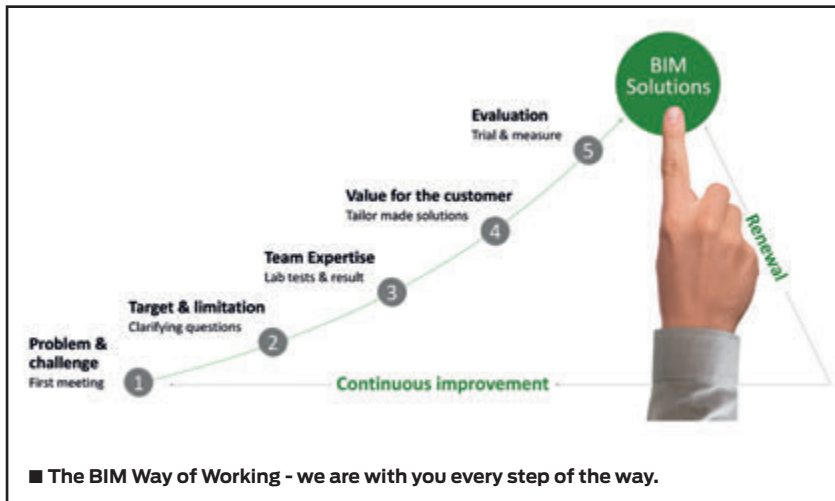


correct combination of chemistries, in the right place in the process and complemented by advanced analytical techniques. With our unique knowledge of pulp, papermaking and converting, BIM is the perfect partner in developing sustainable tissue solutions.

▲ Softness is about the perceived feeling.

Adding value from Papermaking to Tissue converting

For almost half a century BIM has been committed to supporting continuation of



success of our customers through innovation, fast response, working partnerships and developing speciality solutions. BIM has enhanced its strong presence in Tissue Manufacturing, especially in value-added applications through our extensive range of lotions and balms. All our products are manufactured in the U.K. and we pride ourselves in responsible raw material sourcing, sustainability, supply chain security and the highest standards of manufacture. Uniquely **BIM** is able to tailor make solutions that best meet our customers' processes, base-sheets and marketing requirements. This is achieved through our knowledge, expertise and experience in both papermaking and converting processes and our specialised way of working. The BIM Way of Working allows us to provide our customers with comprehensive advice and support in how to achieve desired properties and performance throughout the whole chain.

Our golden rule is confidentiality - You can trust us to make your high value products even better. Benefits of using BIM tissue solutions for lotion and balms:

- Cosmetically approved manufacturing facility.
- Custom made products to meet the requirements of your customers.
- Containing dermatologically approved materials from Cosmetics Directive.
- Assessed by independent cosmetics specialist for skin sensitisation.
- RSPO certification.
- Unlimited development potential, e.g., free from palm oil, silicones, fluoro-compounds etc.

With close cooperation with both OEMs and customers, BIM can provide lotion and balm solutions that match or exceed local market needs, whether for brands or private label. A good example is our long-term association with WEKO, which became a market leader in lotion application systems globally during our collaboration.

Examples of joint BIM/WEKO applications include:

- Tissue lotions - for smoothness – dermatologically approved – silicone and non-silicone-based – 100% sustainable options – marketing additives.
- Tissue balms - for skin transfer – containing emollients - dermatologically approved – 100% sustainable options marketing additives.
- Tissue converting adhesives enhanced with fragrance and marketing additives
- Tissue laminating adhesives.
- Fragrances (Customised scent - Allergen-free - Microencapsulated options for longevity).

We are also able to carry out detailed softness analysis and make further recommendations on how you wish your finished products to perform. If you want to add marketing benefits such as extracts or fragrances, we can adjust our formulation accordingly.

The only limit is your imagination.

At BIM, we are with you every step of the way. ●

“ Experience based knowledge ”

BIM KEMI AB

■ website: www.bimkemi.com

■ email: info@bimkemi.com

■ contact person: james.hudson@bimkemi.com - Sales manager BIM UK Ltd, a company within BIM Group

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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.

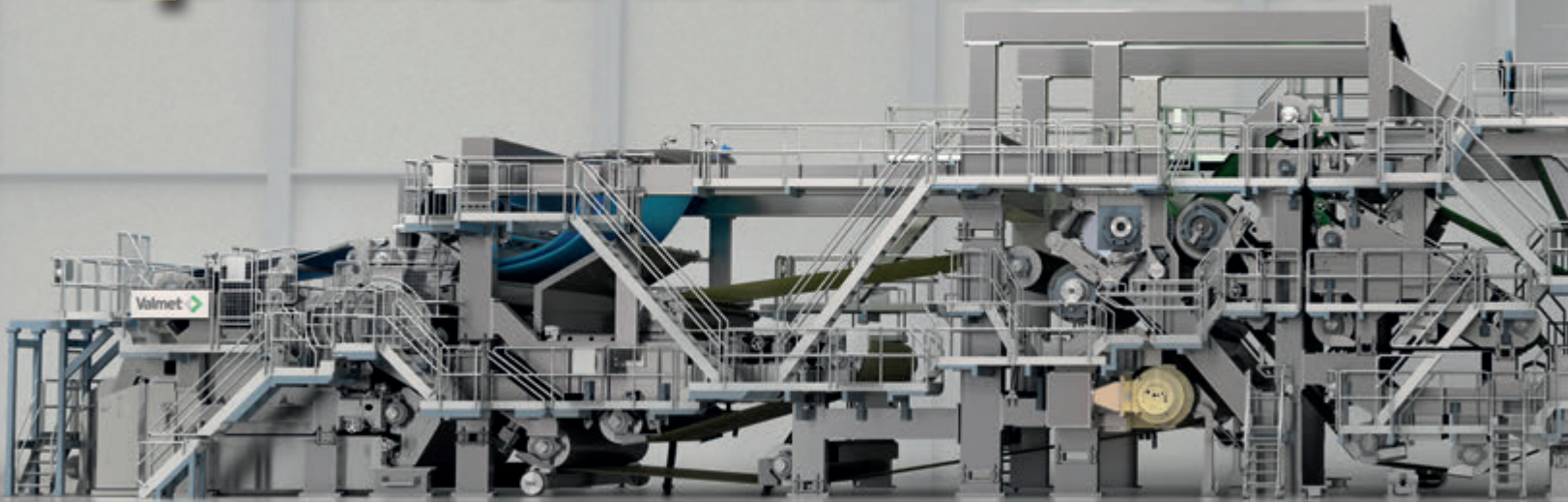


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IMA  **TMC**
Tissue & Nonwoven Packaging Solutions

Market demand sparked innovation



■ Valmet Advantage eTAD Technology.

Georgia-Pacific is one of the biggest tissue producers in North America. However, in early 2000s as premium structured private label started to grow, the Quilted Northern brand of Georgia-Pacific came under tremendous pressure. At that time, Quilted Northern was produced with conventional 2-ply dry crepe technology and research in 2010 showed that both consumers and retailers struggled with positioning the brand - it underperformed as a premium brand and was not price competitive as a value brand.

Retailers and consumers asked for differentiation and given that the company already held the number one position in the value segment, competing with themselves was not an option - instead product redesign and brand repositioning was the only alternative.

Joe Miller, Vice President of Research and Technology at Georgia-Pacific reflects back: "We had a technology that was invented and available, we had the experimentation capability in a pilot facility, and we saw the need. We did some product design work to hit that need which resulted in the invention of an ultra soft and strong product".

The technology was something that Georgia-Pacific had worked on since 1994 but truly defined in 2003 with the invention of eTAD - a paper making

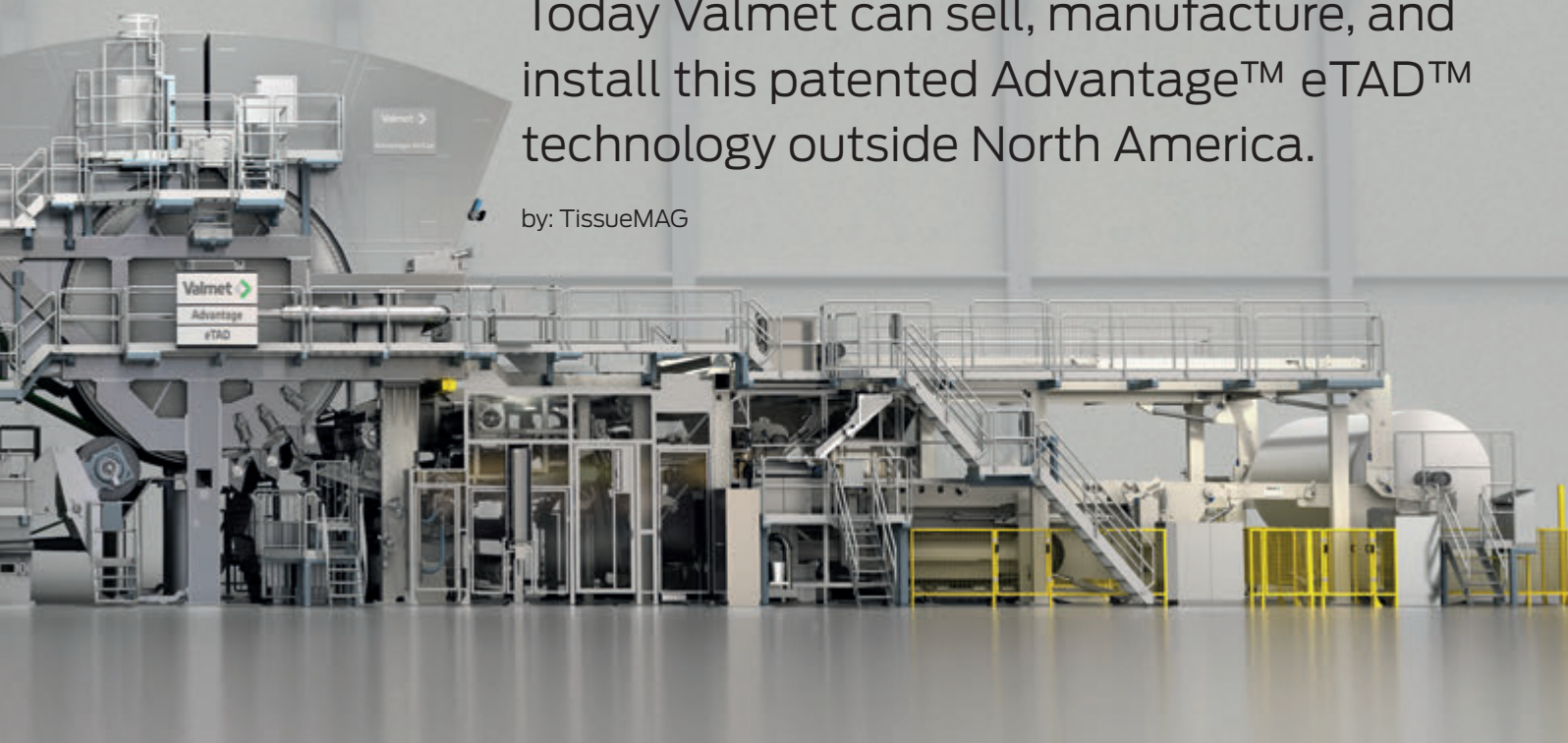
“

With the **Advantage eTAD technology** it is possible to achieve high-premium quality utilizing pressing in combination with Rush Transfer

”

Georgia Pacific invented a sustainable technology for high-premium tissue quality and refreshed their brand's position. Today Valmet can sell, manufacture, and install this patented Advantage™ eTAD™ technology outside North America.

by: TissueMAG



process for energy efficient technically advanced drying. It was more energy efficient than TAD and consumed less capital. It also enabled the potential for dry crepe machines to be converted to this new technology. Georgia-Pacific decided that a re-build of their dry crepe machines was a cost-effective way to advance the technology. A series of investments culminated in two eTAD machines, located in Crossett, Arkansas, and in Port Hudson, Louisiana. **Valmet** was selected to construct both these projects and full-scale commercial production was started. The new *Quilted Northern Ultra Soft & Strong* was introduced to the market in 2012. Consumers experienced that the product cleaned effectively, conformed well to the body, held up well in use and delivered an improved level of softness. Simultaneously, consumers reported differentiation in its durability because of the unique balance of strength and stretch in combination with enough softness.

Sustainability on everyone's agenda

The method of removing water through pressing instead of evaporating with hot air allows for about 30% savings in energy in the drying process. Equally, about 30% water savings can be achieved by reusing the recovered water extracted from the sheet. A major benefit of the



▲ Joe Miller, Vice President of Research and Technology Georgia-Pacific.

eTAD technology is the capability of using alternative fibers such as recycled, straw or bamboo furnishes. As of today, eTAD does not have the same limitations in drying technology as TAD.

eTAD is available for tissue makers outside North America

In 2018, Valmet and Georgia-Pacific entered into a licensing agreement enabling Valmet to sell, manufacture and install the patented Advantage eTAD technology outside North America. **Kurt Adams**, Vice President, R&D, Georgia-Pacific says: "We knew we had developed a product that could contribute to sustainable tissue production in North America. As part of our environmental stewardship, we felt that making this technology available in markets where we don't supply products was important. Proposing Valmet as the preferred partner for this task was natural. Georgia-Pacific strives to work with people in the industry who deliver mutual benefits to our customers, and Valmet share that vision". Tissue producers with a conventional dry-crepe machine who wish to make a shift in quality but are not able to invest in a completely new full line should explore the options of a re-build as it is possible to utilize current wet end and dry end components. Approximately 20-25% less capital is required to manufacture the same number of tissue rolls, because buildings are smaller and the cost of equipment is less. Georgia-Pacific's pilot facility is available for Valmet's new and current customers. It's a place to test, verify and create a sense of confidence that the products will meet defined expectations. With on-site converting capabilities, customers can make final products during the same day.

Innovation for a better future

Joe Miller reflects on the journey: "It took some work to get to where we are today. And since our first installation, we've continued to optimize this process. By partnering with Valmet, we've learned together what we needed to do to reduce complexity. Today we are completely confident with the technology. It is also an effective way to upgrade existing machinery to produce premium products that are more highly valued by consumers." With the use of the innovative eTAD process, Georgia-Pacific was able to create and position Quilted Northern Ultra Soft & Strong as not only a premium retail tissue brand, but also a sustainable product with specific on-pack sustainability claims. ●



▲ Quilted Northern Ultra Soft and Strong.

“With the use of the eTAD process, Georgia-Pacific was able to create and position Quilted Northern Ultra Soft & Strong as not only a **premium tissue brand**, but also a **sustainable product**”

VALMET

- website: www.valmet.com/tissue
- phone: +46 5471000
- email: tissue.info@valmet.com
- contact person: Kent Nika, Sales Director, Valmet Tissue
- phone: +46 705507820
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■ Valmet Advantage
eTAD Technology.

Converting solutions for any type
of folded tissue product



NAPKINS



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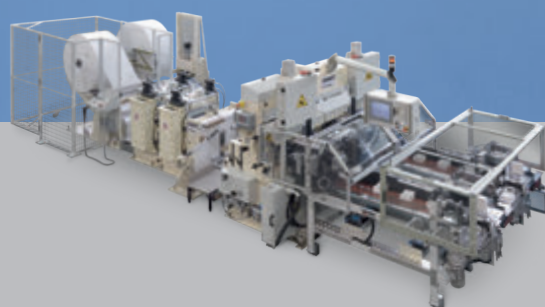


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UNTIL THE LAST FOLD



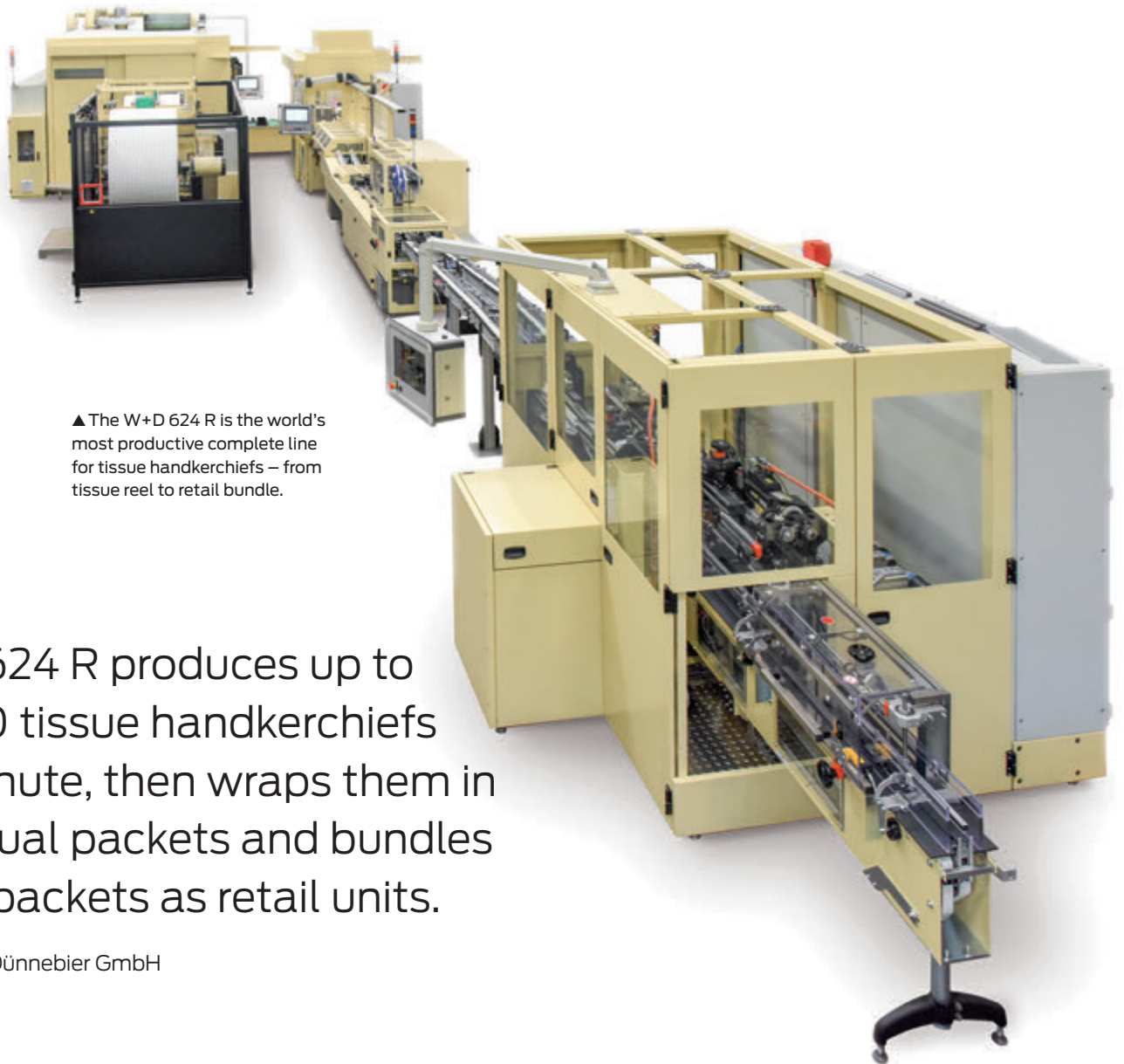
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W+D BICMA builds world's fastest production line of tissue handkerchiefs



▲ The W+D 624 R is the world's most productive complete line for tissue handkerchiefs – from tissue reel to retail bundle.

W+D 624 R produces up to 10,000 tissue handkerchiefs per minute, then wraps them in individual packets and bundles those packets as retail units.

by: Winkler+Dünnebieer GmbH

Winkler+Dünnebier GmbH (W+D) have been active in the hygiene sector since 1976. In the 1980s, they developed the first four-lane handkerchief-converting machine, followed in 2013 by the W+D's FLOWTOS as an innovative two-lane system. W+D-make handkerchief production machines have been successful for decades. They make up a market share of 95% in Europe. When **W+D** acquired **BICMA Hygiene Technologie GmbH** in 2018, the Personal Hygiene business unit was strengthened as a result. In order to bundle the joint competencies and communicate them to the outside world, W+D and BICMA have been operating under the new brand name W+D BICMA

“ Market leadership and turnkey solutions ”

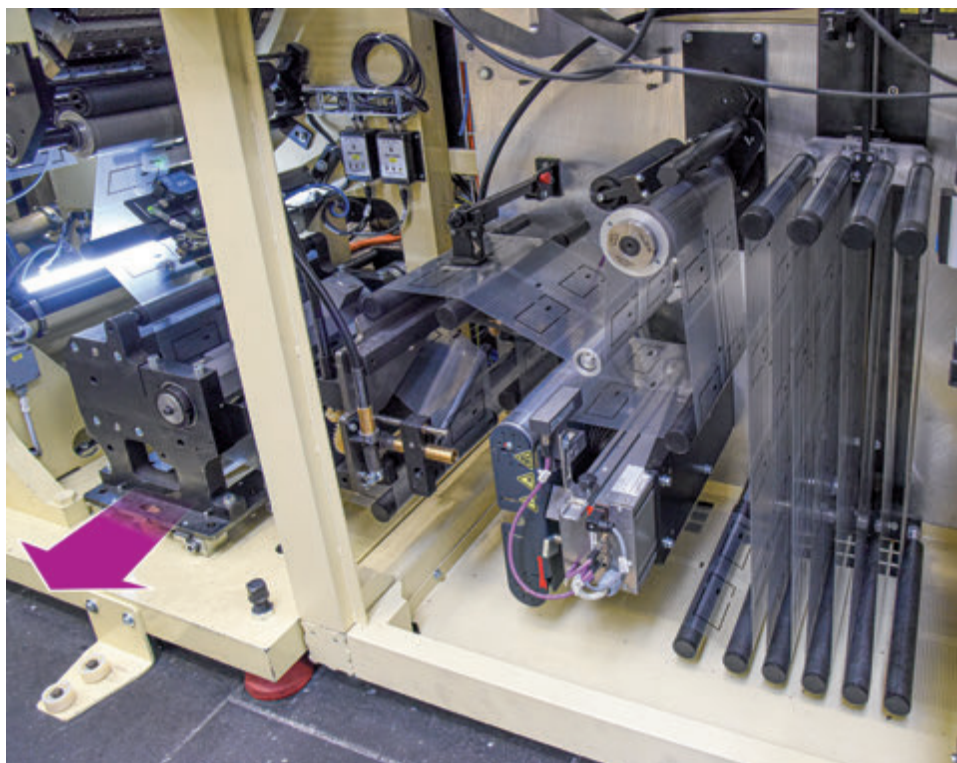
Hygiene Solutions since the beginning of 2021. The introduction of the world's fastest production line for the manufacture and packaging of tissue handkerchiefs is the next big step for W+D BICMA.

Single packaging of handkerchief packages featuring optimized cell-wheel technology

As a fully automated high-speed complete system for the mass market, the new W+D 624 R line achieves a peak output of up to 10,000 tissue handkerchiefs per minute. Based on the successful W+D 624.03, the system was supplemented with the new, but already hundredfold proven cell-wheel technology to packaging individual packets of handkerchiefs. The linear insertion movement of the product stack filling the cell-wheel was function optimized. As a result, it now features increased process reliability. In this way, stack-counts of 5 up to 15 handkerchiefs, however, generally ten are neatly and reliably packaged.

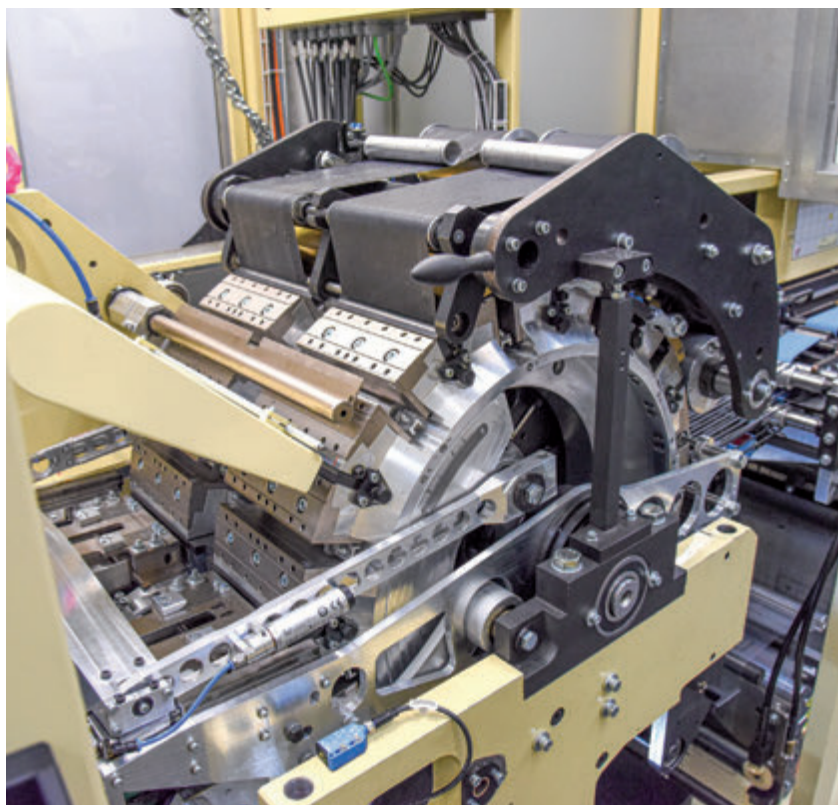
Size changeover-times slashed by 70%

Also, a size-change can be performed in parallel at the converter and the single-packet packager.



▲ Inline film-splicer with retractable perforation roller module.

▼ Optimized cell-wheel to include the opening perforation of individual packets.





▲ Mobile HMIs with 7-meter movement radius facilitate operating the machine.

Direct cooperation with W+D's customers resulted in optimizing the counting and transfer stations in a way that the time needed to change size and fold has been shortened by about 70% compared to other machine types. In addition, the service-life of the roller used to apply the opening-perforation into the film of each single packet has been increased by 50%. The latest *FLOWTOS* technology contributed numerous other functions. The established tape applicator, the two-lane pack collator and the bundle packer were modified especially. This allows bundling of 6 to 96 packets to form one retail pack, and a cycle-rate of up to 120 packs per minute.

Autosplicers for tissue and foil boost process reliability and user-friendliness

Web widths of 800 mm to 848 mm can be varied for different sizes. W+D's proven tissue autosplicer type 194.40 is part of the standard 624 R line. It has been modified for higher production speeds, enabling customers to

“ W+D - the innovative technology partner at your side ”

continue utilizing the raw materials previously used in production despite increased machine output. At the same time, it also provides the machine operator with the familiar operating environment. In addition, the integration of an inline autosplicer of the single-packet foil into the machine, as with the W+D FLOWTOS, increases not only ease of operation but also process reliability as web path of the film is shortened.

New design ensures easier operation

Moreover, there have been other refinements to design and user-friendliness of the W+D 624 R. The machine was given a new, more ergonomic protective enclosure and sound proofing, which means that all machine areas are now easily accessible. For example, the enclosure of the converter and the exterior hydraulic embossing unit was enlarged to allow better access. The machine enclosure features many large windows, which ensure a good view of all production processes when the doors are closed. Another new feature is the perforating roller of the individual package film, which is independent of handkerchief size and fold-type. The entire station can easily be removed, e.g. for maintenance purposes, as it is mobile. Many other new features have also been added to ensure the best possible operability of the machine. The new W+D 624 R may safely be characterized as unique in the world for production levers, while at the same time offering high operating convenience.

A personal tour of the new W+D 624 R production line may be scheduled at any time by appointment at W+D BICMA in Neuwied.

Visit our website www.w-d.de ●

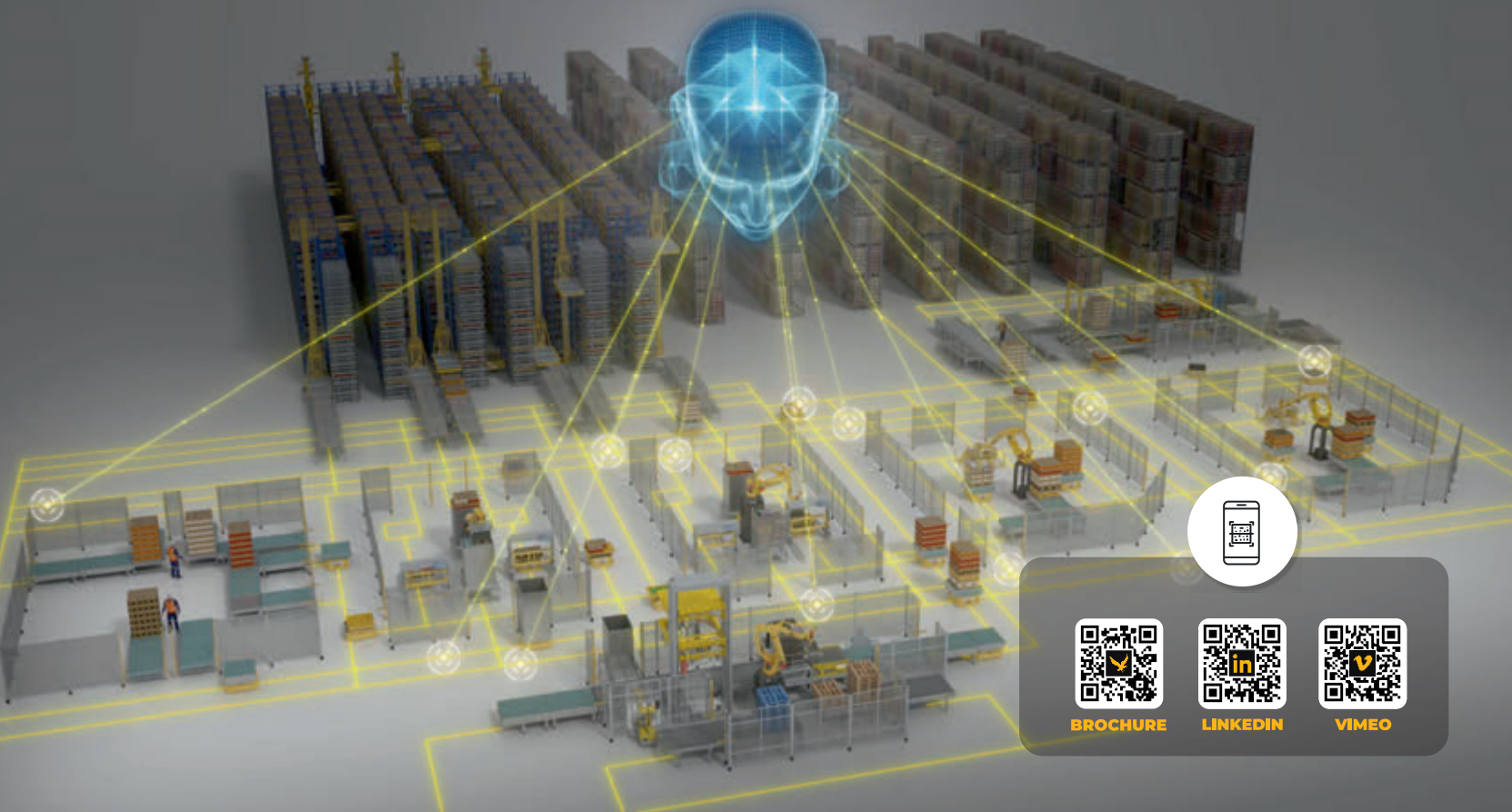
WINKLER+DÜNNEBIER GMBH

Sohler Weg 65 - 56564 Neuwied - Germany

■ website: www.bicma.com

■ phone: +49 2631 840

■ email: sales.hygiene@w-d.de



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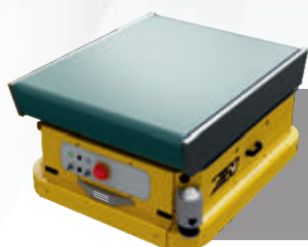
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Greenwashing and LCA: the sustainability challenge for tissue industry

With the publication of the “Kvikguide til virksomheder om miljømarkedsføring - Quick guide for companies on environmental marketing” - the Danish Ombudsman has recently intervened on the misuse of so-called green claims, the environmental statements that are increasingly used today mainly for marketing purposes. If such claims and slogans are not supported by a Life-Cycle Assessment (LCA), it is greenwashing.

by: Ecol Studio SpA

Growing attention to greenwashing

The Danish document is not an isolated case. As the number of court rulings on greenwashing increases, the various national enforcement authorities are publishing 'guidelines' to support companies in communicating sustainability. This is the case, for example, with the Competition and Markets Authority's (CMA) "making environmental claims on goods and services for UK markets" published in November 2021. As early as January 2021, the European Commission released the results of an analysis of websites regarding "sustainability" claims on products and services, showing that more than half of them were illegal. Of these misleading green claims, 37% were based on vague and general statements, and the remaining 59% lacked objective information and supporting data.

Preventing greenwashing with life cycle analysis

The Danish document is destined to be a school affair as it states in a general way a principle that has so far only been used by various national enforcement authorities as a specific suggestion or prescription for companies sued for greenwashing or misleading advertising.

Since it is not possible to define any product or service generically as 'sustainable', a *Life-Cycle Assessment* (LCA) must be carried out in order to make green claims without running the risk of greenwashing.

Life-Cycle Assessment is an objective method of assessing and quantifying the energy and environmental loads and potential impacts associated with a product, a service, a process or, more generally, an activity throughout its entire life cycle, i.e. from the acquisition of raw materials to its eventual disposal or recovery (from cradle to grave or, even better in a circular perspective, from cradle to cradle).

With an LCA behind it, the 59% of sustainability claims incriminated in the Commission's analysis mentioned above would not have run the risk of greenwashing.

No LCA, no sustainability

A Life-Cycle Assessment, carried out by a third party, is the only tool that can demonstrate that a product, service or process is actually better from an environmental point of view than similar items, i.e. that it has a significantly lower environmental impact than products/services/processes in the same category. Sustainability is a relative concept that only makes sense when set in a well-defined context through comparisons using objective and agreed



“ The trusted partner for your **sustainable development** ”

methods. We, therefore, expect the Ombudsman's decision to further strengthen this principle and to help speed up the formulation of harmonised legislation at EU level against greenwashing, as already announced by the European Commission's Initiative on Substantiating Green Claims.

The contribution of LCA to tissue sustainability

Life-Cycle Assessment proves to be a strategic tool for the Tissue sector not only because it prevents greenwashing at the product marketing stage, legitimising sustainability communication and marketing. If we look at the evolution of the packaging and food contact materials market from a longer-term perspective, the Life Cycle Assessment is essential to be ready for the next challenges of the circular economy. In the game between disposable and reusable products, as is happening with plastics, paper and therefore tissue will also have to play their part.

In this context, carrying out studies, analyses and comparisons in good time will enable the sector to obtain useful data to report on its environmental performance and demonstrate its contribution to sustainability. Want to know more about Life-Cycle Assessment? **ECOL STUDIO** experts are at your disposal, contact them without obligation by calling or writing e-mail. ●

ECOL STUDIO SPA

Via dei Bichi 293 55100 Lucca - Italy

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CONVERTING FUTURE IS TODAY

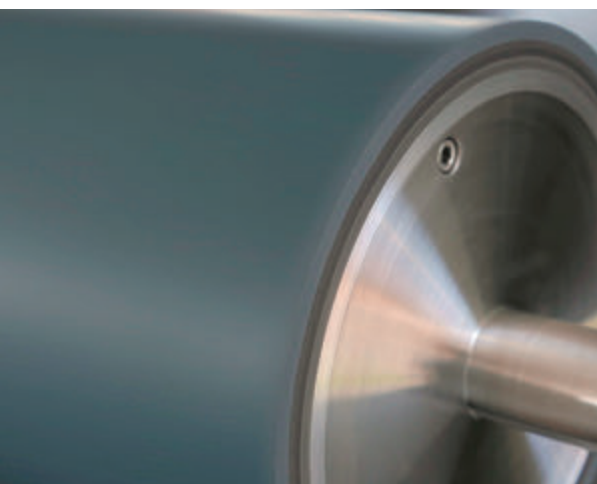
H.impress and Q.dura by SchäferRolls -
Two roll cover solutions to increase the service life.

by: SchäferRolls GmbH & Co. KG

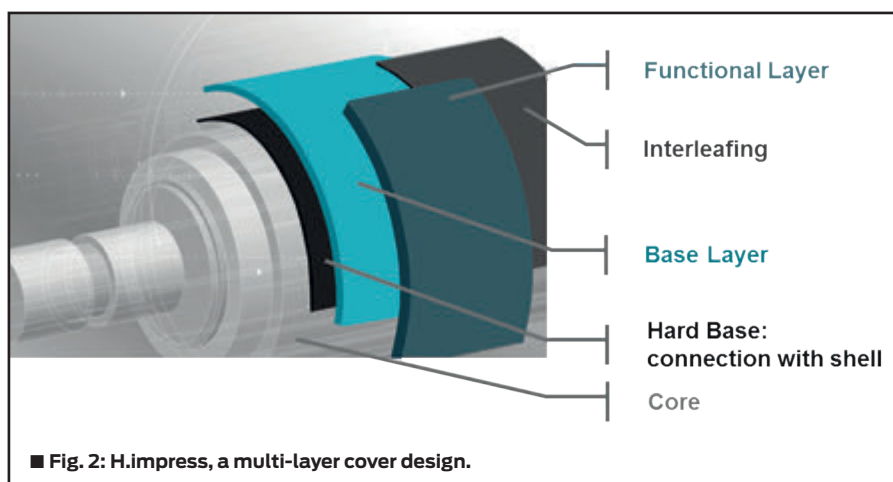
SchäferRolls

SchäferRolls GmbH & Co. KG, based in Renningen, Germany, was established in 1946. With by now over 300 employees worldwide, the company manufactures technologically sophisticated and high-performance roll systems and roll covers for all industries, particularly for the paper, foil, textile, printing, furniture, packaging and metal industry, as well as for machinery and plant engineering. Production facilities with a total production area of more than 30,000 m² are located at Renningen (Germany), Brnik (Slovenia) as well as at Farmington, NH and Covington, VA (USA).

■ Fig. 4: Q.dura:
Dirt-repellent surface
increases cover
service life.



▲ Fig. 1: H.impress increases the performance of the embossing process.



■ Fig. 2: H.impress, a multi-layer cover design.

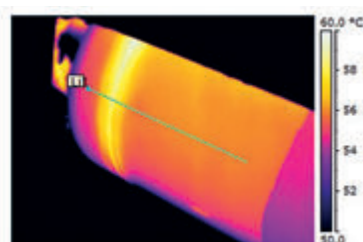
The processes involved in tissue converting make a significant contribution to the end product's key attributes - attributes customers might see as a sign of high quality. SchäferRolls presents new solutions for embossing back-up and marrying rolls which will improve the cover service life.

H.impress for the embossing process: Up to 15 °C lower heat build-up

At high machine speeds, the tissue doesn't have much time to be embossed while located in the roll nip. As a result, the embossing rolls don't have much time to work their magic and achieve first-class embossing quality for the complete tissue web. Add to that the increasing complexity of embossing patterns, with different depths of micro and macro embossing, and it's clear that embossing back-up roll covers have their work cut out of them. To meet these high demands, our embossing back-up roll covers are designed with particular attention to the wear, elasticity and resilience properties of the cover material. With H.impress (fig. 1), SchäferRolls

introduced a roll cover with excellent resilience properties and very low compression set. The low heat build-up and the increased mechanical resistance allow the machines to run reliably and according to plan while maintaining a consistently high embossing quality. The important benefits of the multi-layer roll cover (fig. 2) proved at **Lucart S.p.A.** in Diecimo, Italy: On line L216, the heat generation was much lower (56 °C) while the roll's temperature profile remained stable (fig. 3) - compared to previously 70°C and frequent bearing failure due to uneven temperature distribution. These temperature results were confirmed also on line L220, where H.impress was able to reduce the heat generation for hysteresis by 10 to 15 °C lower than the best materials in operation until then. With cover H.impress, the customer had no more bearings failure on line L216 (four suffered in the year 2019) and no more cover delaminations on line L220. Due to the good, reliable results, the new H.impress series has become a standard product in SchäferRolls' portfolio for tissue converting lines and many customers successfully used this product on their lines.

► Fig. 3: Stable temperature profile.



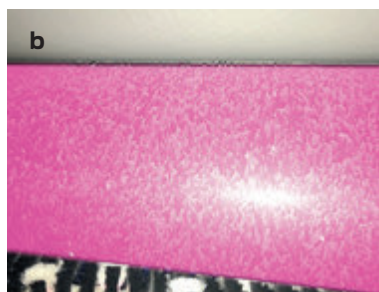
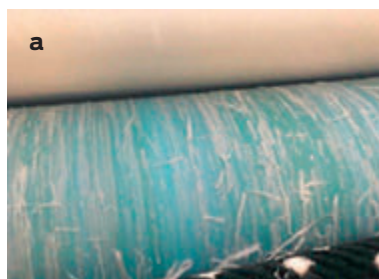
Properties H.impress for embossing back-up rolls

- Hardness 50 – 70 ShA
- Excellent resilience
- Outstanding elasticity for optimum adjustment to pattern on the embossing roll
- Flexible use for micro and macro embossing
- Excellent resistance to oil and grease

“ Roll systems by SchäferRolls - precision all round ”

Q.dura for marrying rolls: minimizing cleaning intervals while maximizing cover service life

Ply lamination can be particularly challenging. Not only do the layers have to be glued together properly, the results should also look good without compromising the bulk tissue paper achieved during the embossing phase. This is best achieved with narrow nips and short nip retention times. For easy handling, it is important that deposits of glue, dust or paper can be removed easily from the roll surface. Q.dura (fig. 4) convinces with its dehesive, dirt-repellent surface and excellent cleaning properties, for example on the Perini Line of the



► Fig. 5a -5b:
Roll cover from
competition vs.
Q.dura in the
same position.

producer Swedish Tissue from **Kinda**, Sweden, who previously suffered from extreme glue build-up on the marrying roll cover from a competitor. Furthermore, the separation of threads from the cover, due to the bond of oil, dust and glue contaminated the paper (fig. 5). Changing to Q.dura improved the situation by far: the cost-intensive and troublesome use of oil and scraper for cleaning became redundant, the cleaning intervals as such were increased while keeping a consistent high product quality. For applications using oil and a brush, glue deposits can be brushed off the roll surface effortlessly. With the right hardness setting, the cover ensures excellent ply bonding and high product quality in terms of bulk and softness. The outstanding abrasion resistance of the cover provides first-class runnability and an especially long service life.

Since the beginning of 2020, Q.dura has been the product of choice for customers looking for improvements in this position.

Customer satisfaction is now reflected in more than 50 different positions with customers including OEM's. ●

Properties Q.dura for marrying rolls

- *Hardness 90 – 98 ShA*
- *Excellent cleaning properties thanks to dehesive, dirt-repellent surface*
- *Outstanding resistance to oil, grease and petrol*
- *Stable nip conditions for excellent ply bonding and bulk*
- *Outstanding abrasion resistance for longer service life*

SCHÄFERROLLS GMBH & CO. KG

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■ **website:** www.schaeferrolls.com

■ **phone:** +49 7159-8060 - **email:** info@schaeferrolls.com

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Drainage elements maintenance to save energy: a case history by Oradoc MTK

By: ORADOC Srl

How to choose the right cover material

Frequently, zirconium oxide covers are to be preferred at (re)start, when the felt is new and not sufficiently moistened (and maybe nozzles are still not working) and the friction could damage both the felt and the covers, due to thermal shock. Zirconium guarantees a greater resistance and performance, preventing it from cracking, as it can happen with ceramic.



■ Overview of overhauled Uhle boxes.

■ Encrusted slats difficult to be detached.



■ Detail of damaged box structure.

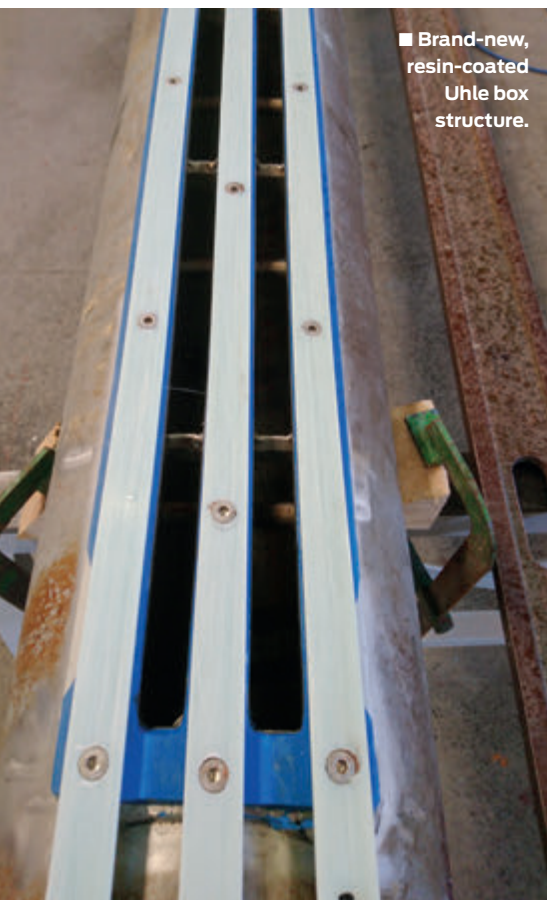


■ Detail of cracked ceramic cover.

Poor maintenance in the felt area can lead to extreme overall conditions, very serious drainage elements damage and significant lack of efficiency, not to mention a dirty or poorly conditioned felt; yet, preventive maintenance activities are

usually underrated and neglected. One of our customers, an Italian multinational company with several plants scattered all over Europe, asked for our intervention to assess the conditions of the felt area, as they noticed that one ceramic cover was cracked. Once onsite, our Field Engineers, along with customer,

decided that the best solution was to proceed with an in-depth control and repair of the whole *Uhle box*. The *Uhle box*, in fact, beside the cracked element, had heavy incrustations, which made it almost impossible to detach the T-bars and the ceramic covers, and it was collapsed in the lower structural part,



■ Brand-new, resin-coated Uhle box structure.



■ Adjustable supports for Uhle box.

“ Oradoc - boosting performances ”

which was originally in plastic. What started as a simple survey turned out to need a turnkey service: the Uhle box was dismantled and taken to our workshop, where it underwent an overall maintenance. Cleaning the inside of boxes is of critical importance: portholes facilitate this operation, which should be best carried out at least once a year, by thoroughly washing boxes with high-pressure water to remove all remaining paper pulp in an efficient way. Even the spaces between the slats are often clogged by encrustations, thus leading to less efficient conditioning, as the ceramic covers are compromised to the point of not being able anymore to correctly adhere to the felt in order to clean it, while the suction surface is considerably reduced. After having disassembled all parts, the box structure was welded again in

some cracked spots (which accounted for less efficiency), and the counter top was resin-coated to make it planar and make it easier for T-bars and covers to be inserted on it, in order to ensure perfect adherence and alignment to the felt. Finally, 3 brand-new slats in aluminium oxide were installed on the T-bars. The Uhle box was then installed, set-up and aligned on the paper machine. All these maintenance activities were carried out in 3 days as unplanned, extraordinary intervention, but taking advantage of an already scheduled stop: once again, **Oradoc MTK** timely service and logistical proximity proven to be an important plus in offering such maintenance services. After having checked and appreciated the previous maintenance intervention,

on the occasion of the following stop, customer asked Oradoc MTK to also proceed with the overhaul of the second Uhle box, which underwent the same treatment, to bring it back to its original aspect and efficiency. Moreover, Oradoc MTK proposed an upgrade of the current Uhle boxes structure by also installing adjustable supports, in order to make alignment and set-up a lot easier. The two overhauled Uhle boxes could then be back on track to work properly, guaranteeing not only a more efficient vacuum system and therefore less energy waste – as, using the same quantity of energy, the vacuum pump works exactly as it was dimensioned for, thus performing better – but also more uniformity in the felt conditioning, increasing its service life. ●

ORADOC SRL

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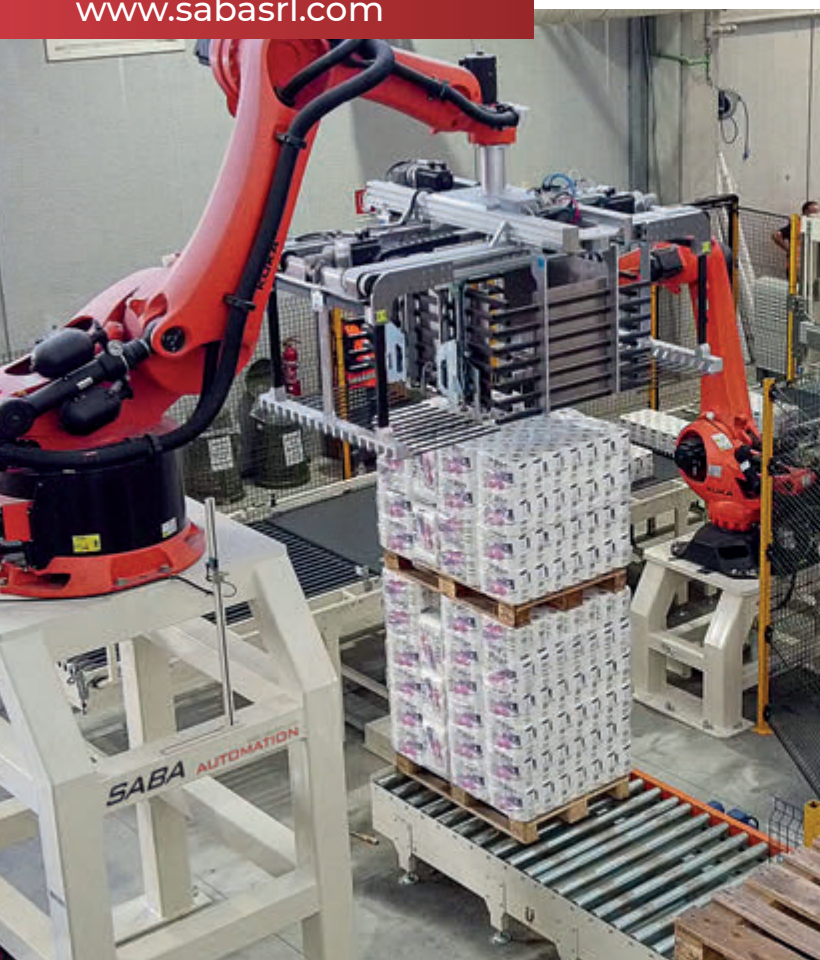
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LET'S ROLL TOGETHER!

By: MAXIMA Srl - Tissue Solutions

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

■ **MULTIFUNCTIONAL** embosser with automatic rolls change system.



“Let’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 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

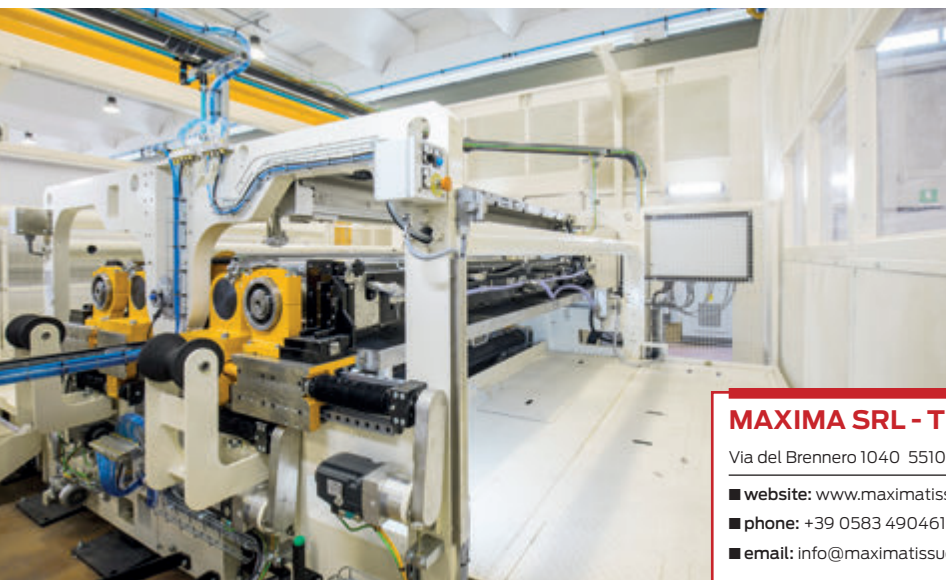
■ Final result of BULKTECH technology on finished product.



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.

▲ FLEXIBLE rewinder for professional products.

▼ PRINTECH unit in 2 colors configuration.



ALLMAX completes our portfolio of products. This is not only a “simple” mix of our COMAX and PROMAX features. MAXIMA goal is to provide 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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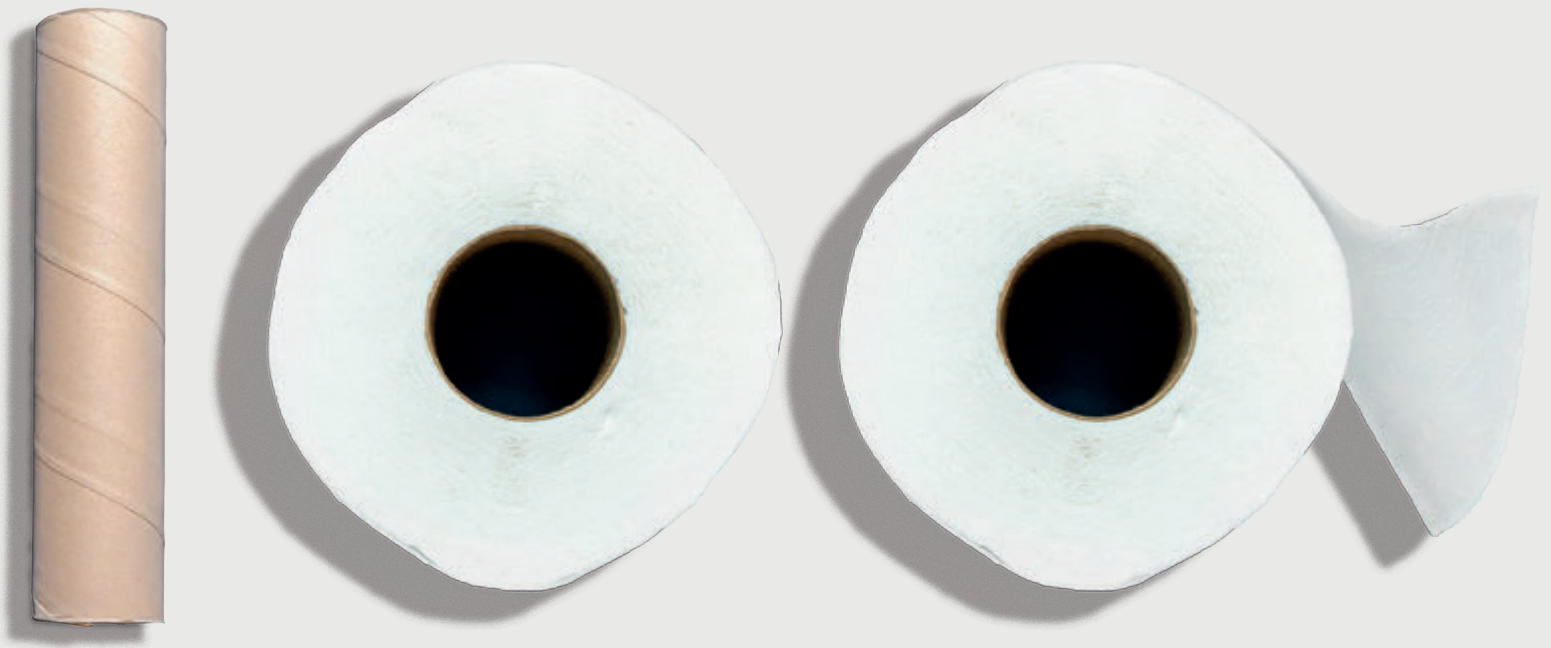
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OVERMADE: where energy saving experience belongs to DNA

By: Overmade Srl - Powermade Srl

The latest dramatical increase of the costs of energy, also due to international frictions, are pushing all paper mills to develop and urgently implement new road maps to improve the energy efficiency in the production lines.

If in the last years we could have observed energy prices volatility, lately the energy bills in the mills became the main headache. Parallely, the “ecological driven” requirements to reach the target of zero emissions are pushing towards solutions of lower and lower NOX and CO emissions in the production lines.

Both targets have been pursued since long by **OVERMADE** and **POWERMADE** so that we can simply state that energy saving belongs to our Dna. In particular we implemented in our latest installations notable solutions to reduce the electrical energy consumption in the forming area and the thermal energy consumption in the drying area.

The energy saving in the forming area is mainly passing through the formation performances of the headbox and former, while some design optimizations are possible in the approach flow system. The OVER experience in the tissue

“ We put at your disposal
our **know-how in all phases**
of your project ”







“ We develop **taylor-made systems** for tissue production and its specificities ”

forming has been the base of the latest developments of the new *DYNAFLO-C* headbox in connection to the OVER CR former. The obtained improvement of the fibers distribution permitted higher consistency operations with a consequent amazing reduction (up to 25%) of the energy consumption in the approach flow area.

From the thermal energy point of view, we devote resources to energy saving and energy recovery projects implementing air flows control tools and energy recovery systems. Managing and using all the available energy content of the air, the savings has been really attractive.

The drying of tissue is performed by using steam in the Yankee and high volumes of hot air (400/500 °C) in the hood. While air volumes are directly connected to air temperature, the evaporated water, that increase the humidity of exhaust air, is cooling the blown air to values of 250-300 °C. Flow, temperature and humidity of the impingement air are the key factors used in the POWERMADE drying systems to reduce the energy consumption, avoid over-ventilation and improve cross direction drying performances.

The generated exhaust fumes in any case contain huge amount of energy, NOx and CO: energy and pollution can be drastically reduced through a recovery system plant and the implementation of new generation of hot air gas generators.

In this way we reduce the specific thermal energy consumption and the so called “carbon taxes” implemented for a more ecological production. The available package consists in the supply of the new generation LOW-NOx burners in connection with a system to generate steam from the hot fumes coming from the hood exhaust.

The recovery steam generator can produce free of cost up to 25-30% of the total Yankee steam consumption. The POWERMADE *Recovery Steam Generator System* (RSG1) can be applied organically on all new machine but also on existing machine where the hood air system has to be rearranged to operate with the new recovery configuration while a steam plant integration will be necessary to let the use of steam supply coming from the new generator. On top of that a condensate recovery system can be updated to increase even more the energy efficiency. Where gas turbine is installed, the energy can be completely recovered from the exhaust of turbine.

A further increase in energy recovery can be implemented with additional cycles of recovery plants for hall ventilation heating and for water heating. At the end the final exhaust air temperature will be reduced to 50 °C - 70 °C. The projects are developed to satisfy the highest flexibility requests. From concept design to installation engineering, the compact and modular systems fit all layout and maintenance space requirement. With passion for paper and tissue manufacturing, we keep our promises for ECO and LOGIC Solution. ●



OVERMADE SRL

Via Mirandola 13 37026 Settimo di Pescantina (VR) - Italy

■ website: www.overmade.it

■ phone: +39 045 828 1111 - email: info@overmade.it

POWERMADE SRL

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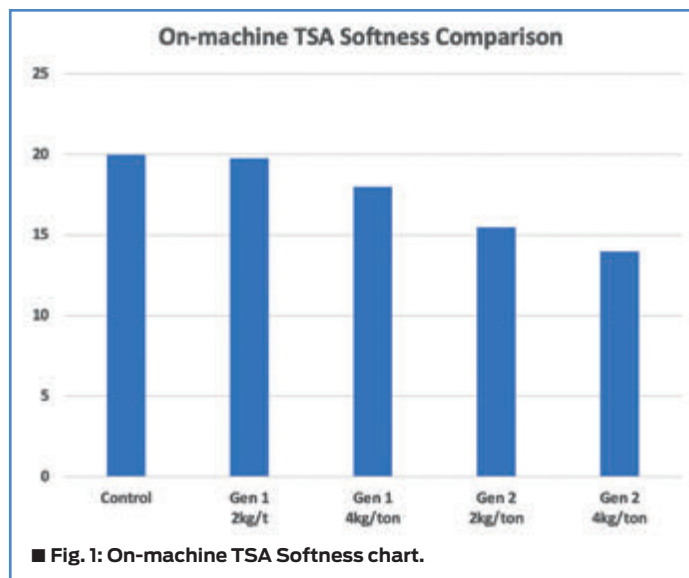
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For many years, the term “tissue softeners” referred to a simple class of products that could be more accurately described as “debonders”. Debonding chemistries do have the impact of creating a softer sheet in most instances, but this is achieved via the destruction of strength. Tissue softness is well understood to be inversely proportional to base sheet strength which is what made the original debonding softeners popular with tissue makers who had excess strength that they were not able to drive down to their desired target. This paradigm was a function of the main production platforms of the time, namely the pressure formers, inclined pressure formers and even twin wire designs of the day that most tissue producers had access to and used. These production platforms necessitated heavier basis weights in order to be able to successfully traverse the pick-up stage and to do so without holes and other defects. Many North American and European tissue producers were also using more local fiber sources and recycled materials which have higher inherent strengths than today’s eucalyptus pulps. For some producers, the combination of higher basis weight and stronger pulps meant that using a debonding softener was an effective solution for improving handfeel. With the expiration of the patents surrounding the crescent former, the industry underwent a steady conversion of their existing platforms to the crescent former machines.

These offered higher speed, lower basis weight and improved overall sheet formation and appearance than the older light-dry-crepe platforms. With the proliferation of eucalyptus pulps, most tissue producers could make tissue to their strength targets with creping and refining adjustments, negating any need for debonding softeners. As base sheet





Evolution of Tissue Softening Agents

By: Mark Christopher, Global Market Manager - Tissue, Buckman

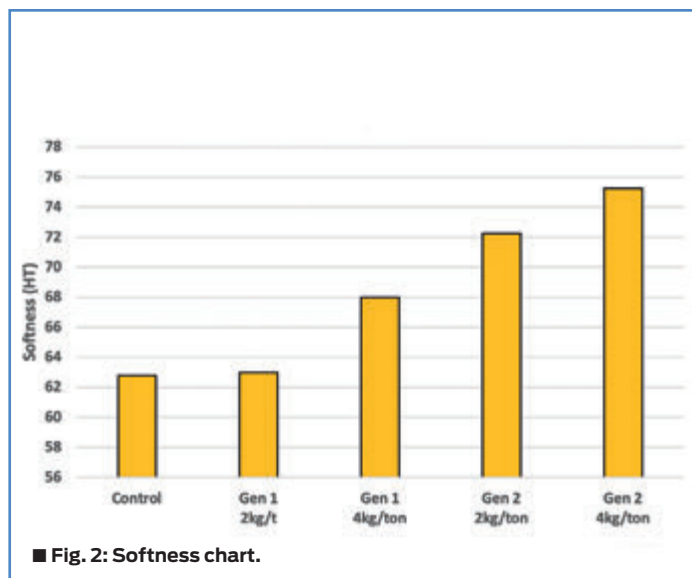
eucalyptus content increased to ever higher levels, up to even 100%, tissue makers found themselves often in need of more strength. Trying to improve softness via debonding softeners was no longer a viable solution. Debonding softeners are sometimes still used in machines with stratified headboxes, allowing tissue makers to debond only the top layer of the

sheet, or they spray the debonding chemistry onto the sheet while it is carried by the felt to the Yankee. These approaches allow for reduced impact on tensile while giving the outer layer of the sheet a softer feel.

These approaches have their drawbacks however. Debonding the Yankee side layer on a stratified headbox can result in higher dusting and pilling which produced customer complaints. Spray applications created sheet handling issues and reel build problems that hurt runnability and produced converting plant complaints. These issues and constraints are well understood by tissue makers, and they have been clear that they want a chemical alternative that:

- Could be fed easily to the wet end of the process.
- Did not impact Yankee coating or sheet handling.
- Did not cause uneven reel build or corrugation.
- Did not reduce the strength of the sheet.
- Provided a substantial boost in handfeel, as measured by the TSA and/or panel.

Early on attempts were made to use converting-type silicones in the wet end. The first product iterations attempted in this area suffered from a lack of dispersibility and fiber substantivity which both increased the amount that had to be fed and often resulted in machine deposition and high costs. Benefiting from the potential softness boost of silicones required significant chemistry and formulation work to circumvent the problems associated with amino silicone



■ Fig. 2: Softness chart.

“ Connected to **innovative technology** ”



use in the wet end. The most recent successes in this area have been achieved by creating custom formulations of water dispersible silicones that are also fiber substantive. The result is a clean wet end system and lower addition rates which reduce cost. The application of these sort of wet end softening products have provided up to 10 points of increased TSA to the tissue base sheet. When replacing an existing debonding-type chemistry, tissue makers benefit from significant cost reductions in refiner energy and dry strength resin use as well increased caliper.

Other ROI streams customers are leveraging include:

- Substituting for less expensive pulp while maintaining softness targets.
- Improving machine runnability by eliminating the spray-on softener application.
- Accessing private label contracts for higher softness products.

The industry is making use of these chemistries and we can expect that their adoption will continue to spread given their benefits over the older approach of debonding chemistries. ●

BUCKMAN

1256 N. McLean Blvd. Memphis, TN 38108 USA

■ **website:** www.buckman.com

■ **phone:** 1-901 278-0330

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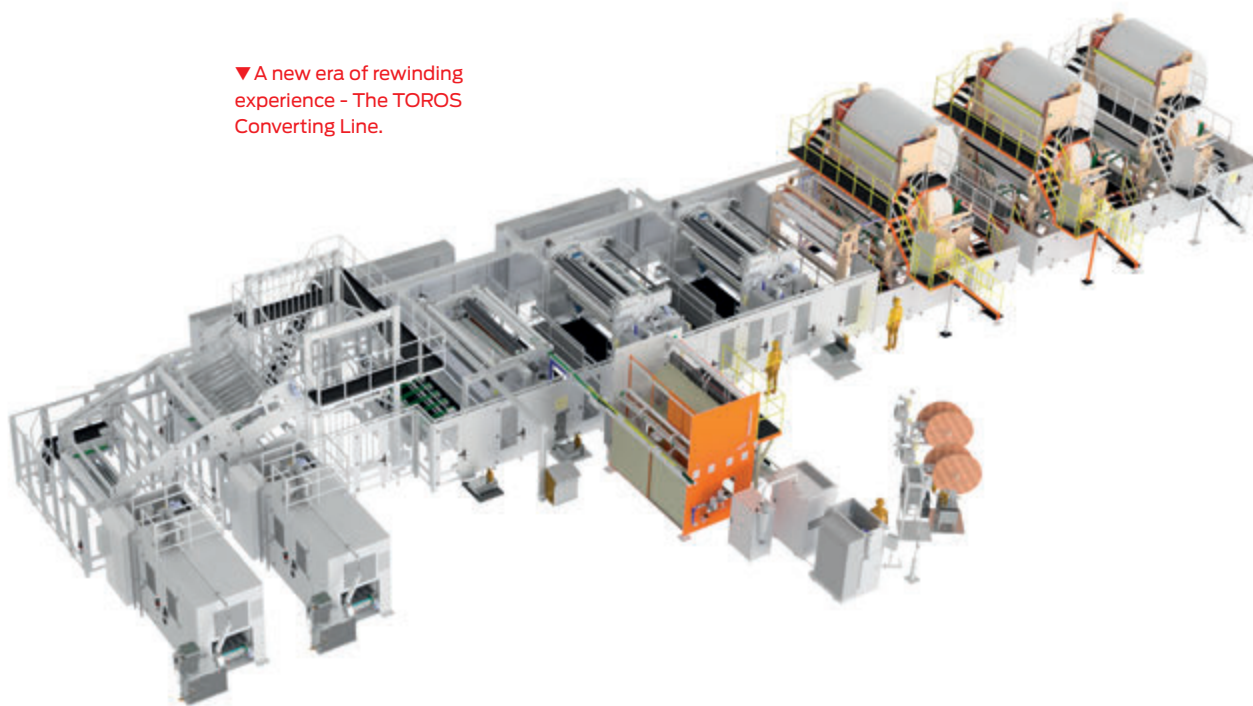
A new era of rewinding experience **TOROS**

“We suit you the best”

by: ICM Makina



▼ A new era of rewinding experience - The TOROS Converting Line.



CM Machinery proudly introduced in 2022 a new non-stop consumer rewinder line for customers in need of high converting capacity. The line performs 700 meters per minute of rewinding, equal to 40 logs per minute of log transfer with 270 cuts per minute of Logsaw capacity. The line is equipped with high-tech automation which allows end-user friendly operation of the complete line.

Moreover, main features that are supported with production instructions include quick job change, constant rewinding quality from first sheet until last sealed sheet, Safe Pneumatic, Safe Hydraulic, and Safe Drive (Safe-Speed Monitoring, Safe torque off). And it offers even more features like remote control, energy efficiency, and plug-and-use-device functions as basic line features.

“ **Success** is not coincidence ”

What inspired us to invent **TOROS**? Our customers needed a line capable of going to the sector limits and staying within a reasonable budget. TOROS is named after the Taurus Mountain chain, and it was our inspiration. We have designed it to include competitive, powerful and respect-worthy features in it. It is a priceless feeling to serve our customers the best and put into practice our R&D department's many years of experience in manufacturing machinery at ICM.

Company profile

ICM is pleased to celebrate its 25th anniversary this year. The company offers customers all of their needs for Rewinders, Folders, and Packaging solutions, from mother reel up to packaging. Our vast portfolio includes 24 machines

“ We offers customers **all of their needs** for Rewinders, Folders, and Packaging solutions ”



▲ Çınar Ulusoy,
Co-Founder.

divided in 3 segments: Eco Lines, Performance Lines, and Ultimate Lines. **ICM** has its own agency offices and branches all around the world and aims to serve the most outstanding service experience. Even during the pandemic, ICM resolved and filled all of their customer requests on time and with its own service team. ICM aims to create machinery with user-friendly technology and implement Industry 4 capability in its machinery.

Our company's in-house R&D facility and assembly production plants fulfill all of our customers' needs. Representative offices are located in Germany, Finland, Equator, Russia, Taiwan, and the USA. You can visit us at all MIAC, Tissue World Istanbul-Miami-Dusseldorf, PAP-FOR, and CIDPEX events.

- ICM is one of the 100 fastest growing companies in Turkey.
- According to 2020 data of the economy and business portal Turkish Time, ICM Machinery has been included in the review, "Research of 250 Companies with the highest R&D expenditures in Turkey."
- In 2020, ICM Machinery became one of the Top 5 Exporters of paper and printing machinery manufacturers in Turkey.
- 22 worldwide approved patent registrations. ●

▲ ICM Headquarters
are located next to
the beautiful Gulf of
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Is the quality of tissue you produce killing OEE on your converting lines?

By: Papertech



Industry 4.0 is all the rage amongst larger tissue producers and purports, amongst other things, to enable large-scale machine-to-machine communication such that individual manufacturing processes are no longer conducted in functional silos. Instead, holistic knowledge of all processes is to enable a continuous improvement cycle that drives different manufacturing performance measures, such as overall

equipment effectiveness (OEE) to new levels, ultimately improving the enterprise's earnings. Unfortunately, production "silos" without cross process thinking still exist even in the most advanced facilities. It is, for example, not uncommon that the quality metric on most tissue machines is to get paper with correct weight, moisture and perhaps caliper onto the reel without a web break. Anything that gets reeled can be placed in the warehouse

“ Our systems provides **fast and effective tools** for solving a wide range of production line issues ”



“ We are the **vision technology vendor** of choice for industry leaders in paper production in the world ”



and/or passed to converting. Little to no concern is given to how the actual tissue surface quality might affect downstream converting operations. The calculated OEE, a multiple of the tissue machine's availability, performance and quality of the product produced, will reflect an inflated value as the quality measure will be positively skewed. Production looks great while potential problems are transferred downstream. It is no wonder then that most converting plant managers see tissue production as their primary enemy in meeting operational targets. Tissue web defects such as holes, edge cracks and creasing can cause web breaks in the converting line, glue contamination, embosser wrap ups and other process problems. Converting line performance will suffer the most, but also line availability and quality. OEE can often seem stuck at levels below 50% – the room for improvement is almost always huge. But, are line operators or converting plant managers to blame? The answer is typically a resounding No! Fortunately implementing better tissue machine quality control, tissue machine-to-converting line communication and converting line quality control is not difficult today. Papertech's TotalVision web inspection and web monitoring solution makes true quality readily apparent and will assist production to:

- Detect and classify defects and mark their locations on a reel defect map.

- Provide the ability to trace defects to their root cause with visual information.
- Provide the ability to detect repeating defects and to match these with machine components that exhibit the same or similar rotational frequencies.
- Provide the ability to determine the root cause of web breaks or other visible process problems.
- Provide the ability to differentiate between dust and the actual web so that only true defects are recorded.
- Provide the ability to pass parent reel quality records to downstream processes.

Most importantly, *TotalVision* will prompt action to improve quality as the corrected machine OEE will beg for upward adjustment. Tissue machine-to-converting line communication is made possible via Papertech's *Slow-on-Defect* solution, which allows for automated control of the converting line speed based on the classification of reel defects that are to pass through the converting process.

Slow-on-Defect will have a big impact on converting line performance, but also on quality (e.g. by allocating parent reels of better quality to outer plies on a multi-ply product) and on line availability (e.g. by avoiding line setup events). Converting line OEE can be further optimized via Papertech's QualityVision solution for online quality inspection that:

1. Inspects the base tissue web, embossing and print and provides immediate quality feedback.
2. Provides a final product quality record.
3. Assists in rapid embosser and printer setup.
4. Eliminates setup waste and reject waste.

Papertech's cross process solutions make some of Industry 4.0's promises reality today. The "wall" between tissue production and converting is being broken down with very positive results.

Significant OEE increases on tissue machines and converting lines are not uncommon and investments in Papertech's tissue solution set are often paid back in less than 6 months.

Papertech welcomes collaboration with all those endeavoring to improve the future of tissue making.

Please contact us for more information. ●

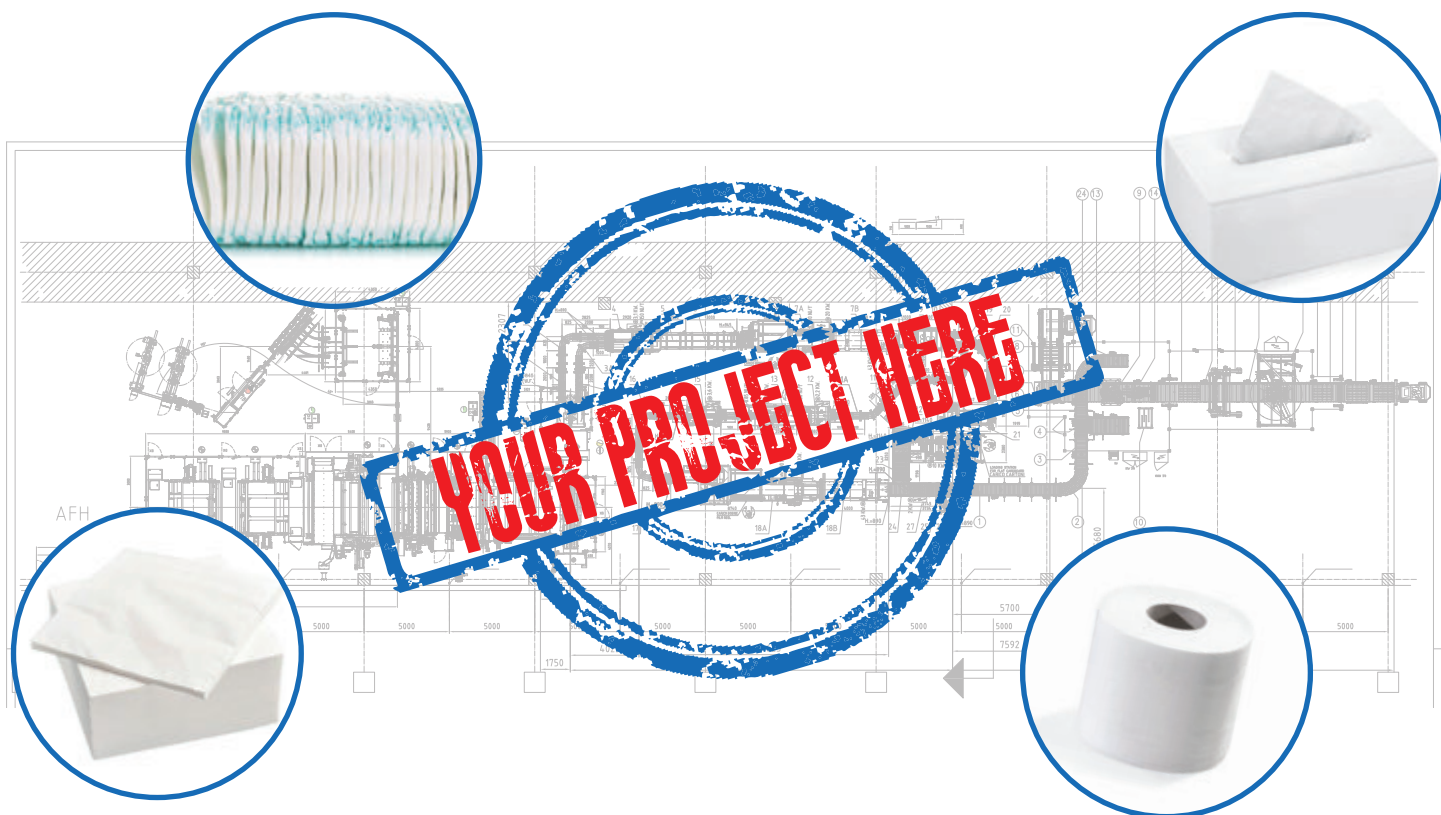
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Hauptstraße 22, 8833 Teufenbach-Katsch

■ **website:** www.papertech.ca – www.ibs-ppg.com

■ **phone:** +43 676 5045439

■ **contact person:** Adolf Wachter - **email:** a.wachter@ibs-austria.com



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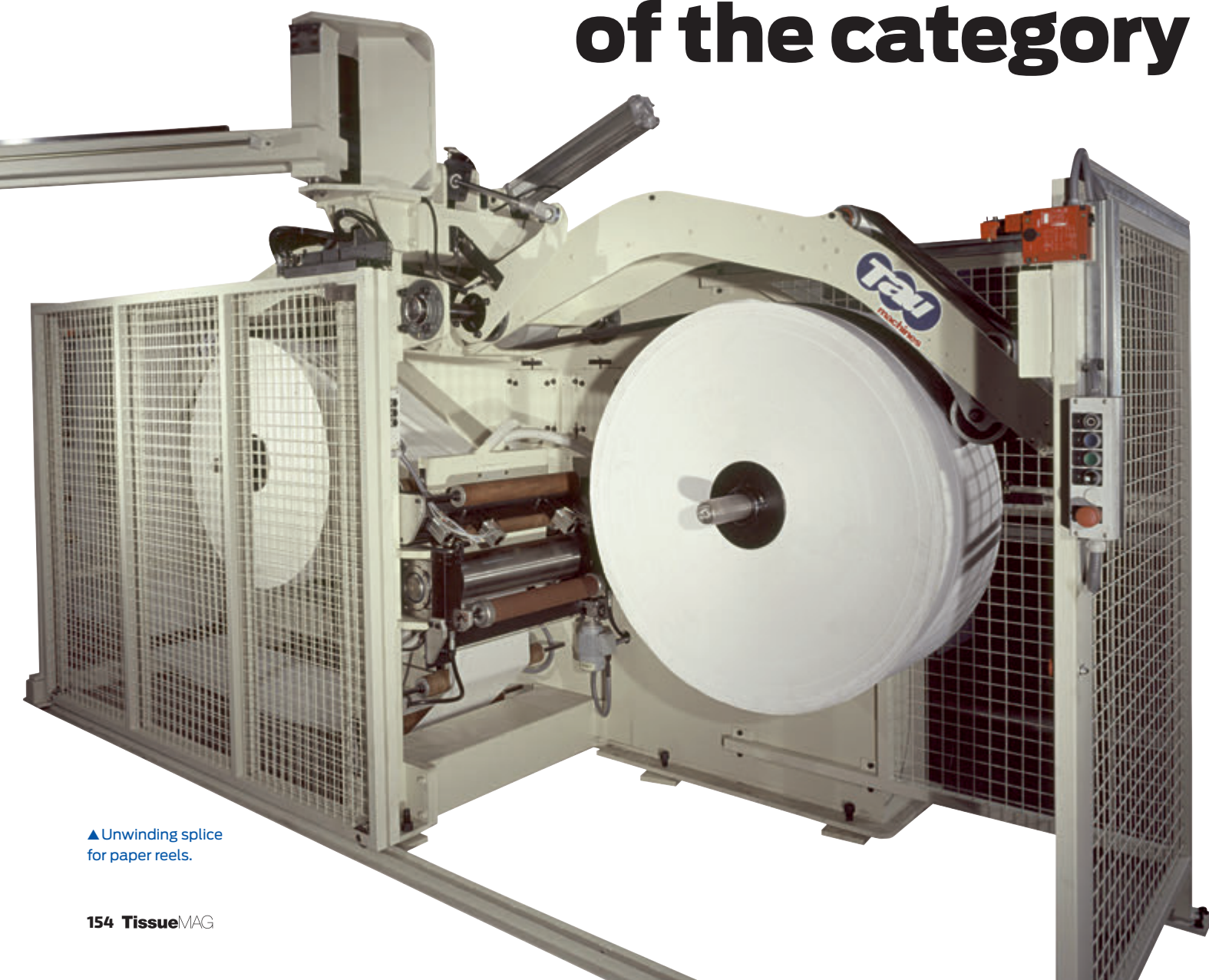
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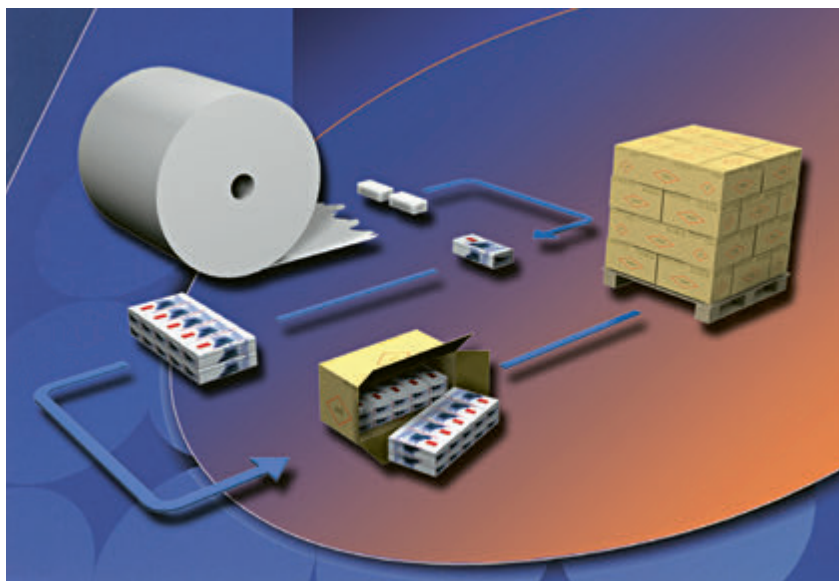
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▲ Unwinding splice
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Tau Machines has always offered the maximum flexibility, performance, reliability and still continues to develop its machines with passion to maintain the lead in innovation. by: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

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

▲ Product flow layout.

▼ Multiple packs bundle machine CS-80.

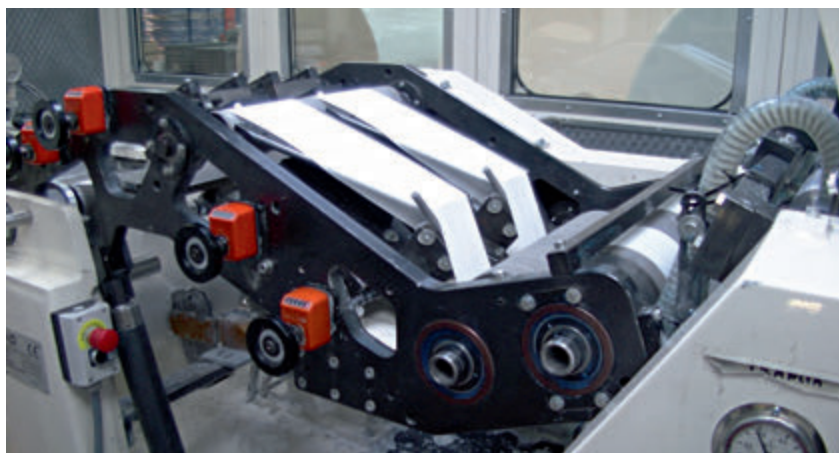


through a computerized system; fast changeover system between “pocket” and “compact” packet formats. Our tradition of leadership in this technology along with our motto “there is no limit to doing better” has continued over the years and has led to the medium-sized machines supplied to our customers 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 20-25% lower than that of our direct competitors. Our packaging can also use 100% recyclable paper and film, which has led to significant cost savings and a high degree of environmental friendliness.

For new line, **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



▲ Paper web embossing unit.

◀ Longitudinal folding unit.

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

“ Machines designed for the needs of the customer, with an **eye to the future** ”

and print layouts compatible with all machines currently on the market. Further development was made in the packaging management and fast automatic change of the bundle size, by means of a product label management system, on the machine control panel or in remote mode. ●



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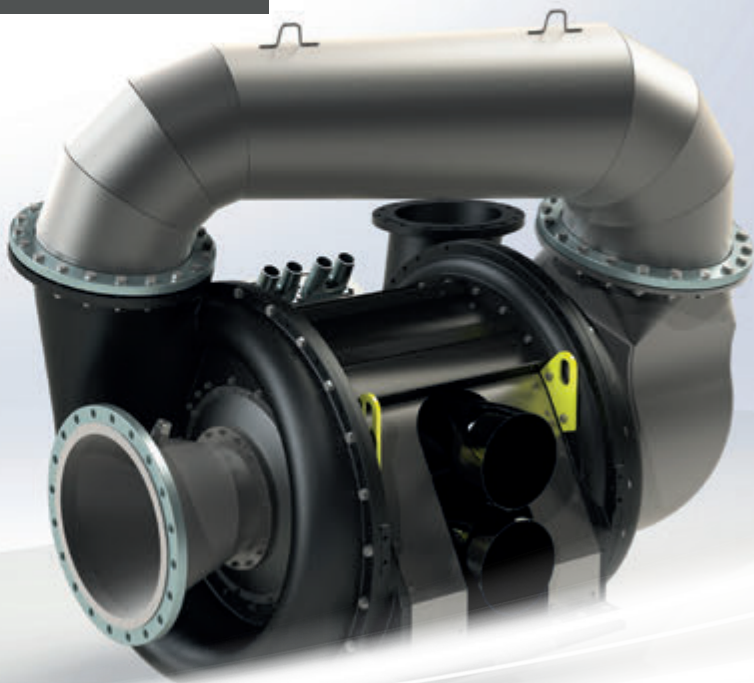
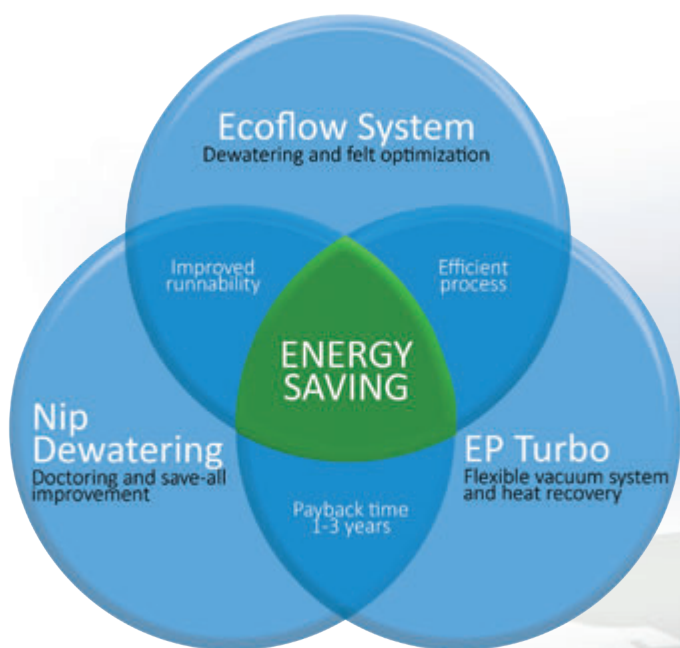
Cost of energy saved

45%

Energy saving in average

900

RunEco Turbo Blowers

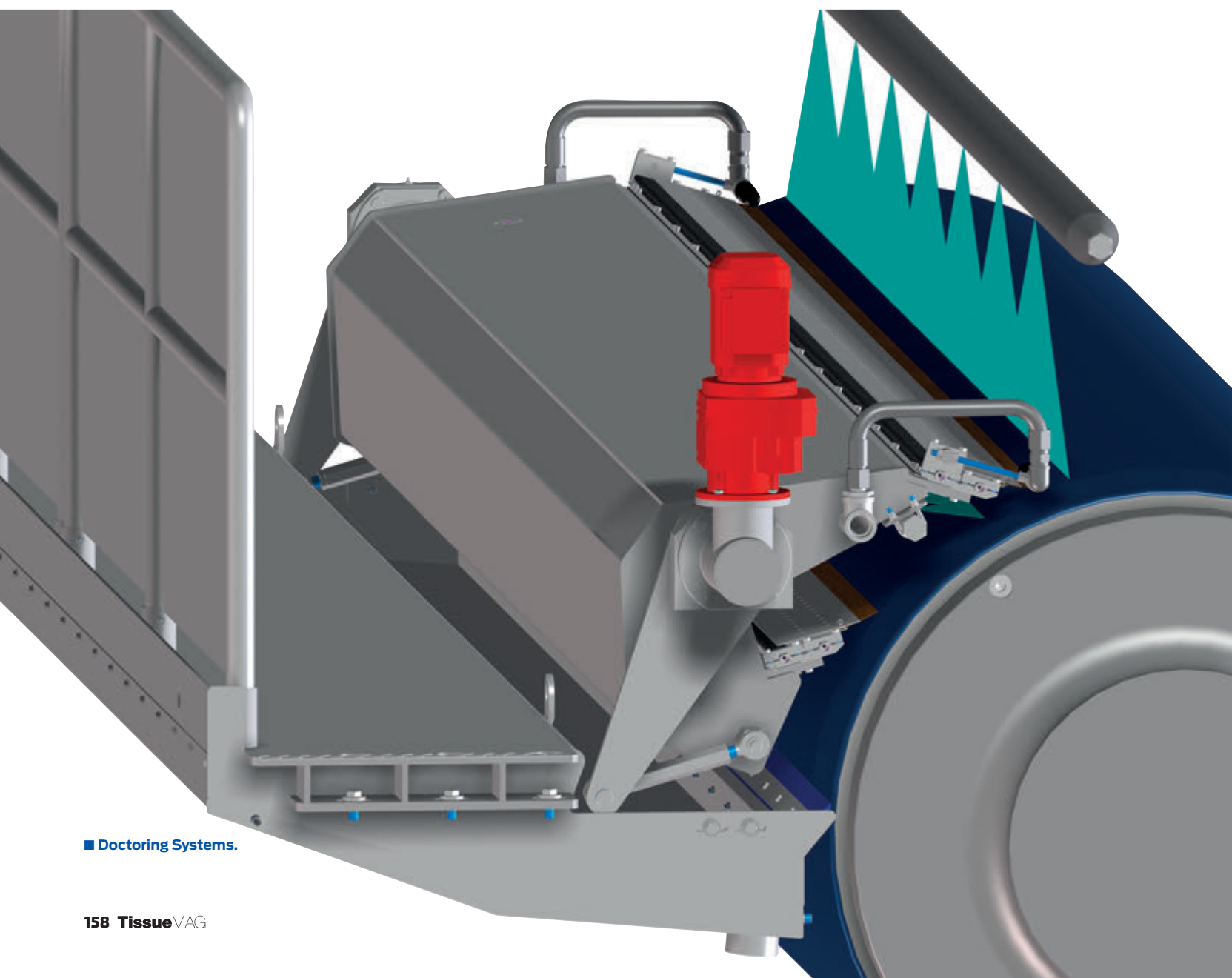


BONETTI

doctoring the world

Doctoring is an extremely important activity of the paper production process however it is often underestimated and neglected.

by: Bonetti SpA



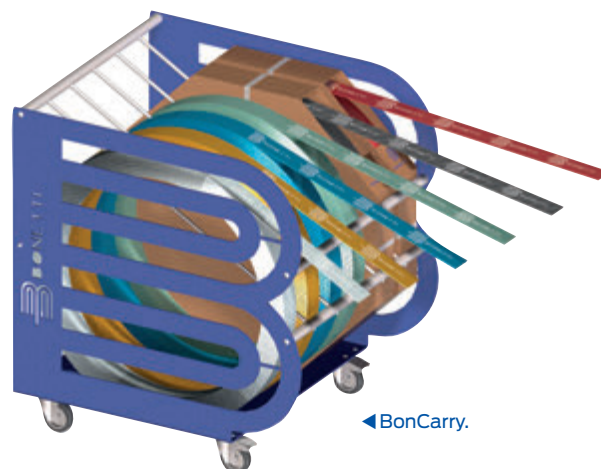
■ Doctoring Systems.

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

Despite a rather fragmented offer in the world, the supply of quality blades is now the prerogative of a very limited number of suppliers such as Bonetti, who must not limit itself to supplying a “blade in a box”, but must offer customers a complete 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. Established in Milano, Italy in 1923, **Bonetti S.p.A** has favored since the 1980s 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 which were the only available ones at that time. Today, the full product line of the Bonetti blades include all the qualities and materials currently used in modern paper making.

A good example of Bonetti's research for the best is the Leopard blade that was developed from a 100% carbon material, adding special additives in the resins resulting in a blade with considerable rigidity in cross direction and wear resistance superior to other materials on the market. The success achieved on the central presses and first driers of many paper machines in the world market paid off Bonetti's investments in research and development. To achieve a better cleaning of the dryer cans over the years Bonetti has developed doctor blades in fiberglass - BR Abrasive - with abrasive 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.

Choosing the right blade, however, is only the first step for an efficient doctoring action: the 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. First of all, the doctor body or beam must be designed and built with the care and experience of a doctor specialist because it must take into account all the elements involved, such as cylinder width and diameter, available space, frame configuration, speed and



“
Bonetti has been **successfully**
supplying the pulp and paper
industry since more than 50 years
”

frequency of the machine, etc: each of these factors differs from machine to machine and requires the attention of an engineering doctor specialist to ensure the minimum possible deflection and the lack of vibrations to hold the blade under load in the correct position and in straight line. Machining the nose bar of the doctor body in its working position is essential to guarantee an optimal result, but at the same time makes it clear how the use of the beam in a position other than that for which it was designed is highly inadvisable.

Beams in painted carbon steel or in 316L stainless steel can be single, double or twin. Bonetti doctors have a box-like shape and never an angular one to better guarantee the solidity of the structure. The design of some systems may include a tray, designed to collect debris out of internal wire rolls, upper rolls in the press section, suction rolls. Some of these trays in the press section are heated to eliminate condensation. For these and other reasons Bonetti does not use standard shapes, but designs and manufactures the doctor bodies that are tailor made for each specific position of the paper machine.

While the rigid blade holder such as Bonfirm or Bonfirm Super requires only perfect profiling (often neglected in the dryers of older machines), the flexible blade holder, in order to keep its superior advantages, must be carefully maintained by taking care of periodic cleaning and alignment to avoid sheet skipping or other doctoring problems.

In the drier section these can be caused by thermal movement when steam is injected, at the breast roll when wire is tensioned, in a press section when the nip pressure and / or a steam box profiling is applied, on calender rolls

► BonMatic.



to satisfy the oscillation needs of the most demanding doctoring and creping systems. Papermakers do not have to worry about the air consumption which is minimal even if the 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 by Bonetti, which continually satisfies requests to replace old oscillators with these new generation ones. Bonetti mainly uses self-aligning ball bearings that are produced in the factory north of Milan: with just a simple periodic greasing, they offer unparalleled durability and

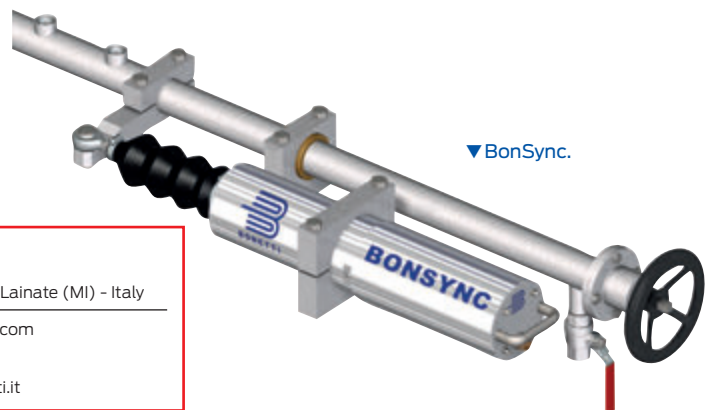
“ Bonetti’s success has always been based on a **timely response** to the needs and demands of the markets it serves ”

when caliper control is used, etc. Flexible or self profiling holders like Bonetti’s Boniflex Super are needed in these cases to ensure a correct profiling during operation, without any manual adjustment. Paper makers have lately started enjoying Bonetti’s retractable holders which have proven to be needful to solve access problems in areas like presses or dryer cans where maintenance and cleaning are often physically impossible. Bonetti strongly supports its customers with surveys that can check that the working angle is that of the project on the entire width of the roll and confirm the overall good functioning of the doctoring system.

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. For this reason Bonetti offers its Bon70, Bon 140 and Bon 250 tubes, each with a temperature resistance suitable for the different positions of the paper machine. The oscillator is also an essential component of the doctoring system: stationary doctors cannot guarantee the result of cutting the material (sheet or dirt) 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 equipped with an eccentric to transform the rotary motion into linear motion are the most common ones. Their maintenance is often neglected and frequently one can find stuck oscillators with burnt motors or worn eccentrics.

On the strength of these needs Bonetti has developed a pneumatic oscillator, the *BonMatic*, that only requires a single air supply line and no external control panel. In both the light and heavy duty versions, it offers considerable thrust, able

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. Wherever possible Bonetti suggests the use of showers which have successfully entered the Bonetti product line after a long development in the field with the help of papermakers. Bonetti’s shower solutions can be equipped with a cleaning brush and 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 by itself 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 now how essential is to use blade suppliers able to suggest the best solutions: Companies like Bonetti which boasts decades of experience working with paper mills and paper machine manufacturers all over the world. ●



▼ BonSync.

BONETTI SPA

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■ website: www.bonetti.com

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BAOSUO ENTERPRISE GROUP

enters the Middle East market with a Turnkey Solution and continues to provide solutions for the Chinese market

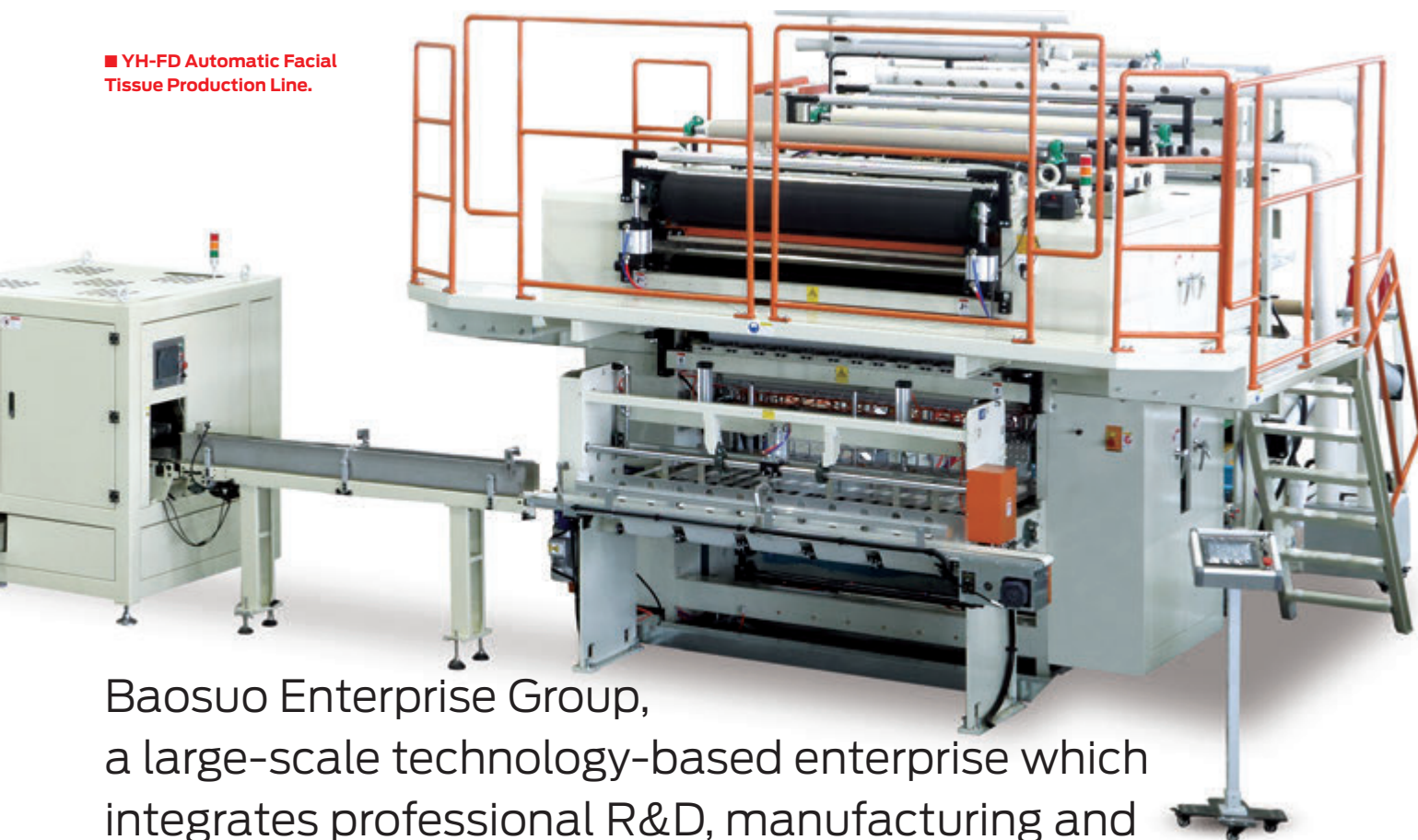
A leading light industry enterprise in a country in the Middle East announced a new high-end household paper industrial project with an annual output of 35,000 tons (the first phase is 17,500 tons, the second phase is 17,500 tons). At present, the company has signed a package purchase contract with **Baosuo Enterprise Group**, covering the overall supporting equipment of this project from paper making, paper converting to packing. The first phase of the overall supporting equipment can meet the daily production capacity and requirements of 50-60 tons/day of high-end household paper, including: one set of pulp preparation system with a daily output of 60 tons of commercial pulp; one set of 5,000 tons/day of white water recovery and

filtration system; one set of BC1300-2850 Crescent Former Tissue Machine; one set of PF-EA3000 Automatic High Speed Jumbo Roll Slitting Rewinder; one set of PL450C Non-Stop Toilet Roll/Kitchen Towel Rewinder Line; two set of YH-FD1500 Automatic Facial Tissue Production Line and multiple sets of automatic packaging systems for all converting production lines, etc.

A spokesman for Baosuo said the project was an active step towards establishing the Belt and Road Initiative, a global infrastructure development strategy adopted by the Chinese government in 2013 to invest in nearly 70 countries and international organizations.

He said: "The Middle East is the intersection of the ancient land and sea 'Silk Road' and the key area for the

■ YH-FD Automatic Facial Tissue Production Line.



Baosuo Enterprise Group, a large-scale technology-based enterprise which integrates professional R&D, manufacturing and sales of paper making equipment and tissue converting machinery. We always adhere to the business route of basing on the China market and going global. In 2021, Baosuo Enterprise Group entered the Middle East market with a turnkey solution.

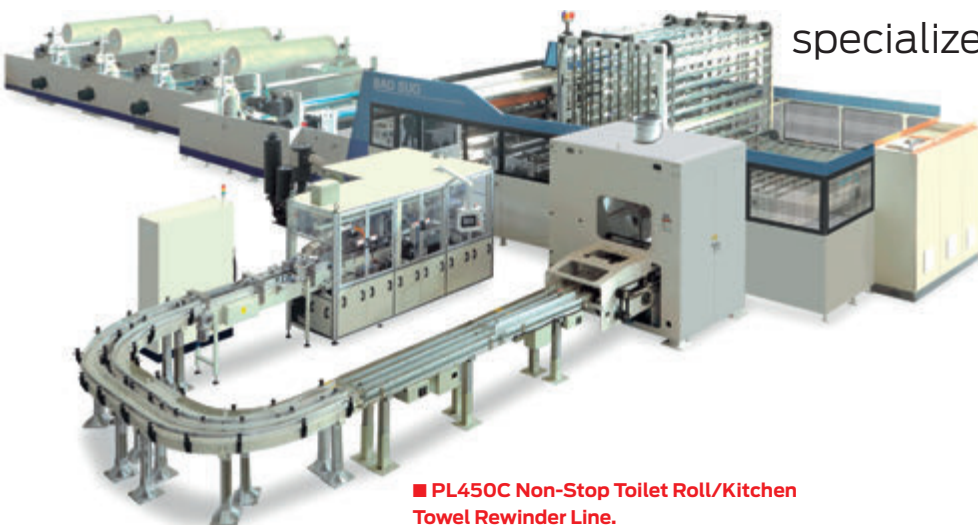
by: Baosuo Paper Machinery Manufacture Co. Ltd.

implementation of the Belt and Road initiative today." In addition to the global market, Baosuo mainly provides turnkey solutions of tissue production for the Chinese market. A signing ceremony for the second phase of the high-speed paper machine project between Yunnan Nan'en Sugar Paper and Baosuo Enterprise Group was successfully held in Xiping, Yunnan on March 5, 2021. This is the second cooperation between Baosuo and Nan'en. Before that, the company has signed the first paper machine in May 2020, and started production earlier than originally planned on December 27 of the same year. The paper machines are supplied by Baotuo Paper Equipment Company, which is one of the subsidiaries of Baosuo Enterprise Group. Less than two months after the first phase of the project was put into production,

Nan'en Company once again cooperated with Baosuo and signed the second phase of the project for expansion. 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. The 1st and 2nd Baotuo paper machines are Crescent Former Tissue Machine type, model BC1300-2850, with a paper width of 2850 mm, and a design speed of 1300 m/min.

The two paper machines of **Yunnan Nan'en Company** use self-produced bagasse pulp, bamboo pulp and eucalyptus pulp as raw materials to produce medium and high-grade household paper jumbo roll. According to the individual needs of Nan'en Company and the application of the 1st paper

“ A well-known corporation which specializes in machinery for tissue ”



■ PL450C Non-Stop Toilet Roll/Kitchen Towel Rewinder Line.

output of 102,000 tons of pulp, 102,000 tons of jumbo roll paper, and 102,000 tons of final paper. The excellent enterprises can always receive the attention and appreciation of major groups which leads to the realization of mutual benefit and win-win cooperation. Baosuo will continue to cooperate with major China household paper manufacturers, such as C&S Group, Hengan Group, Shaoneng Group and Lee & Man Group this year.

Some projects in the first quarter of 2022:

1. C&S successfully put Baotuo the 4 crescent former tissue machine into production in its Tangshan production base in March 2022.

2. Hengan Group has signed a contract for BC1800-3650 crescent former tissue machine in February 2022.

3. Sun Paper Co., Ltd. has signed a contract for two crescent former tissue machines in January 2022.

Baosuo Enterprise Group will always provide the industry's turnkey solution of tissue production in today's market - from tissue making, converting to packaging. Our rich experience in mechanical design, manufacturing and service will keep your business moving and make your business stronger. ●

machine in non-wood pulp, Baotuo further optimized and upgraded the 2nd paper machine:

1. The inline low-concentration sizing and slag removal system is upgraded, which effectively solves the influence of impurities in the wet pulp on the forming.

2. The optimization of the wet end shower system not only improves the cleanliness of the paper machine clothing, but also ensures the air permeability of felt and moisture of the web, which provides a guarantee for the stability of the whole machine.

3. The hydraulic headbox is upgraded according to the morphological characteristics of bagasse pulp fibers, thereby increasing fiber retention and improving the uniformity of the product.

In the end, the 2nd **Baotuo** paper machine started production in Nan'en Company on July 30, 2021. The project took less than 5 months from the the signing of the paper machine contract to the successful operation, which fully reflects the efficient execution and team cohesion of the project cooperation between the supply and demand sides. It is reported that Nan'en now has an annual production capacity of about 40,000 tons of sugarcane pulp and bamboo eucalyptus pulp. Since the end of 2020, the price of international commercial wood pulp has been rising all the way, which has ushered in opportunities for Nan'en and other pulp and paper companies in the industry. In order to achieve the corporate goal of high-quality development and meet the needs of transformation and upgrading and planning and development of the sugar paper industry, Nan'en Company is planning a transformation and upgrading project with an annual



■ Baosuo Enterprise Group Sanshan - Headquarters.

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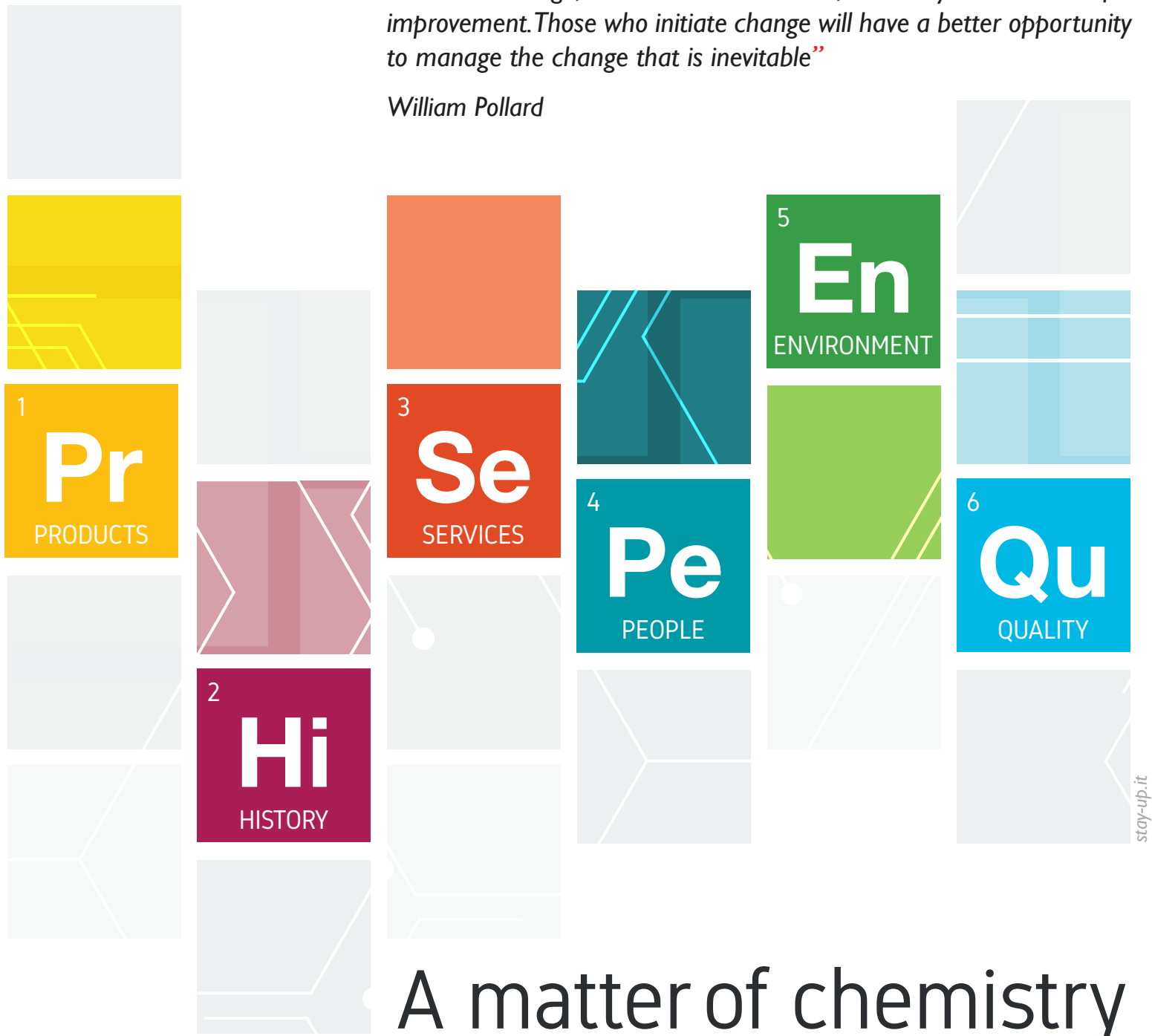
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experience *the alternative*

“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

Precision engineered solutions in fluid handling and control



▲ Centrifugal fan with backward curved blade impeller.

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 the K08 MS and K10 MS 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. They can also be used in the printing sector inside the ovens to keep the air temperature high, allowing the adhesives to dry after the coating phase in combination with the Windblade™ air knives, and to vacuum the solvents used in cleaning the rolls.

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 jets of pressurized water. The conditions are particularly severe: high intake temperature, simultaneous presence of air and water vapor, very small particulate matter.

The developed solution incorporates a set of technical and technological adjustments that make the **FPZ** blower reliable and robust (from the dimensioning of the clearances as well as the side channel, to the choice of materials, surface treatments, bearings and seals).

“Every day we take **steps forward** to improve our customer's satisfaction”

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.

by: FPZ SpA



▲ Single impeller single stage blower with direct coupled motor, ideal for working in paper mills.

“ FPZ, Doseuro, Arivent - 3 products areas, a common spirit ”



▲ Rapida 2.0.

DOSEURO: METERING PUMPS

Doseuro is the business unit specialized in pumps and systems for dosing chemical, acid or basic products. For over 40 years it has assisted entrepreneurs from all over the world operating in the paper and printing sector.

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 (JSO) 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 (1.5cm) for single or dual metering pumps and inlet and outlet discharge piping. The inlet piping includes an isolation ball valve, a Y filter and a calibration pot while the discharge piping includes isolation ball valves, pulsation dampeners, back pressure valve, relief valve and pressure gauge with isolator. The *JustSwitchOn* panel is an excellent

pre-configured 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 (4-20mA as standard or 0-20mA / 0-10V / 2-10V as an alternative, ModBUS RTU or pulses). “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. Rated power ranges from 0.25Kw to 0.75Kw and has a base frequency range from 6 to 60Hz that can be extended up to 100 Hz. 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. This is a complete solution, manageable in total security by the user through password-controlled access.

ARIVENT - INDUSTRIAL FANS

Arivent produces centrifugal fans, generally used for the transport of clean, dusty, corrosive and abrasive air and gas, and axial fans for both civil and industrial applications. Arivent fans are used in service plants in the paper and printing industries. 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 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. For these specific applications Arivent guarantees airtight fans with PTFE gaskets, in order not to disperse polluting gases into the environment. According to the customer’s request, fans with ATEX certification can be supplied.

Conclusion: Every day FPZ tries to simplify the life of its customers by offering intelligent solutions in fluid handling. ●

FPZ SPA

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Bolzoni Auramo **developed the** **perfect clamp for** **handling tissue** **paper rolls**

By: Bolzoni Auramo AB



Tissue paper trends

The global Tissue Paper market is constantly evolving and presenting new avenues to stakeholders. This market is expected to grow significantly in the next years, in fact, tissue paper products, play an important role in modern life. Especially at this time in history, as they contribute to improve hygiene. Tissue evolving market has stimulated manufacturers to develop new products. To come up with the best and innovative solutions for the forest products handling, Bolzoni Auramo is closely cooperating with the paper industry worldwide. This makes the company the most reliable partner in paper roll handling. In fact, for the lift truck operator, tissue rolls, are bulky and can be easy to damage: this is why **Bolzoni Auramo**, forest product handling specialist, has developed a specific clamp for this special application.

The right clamp for tissue paper rolls

Bolzoni Auramo provides the best and innovative solution to handle the rolls without damage and in an effective way. Considering all of these important proprieties, Bolzoni Auramo, market leader in sales of paper handling tools in Europe, created a complete range of well-designed and strong tissue paper roll clamps with capacities starting from 1.500 kg up to 6.000 kg (3,000 to 13,000 lbs.)



“ A wide range of products utilized in industrial material handling, in particular lift truck attachments, forks and lift tables ”



and with roll diameters up to 2.700 mm (106”) in standard series. A dedicated tissue paper roll clamp has several advantages over a standard paper roll clamp when handling tissue paper grades. Tissue clamps are always built to be able to handle large diameter rolls; they also have higher and wider contact pads to reduce surface pressure on the soft paper.

Contact pads

Bolzoni Auramo knows that **contact pads** are the most important part of the clamp attachment. In most normal handling situations, the pads are the only parts of the clamp that actually are in contact with the paper roll. Therefore, Bolzoni Auramo has paid special attention in designing and manufacturing contact pads, which will ensure safe and non-damaging tissue roll handling.

Designed and dedicated clamp: AR-RT tissue paper roll series

The AR-RT series clamps are designed and developed to have superior visibility, great rotating speed and to be operator-friendly. Its main features:

- Higher and wider contact pads to reduce surface pressure on the soft paper.
- Rotating paper roll clamp for vertical and horizontal roll handling.
- Arms and contact pads have smooth rounded surfaces and corners all around to reduce the possibility for the clamp damaging the roll.
- Effective and robust 180-degree rack-and-



“ We are Bolzoni, the **material handling** group ”

pinion rotation system. Hydraulic cushioning in the vertical end position.

- All hydraulic functions protected with built-in pressure relief valves.
- Flat spot compensation.
- Built-in pad and arm protection.

Bolzoni Auramo's tissue paper roll clamp is engineered to suit the application needs. The new challenge for companies that want to embrace the Industry 4.0 philosophy is



automation. Bolzoni Auramo invests in the development of products dedicated to *Automated Guided Vehicles*: even in the handling of tissue paper rolls Bolzoni Auramo designs dedicated equipment.

Worldwide support

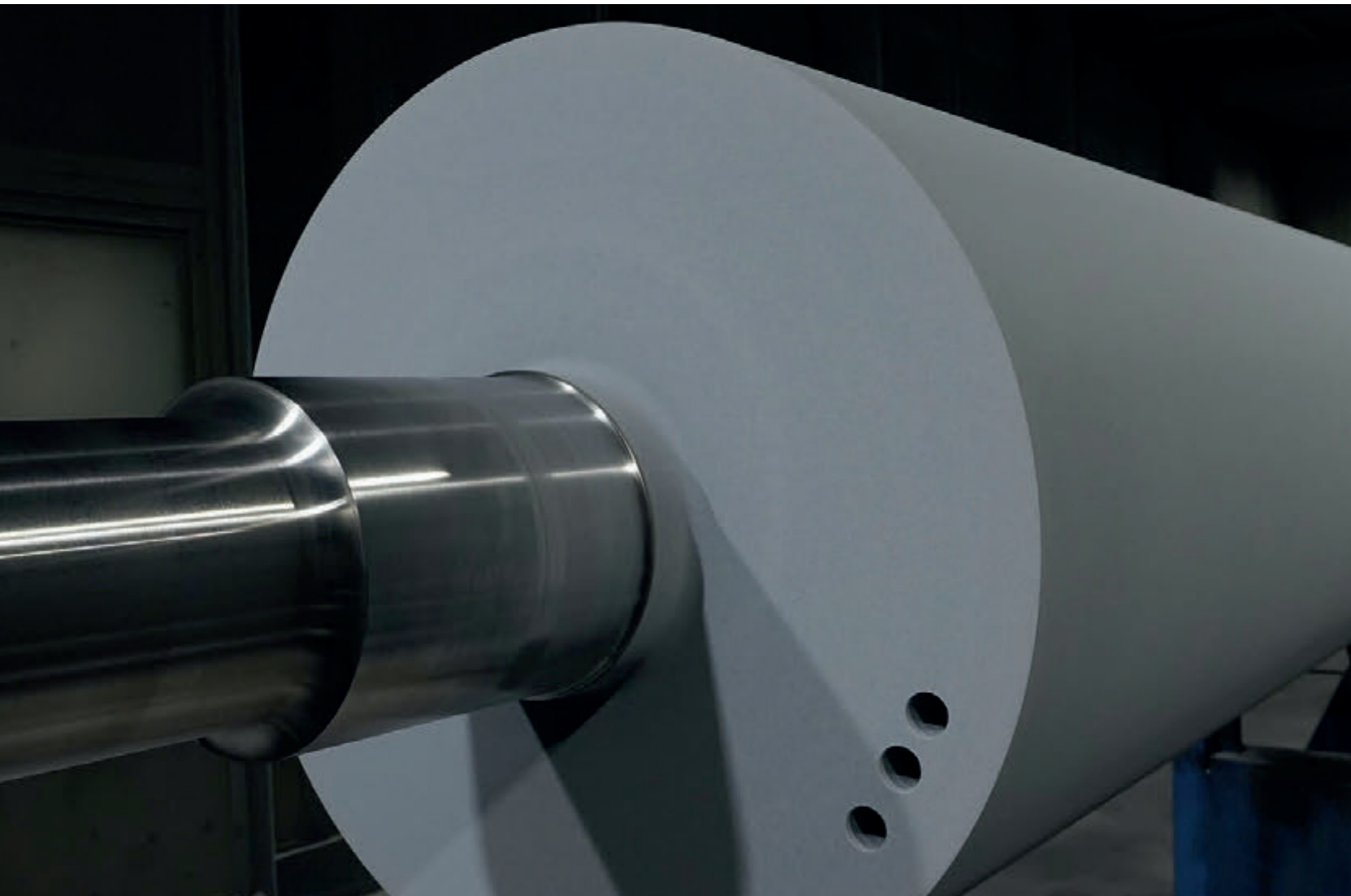
Bolzoni Auramo operates on all continents and on all main pulp and paper manufacturing and transportation sectors. Thanks to the far-reaching service and support network, Bolzoni Auramo can assist customers with any service, rental, spare parts and service training on how to reduce damage when handling paper rolls. Bolzoni Auramo is a market leader in the production of forklift truck attachments, lift tables and forks.

The company has manufacturing plants in Italy, Germany, Finland, America and China and through its network of direct branches and independent dealers covering all continents; it is able to satisfy all market requirements. ISO 9001 Quality System certification proves Bolzoni Auramo's commitment to continuous improvements in quality and efficiency in order to provide the best product and service support to customers worldwide. ●

BOLZONI AURAMO AB

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“ A range of counterbalanced electric forklift trucks which can provide **top performance levels** with considerable savings on running costs ”

The success of Carer trucks in paper industry

By: Carer Forklift

In recent years, Carer electric trucks have established themselves in the panorama of material handling as the ideal machines for the storage and handling of paper. For these applications, mainly carried out in indoor structures, where reels of 2.5 tons and up are handled (up to 6 tons in some special applications), trucks with 6 to 9 tons of capacity are required: thanks to the versatility of its electric trucks, with performance in all respects comparable to that of diesel machines, **Carer** has established itself on the market in the paper sector, distinguishing itself from its competitors. The reasons for this success depend on a combination of factors:

- the compactness of Carer trucks, with lengths even half a meter shorter than their competitors, which guarantees greater maneuverability when maneuvering in confined spaces;
- high performance, which allows Carer electric trucks to compete directly with those driven by diesel engines;
- the wide autonomy of use, which ensure a significant reduction in operating costs;
- the absence of harmful gas emissions, vibrations and noise, with significant benefits for

the environment and the health of operators. Furthermore, the *Carer electric trucks* represent a great opportunity from an economic point of view for the paper mills and corrugators sector: with a constant use of 8 hours a day, which usually extends to at least two shifts with large-capacity trucks. In fact, electric machines guarantee greater energy efficiency compared to internal combustion engines, with annual savings of around 45.000 euros for each machine for power supply alone. A benefit that is amplified by the "home" production of electricity, a characteristic of most paper mills. The decisive reduction in total management costs is then further integrated by the significant containment of maintenance costs (service).

The range of Carer electric trucks for paper mills

Thanks to the versatility of its range, Carer supplies different types of electric trucks, with a huge range of machines ideal for every need in the paper industry:

- the **Z series**, very compact and with a high seat, is extremely comfortable for those who stay on the machine all day and, until the advent

■ In paper mills and corrugators sector, once the exclusive prerogative of diesel machines, Carer has established itself thanks to the versatility of its range of electric trucks, capable of satisfying every customer application need.



▲ Carer A80X electric trucks are able to transport heavy reels horizontally with a center of gravity @1300 up to 2.5 meters in height.

▼ Carer electric trucks are the ideal machines for the storage and handling of paper.



“Electricity, power, maximum reliability”

of the A series, was the most present in the paper sector;

- the **F series**, characterized by lower trucks, suitable for operators who have to get off and on frequently during work shifts, has two types of engines: H and HD² (Heavy Duty), which is the more powerful version;
- the **A series**, with performance in all respects comparable to that of diesel machines, is composed of very versatile trucks and suitable for working also outdoors and on irregular floors.

The success of the A80X

Within the A series, the most successful model in paper mills is the **compact A80X**, the ideal machine for paper sector thanks to its high maneuverability: with a length of about half a meter shorter than its competitors and the possibility of operating with the single front wheel instead of the twin, is perfect for handling operations in the holds and in all the tightest spaces. The superelastic front tyre, not subject to punctures, also offers very high safety in handling inside the sheds and warehouses. The excellent success of the A80X electric truck in paper sector is also the result of Carer's commercial strategy, which, to better present its characteristics, allows customers to experience them directly, with a test within their structure. Many paper mills, after verifying its performance and handling, decided to purchase it, as proof of the efficiency and cost-effectiveness of use of this electric truck. ●

CARER

Via Copernico 13 48033 Cotignola (RA) - Italy

■ **website:** <https://carerforklift.com/en/>

■ **phone:** +39 0545 1938010 - email: info@carerforklift.com

■ **contact person:** Luca Spreafico

Tissue news around the world

Lucart donates hygiene products to Ukrainian hospitals

In the dramatic war context that is shaking the entire world, Lucart has decided to give a small contribution to those who are currently in need of the most essential goods.

On the afternoon of Tuesday 15 March, the first truck containing hygiene products (toilet paper, medical sheets and other paper products) left the Altopascio logistics centre in Italy for Poland. Thanks to the help of the **Francesca Rava Foundation**, a non-denominational and apolitical organization fighting against the hardship of children in Italy and around the world, these materials will arrive at Ukrainian hospitals to facilitate the work of doctors and nurses.

"We felt it was our duty to help the people affected by the conflict. At the moment, the most acute health emergency concerns the treatment of the wounded and the care of children in pediatric hospitals. Many of these have been bombed and medical equipment has been lost. That is why it is important to replace it quickly in order to guarantee health care for those who have been hurt" commented **Massimo Pasquini**, CEO of Lucart.



Sofidel's financial results return to pre-crisis levels in 2021 and confirm the group's steady growth

In 2021, Sofidel's financial results return to pre-pandemic crisis levels and confirm the Group's steady growth. In fact, the second half of the year especially saw the consolidation of sales in Europe and – thanks to the new production capacity installed, at full capacity for the entire period – a significant strengthening in the United States.

Essentially, after the extraordinary year of 2020 (thanks to peaks in demand linked to consumer purchases during lock-down periods and the first in which the company exceeded two billion euros in sales) Sofidel resumed its path of steady growth even if – due to the strong impact of rising raw material prices and the impossibility of reversing the impact on product sales prices – margins and economic results were partly affected. Nonetheless, the Group has confirmed a consolidated turnover of over two billion euros (net sales of 2,095 million euros) and an EBITDA margin of 10.42% in a difficult context. Among raw material prices, the first half of the year was particularly affected by the price of cellulose, while in the second half the very sharp increase in energy prices (more in Europe, less in the United States) weighed on the cost structure. "In a very difficult economic environment in which the impressive rise in commodity prices has affected economic performance, we can define the results related to business development as good. Sofidel sees its sales strengthened, as well as, thanks to the continuation of its sustainability strategies, its competitive conditions," commented Sofidel Group Chief Executive Officer **Luigi Lazzareschi**.

Tissue news around the world

Merger has been registered and the combination of Valmet's and Neles' business operations has been completed

The merger of Neles Corporation into Valmet has been registered with the Finnish Trade Register on the effective date of the Merger on April 1, 2022. As a result of the registration of the completion of the Merger, Neles has been dissolved. Neles is consolidated to Valmet as of April 1, 2022. Valmet President and CEO, Mr. Pasi Laine, comments: "We are pleased that we can now start our journey together as a stronger Valmet. I warmly welcome our new Flow Control business line colleagues to the team. Valmet now has a unique, even stronger offering for global process industries and a solid platform for further business growth especially in automation systems and flow control solutions. From the beginning of the merger process, we have had a strong view on the excellent long-term value potential to the shareholders, the industrial logic and synergy potential. With our team of 17,000 professionals around the world we will now work together in realizing these targets. I want to also thank all the people who have worked hard in the merger process and integration planning. It is also important to acknowledge that without the excellent work done in Valmet and Neles during the past years, this merger would not have been possible. We now have a good foundation to develop Valmet forward, together."

As a result of the registration of the completion of the Merger and the new shares issued as merger consideration to Neles' shareholders, the total number of Valmet's shares is 184,529,605 shares and the share capital is EUR 140,000,000. The new shares have been admitted to trading on the official list of Nasdaq Helsinki Ltd under the trading code VALMT (ISIN code: FI4000074984).

The new Valmet shares issued as merger consideration have been registered on the book-entry accounts of Neles' shareholders today on April 1, 2022. Recipients of merger consideration shares may trade Valmet shares as from today, April 1, 2022.



Georgia-Pacific to close Green Bay Day Street facility

Georgia-Pacific plans to close the Green Bay Day Street facility over the next 18 months. This decision does not affect Georgia-Pacific's other operations in Green Bay. The decision to shut down the mill does not reflect the hard work that Day Street employees have performed throughout the years to serve Georgia-Pacific's customers. The primary reasons for this decision are a combination of changing customer demand, bath tissue upgrades and investments at other Georgia-Pacific facilities, and less competitive assets at the Day Street mill.

Tissue manufacturing at the site will end in mid-May, with some other parts of the mill shutting down in September. The Day Street mill will continue to make napkins until the Fall of 2023.

This decision will impact approximately 190 jobs at the mill. However, eligible and interested employees will be able to apply for open roles at other Georgia-Pacific facilities in Green Bay, including 100-plus roles for the recently announced investment the company is making at the Broadway mill.

TissueMAG

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