

— Press Book

Energy efficiency in tissue making.



EDITION 8



PRESS BOOK

EDITION 8

Dear Customers,

it is a pleasure to present this new Press Book edition that testifies to Toscotec's achievements in 2021 and 2022.

This collection is a clear reminder of the fact that the partnership that binds us is the cornerstone of our work. Your needs and ambitions are the goals of our daily efforts and the direction of our technological development and future strategy.

As we continue to raise the bar in the tissue industry, we wish to thank you for your trust.



Alessandro Mennucci
Chief Executive Officer of Toscotec



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YOU

Customer testimonials

The relationship with our customers is very important to us
and we are always happy to receive feedback from them.
We thought the best introduction would be through their voices.
Here is what they're saying about us.

ABOUT ENERGY EFFICIENCY AND SUSTAINABLE PAPERMAKING

CARTIERA PONTE D'ORO ANSALCARTA, ITALY
Armando Ansaldo, CEO

"We have known Toscotec for many years, and we trust their technology and professional services. This Yankee rebuild is part of our long-term strategy to green manufacturing and achieving the lowest possible carbon footprint using the most advanced technology. With the installation of TT SYD, we aim to significantly boost our energy efficiency in the most energy-intensive section of the paper machine."

MARUTOMI ENGINEERING CO., LTD., JAPAN
Shinichi Kato, Vice President

"We had a very positive cooperation with Toscotec on the tissue machine they installed at our Marutomi Paper's mill two years ago. On this new tissue line for Ono Paper's mill, Toscotec really went the extra mile to support us even more, due to the Covid-19 restrictions in place in our country. The new machine is performing very well, and we expect it to achieve the high energy and production efficiency of the other Toscotec line in order to continue delivering premium quality to our customers."

CARTIERE SACI, ITALY
Lorenzo Poli, CEO

"We are very satisfied with our partnership with Toscotec, step by step we are driving our paper machine to adopt a modern mechanical concept. Both speed and efficiency have been increasing with each rebuilding project, and Toscotec is the right partner to improve different sections of the paper machine with a complete view of a modern paper mill."

SHAWANO SPECIALTY PAPERS, USA
Jeff Wolf, Engineering Manager

"The decision to choose Toscotec for this replacement is based on our trust in their first-rate technology and Toscotec's years of experience with SYDs. We have two main focuses: first to provide high quality solutions for our customers and second to continuously reduce our energy consumption and overall environmental impact utilizing state-of-the-art technology."

VAJDA-PAPÍR, HUNGARY
Attila Vajda, Managing Director

"This new Toscotec line constitutes our flagship investment at Dunaföldvár site. We have a vision for Vajda-Papír's expansion to be in harmony with the environment, and that is why we chose the most energy efficient technology available on the market."

KMK PAPER AND BOARD MEMBER OF KEY HOLDING, TURKEY

Bekir Yemşen, General Manager

"This is a strategic investment for KMK Paper where we will realize an extensive upgrade of PM1, and we are happy to have reached an agreement with Toscotec. We support the strong synergy between Toscotec and Voith, which perfectly matched the needs of our project."

GAYATRISHAKTI PAPER & BOARD
Shri G. N. Agarwal, Managing Director

"We selected Toscotec because we wanted to invest in state-of-the-art tissue-making technology. We value their solid experience in guiding and sharing their expertise with newcomers in tissue."

ABOUT TURNKEY SUPPLY

CARTIERA CONFALONE, ITALY

Gaetano Confalone, Sole Director

"The fact that the new mill has been built and become operational during the pandemic testifies to Toscotec's great expertise in managing complex turnkey projects. Throughout this entire process, we faced many challenges together, and Toscotec proved to be the right partner for us."

WEPA PROFESSIONAL, POLAND

Udo Raumann, Technical Managing Director

"With Toscotec, we had a partner at our side who supported us ideally in this project."

ESSEL SELÜLOZ VE KÂĞIT SANAYİ TIC. A.Ş., TURKEY

Ahmet Temuroglu, Project Manager

"Toscotec demonstrated their ability to manage and successfully complete a turnkey project on a tight schedule. They showed great flexibility in solving various issues and adjusting their schedule to meet our requirements. The new AHEAD machine is already operating at a good efficiency, we are confident we will soon fully reap the benefits of this advanced technology."

CITY GROUP, BANGLADESH

Md. Imran Uddin, Director of Planning & Business Development

"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. 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."

MP HYGIÈNE, FRANCE

Christopher Colin, COO

"We trust Toscotec is the right partner for our strategic expansion project, based on their proven capabilities managing complex turnkey operations and their focus on innovation. Toscotec's turnkey expertise and experience allows them to offer us the flexibility we need to achieve our growth targets."

SAUDI PAPER GROUP, SAUDI ARABIA

Youssef Abdel Hamid Abdel Aziz El Bishry, CEO

"Progressing on the path of strong expansion we have set for SPG, we selected Toscotec for this second tissue line, because we value both their ability to deliver first-in-class technology and their proven history of successfully managing complex turnkey operations."



ABOUT PAPER QUALITY

OMNIA ADVANCED MATERIALS, ITALY

Francesco Giusti, Plant Manager

"We chose Toscotec for the steel dryers supply, because they were able to offer the best guarantees of quality and the highest number of references. Toscotec has achieved technological excellence in the design and manufacture of TT SteelDryers. Based on their reputation in the market, we are confident they will also provide professional solutions."

CARTONIFICIO SANDRESCHI, ITALY

Benedetto Sandreschi, Owner

"We trust in Toscotec's expertise to successfully deliver this project. Even in difficult times, we carry on investing in technology to strengthen our position and continue offering high quality cardboard to our customer base."

CARTIERE DI GUARCINO, ITALY

Simone Principia, Plant Manager

"This investment fits into the growth strategy of Neodecortech Group. Cartiere di Guarcino is set to increase production performance through a fully customized technological solution. We aim to raise the bar on product quality and achieve the utmost differentiation in the high-end market of decor papers."

ESSEL KÂĞIT, TURKEY

Ahmet Temuroglu, Production Coordinator and Burak Ipek, Maintenance Manager

"The target of our performance test was successfully accomplished with a production of 290.5 tpd on a 23 gsm towel grade at the speed of 1,810 m/min. We are now fully reaping the benefits of Toscotec's first-in-class technology across our entire product range both for tissue quality and consumptions."



Turnkey projects highlights

30
IN TOTAL

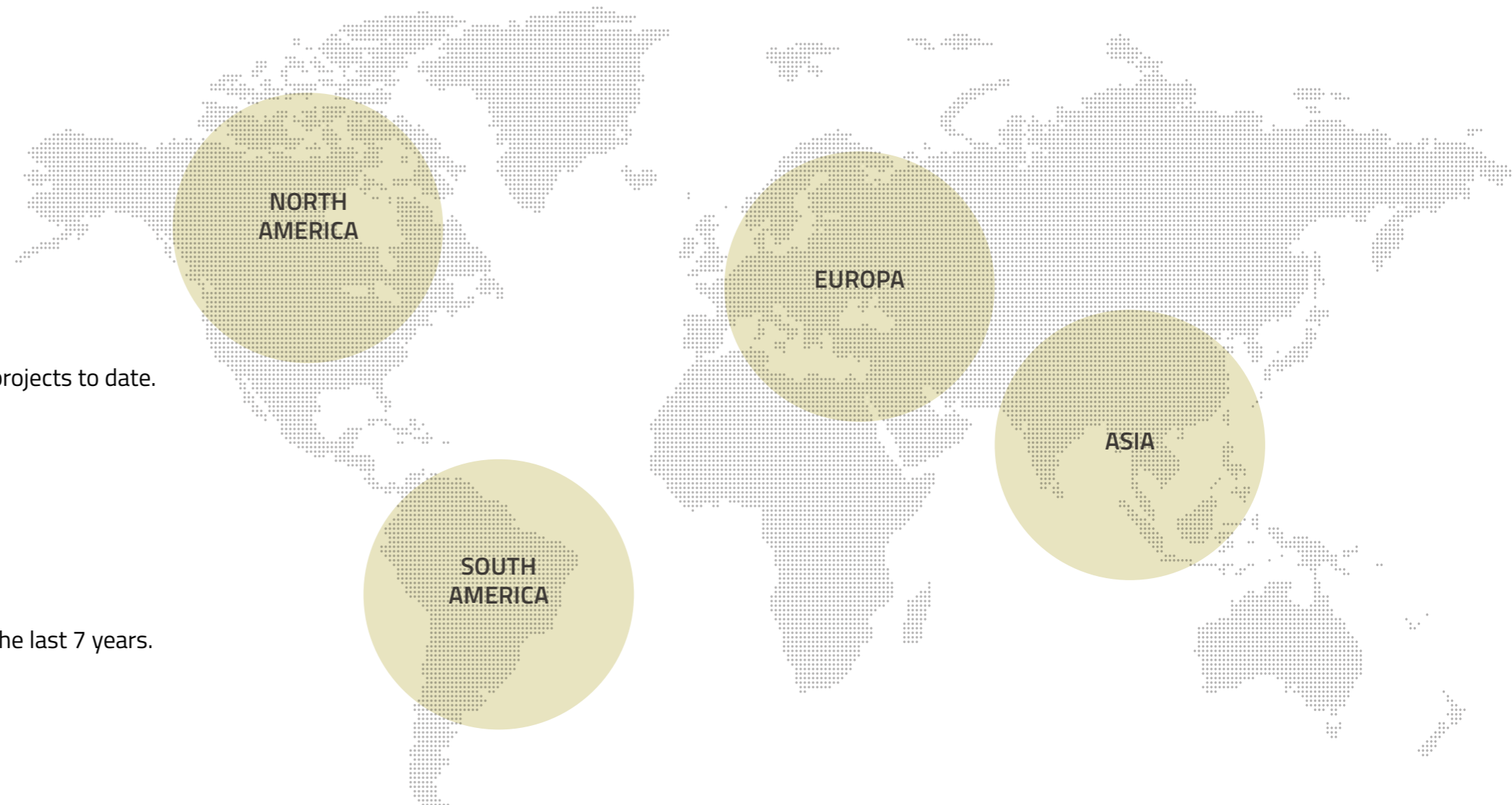
More than 30 Turnkey projects to date.

25
SINCE 2015

25 Turnkey projects in the last 7 years.

8
IN 2022

8 Turnkey projects in progress in 2022 across 4 continents: Asia, Europa, North America, South America.



Toscotec starts up a TT SYD Steel Yankee Dryer at Cartiera Ponte d'Oro in Italy

Toscotec successfully started up a TT SYD Steel Yankee Dryer at Cartiera Ponte d'Oro Ansaldo in Villa Basilica, Italy. The new Yankee replaced an existing cast iron dryer installed on PM1 in 1993 by Officine Meccaniche Toschi, which was renamed Toscotec in 2003.

Manufactured at Toscotec's fully integrated TT SYD Technology Center in Massa (Italy), the steel Yankee dryer included the condensate removal system, Toscotec's patented heads insulation for maximum thermal energy efficiency, as well as expert services from detailed engineering to erection supervision and start-up assistance.

Toscotec is constantly building on its experience of steel Yankee dryers to advance the progress of TT SYD's design and services. It currently has more than 200 TT SYD operating under the most diverse conditions around the globe, which provide valuable data for further product improvement. This year, Toscotec also introduced TT Defender®, a breakthrough patented innovation that provides Yankees with an internal protection coating against corrosive steam.

Armando Analdi, CEO of Cartiera Ponte d'Oro Ansaldo, says, "We have known Toscotec for many years, and we trust their technology and professional services. This Yankee rebuild is part of our long-term strategy to green manufacturing and achieving the lowest possible carbon footprint using the most advanced technology. With the installation of TT SYD, we aim to significantly boost our energy efficiency in the most energy-intensive section of the paper machine."

Riccardo Gennai, Toscotec's Sales Manager, says, "We are very happy to renew our partnership with Cartiera Ponte d'Oro. We are confident that TT SYD will deliver the superior drying capacity that they expect and guarantee substantial energy savings, in line with their objectives."



Toscotec starts up new turnkey tissue line at Cartiera Confalone in Italy



The AHEAD 2.2 tissue line supplied by Toscotec to Cartiera Confalone on a turnkey basis has come online at their new mill in Montoro, Italy, and started producing sellable tissue from day one.

The new AHEAD 2.2 tissue line is equipped with TT NextPress, TT SYD Steel Yankee Dryer, and gas-fired TT Hood designed with multiple stages of energy recovery. It has a sheet trim width of 2,850 mm, a design speed of 2,200 m/min and production capacity of over 35,000 tpy. The tissue line will produce toilet tissue, napkins and towels using 100% pre-dried virgin pulp and converting broke.

The turnkey supply included the complete stock preparation, Toscotec's patented TT SAF® (Short Approach Flow) for superior energy efficiency, the complete electrical and control systems, including the DCS and the QCS, as well as the dust and mist removal systems. The scope also included the vacuum plant, an automatic vibration monitoring system installed on the AHEAD 2.2 line and the machine hall ventilation system.

Toscotec also supplied two OPTIMA 2200 slitter rewinders, equipped with tension, nip control systems, and dust removal systems. The service package included detailed mill engineering, plant and tissue machine erection, commissioning, training, and start-up assistance.

Cartiera Confalone's new Montoro mill constitutes the biggest tissue investment in the south of Italy in over twenty years and it is equipped with leading-edge tissue technology.

The project represents a repeat order by Cartiera Confalone, who chose Toscotec in 1999 for its first tissue line, a MODULO-PLUS machine, at its Maiori mill, and then replaced its cast-iron Yankee with Toscotec's leading-edge TT SYD Steel Yankee Dryer in 2013.

Gaetano Confalone, Sole Director of Cartiera Confalone, says, "We are very satisfied with the successful accomplishment of this key project. The fact that the new mill has been built and

become operational during the pandemic testifies to Toscotec's great expertise in managing complex turnkey projects. Throughout this entire process, we faced many challenges together, and Toscotec proved to be the right partner for us."

Alessandro Mennucci, CEO of Toscotec, says, "Cartiera Confalone achieved their target through an important partnership with Toscotec. This was our number one objective since the beginning, and it truly is a great satisfaction to have reached it together. Also, with this new line here in Italy, Toscotec strengthens its leadership as world-class supplier of turnkey projects for the tissue industry."

Toscotec starts up new tissue machine at Marutomi in Japan



The Marutomi Group fired up a Toscotec-supplied MODULO-PLUS ES tissue machine at its Ono Paper's mill in Fuji city, Japan. This is the second of two tissue lines supplied by Toscotec to the Marutomi Group, who implemented a strong expansion in the Japanese market. The first machine came online in the third quarter of 2019 at Marutomi Paper's mill.

The MODULO-PLUS ES machine has a sheet width of 2,850 mm, an operating speed of 1,500 m/min and production capacity of over 22,000 tpy. It features Toscotec's shoe press TT NextPress, TT SYD Steel Yankee Dryer, TT Hood-Duo steam-heated hoods, and Toscotec's proprietary Distributed Control System TT DCS, developed on a Mitsubishi

platform for this project in cooperation with the Japanese Corporation.

The supply includes Toscotec's patented TT SAF® (Short Approach Flow) system, dust and mist removal systems, an automatic shaft return system on the pope reel, and an in-line shaft puller. The service package consists of the detailed engineering, erection supervision, commissioning, and start-up assistance.

Shinichi Kato, Vice President of Marutomi Engineering Co., Ltd., says, "We had a very positive cooperation with Toscotec on the tissue machine they installed at our Marutomi Paper's mill two years ago. On this new tissue line for Ono Paper's mill, Toscotec really went the extra mile to support us even more, due to the Covid-19 restrictions in

place in our country. The new machine is performing very well, and we expect it to achieve the high energy and production efficiency of the other Toscotec line in order to continue delivering premium quality to our customers."

Andrea Paganucci, Toscotec Project Manager, says, "On this project, Toscotec went all out to overcome the obstacles posed by the pandemic. We pushed forward as one single team: Marutomi in Japan and us in Italy, and finally we managed to work through the complicated visa process. In accordance with Japan's quarantine regulations, our commissioning and start-up teams self-isolated for a fortnight before getting to the mill and beginning their work. This start-up truly is a big success for all the people involved."





WEPA starts up new tissue line supplied by Toscotec on a turnkey basis

WEPA and Toscotec started up an AHEAD 2.2S tissue machine at Piechowice mill in Poland. The new line is part of a full turnkey supply by Toscotec, starting from the bale handling system and bridge crane up to the parent roll handling system. It produces premium quality recycled hygiene paper primarily for the Away-from-Home market.

The AHEAD 2.2S machine has a sheet trim width of 2750 mm, a maximum operating speed of 2100 m/min, and a production capacity of over 36,000 t/y. It features Toscotec's shoe press of new generation TT NextPress, a third-generation-design TT SYD, gas-fired hoods with multiple stages of energy recovery, and an in-line shaft puller integrated in the pope reel section.

The turnkey included the complete stock preparation, Toscotec's patented TT SAF® (Short Approach Flow), the complete electrical and control systems, including DCS and QCS, and the dust and mist removal systems. The project also included the vacuum plant, air compressor station, bridge cranes, roll handling and hall ventilation systems. Toscotec provided a comprehensive service package with the detailed mill engineering, the plant and the machine erection, commissioning, start-up supervision and detailed training.

This is the fourth turnkey tissue project supplied by Toscotec to the WEPA Group, following three previous turnkey operations at WEPA Lille (France) and WEPA Giershagen (Germany) both in

2015, and WEPA Piechowice in 2017. It is also the sixth complete tissue machine that Toscotec has supplied to the German group, including one line installed at WEPA Kriebstein, and one at WEPA Giershagen. Since 2006, Toscotec has also provided seven hood rebuilds to WEPA at five different mills in Germany and Italy, which improved the energy efficiency of the existing tissue lines by delivering a significant reduction of gas and power consumption and increase in machine run-ability.

Udo Raumann, Technical Managing Director WEPA Professional said, "We are pleased about the successful start-up of our second tissue paper machine at the Piechowice site, which further strengthens our position in the promising Eastern European market. With Toscotec, we had a partner at our side who supported us ideally in this project."

Stefano Raffaelli, Project Manager at Toscotec, said, "On this key project for WEPA, Toscotec was on a tight time schedule to design, supply and install a complete new plant inside an existing building, which presented several constraints. Toscotec has proved its significant experience in managing turnkey projects of this magnitude and with such a high degree of challenges both for the engineering design and implementation phase. We also extensively coordinated with WEPA on the activities for the civil works that they managed in the same tight timeframe. Thanks to the excellent cooperation with WEPA, we were also successful in carrying out this complex operation during the pandemic."



Toscotec starts up Turkey's biggest tissue machine at Essel Kâğıt

Essel Kâğıt started up an AHEAD 2.2L tissue line supplied by Toscotec on a turnkey basis at its Osmaniye mill in Turkey. This is the fourth tissue machine that Toscotec fired up in a period of only three weeks in four different countries in Europe and Asia. The new PM3 is manufacturing high quality tissue paper for the local market.

Featuring a net trim width of 5,700 mm and a production capacity of 270 t/d, this AHEAD 2.2L line is Turkey's biggest and most productive tissue machine. It features a fully hydraulic TT Headbox-MLT with dilution control, TT NextPress shoe press technology, a third generation TT SYD with optimized geometry for increased heat transfer efficiency, and gas-fired TT Hoods with multiple stages of thermal energy recovery and designed for cogeneration upgrade.

The turnkey supply includes the complete stock preparation system, Toscotec's patented Short Approach Flow TT SAF®, electrification and controls, and dust and mist removal systems. The production line also includes two OPTIMA slitter rewinders with tension and nip control and automatic shaft puller for top winding efficiency. A full service package completes the turnkey supply: mill engineering, erection supervision, commissioning, training, start-up, and Toscotec's YES Connect-Vision AR system for effective on-remote service.



Ahmet Temuroglu, Project Manager of Essel Selüloz ve Kâğıt Sanayi Tic. A.Ş., says, "We are very satisfied with the outcome of this investment operation. Toscotec demonstrated their ability to manage and successfully complete a turnkey project on a tight schedule. They kept their focus on our common goal and showed great flexibility in solving various issues and adjusting their schedule to meet our requirements. The new AHEAD machine is already operating at a good efficiency, we are confident we will soon fully reap the benefits of this advanced technology."

Pier Paolo Brunazzi, Toscotec Project Manager, says, "We had a very productive cooperation with Essel, as we built a trust-based relationship since the beginning. They are now operating Toscotec's top-of-the-line tissue technology including our latest product innovations. We expect them to achieve both their production and tissue quality targets in a very short time."



— More quality with less energy?

INGENIA

How to produce superior quality while using less energy?

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

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

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

YOUR NEEDS — OUR SOLUTIONS

Toscotec ramps up Energy Efficiency in the Approach and Water systems

Toscotec ramps up Energy Efficiency in the Approach and Water systems.

Toscotec has developed key energy efficient solutions for the primary water recovery system, stock approach line, and headbox, which deliver substantial energy savings and process optimization results. The performances of the majority of these solutions have been consolidated in several installations and have become part of Toscotec’s standard design.

Toscotec’s technical and R&D departments continuously upgrade their technology with the aim to achieve:

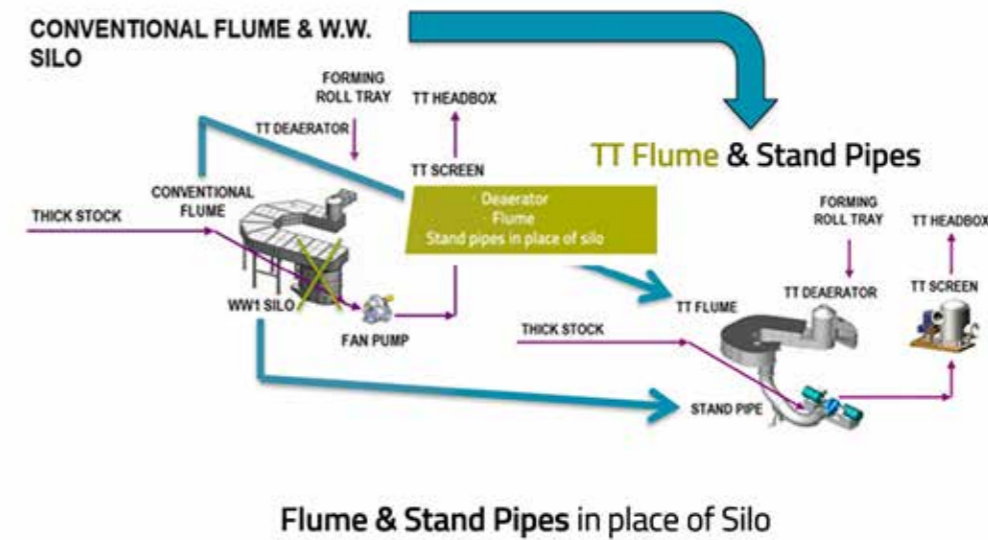
- sustainable production capacity increase
- final paper quality improvement
- reduction of maintenance or grade-change downtime
- reduction of energy demand for the same output

Primary water recovery system and Headbox Stock approach line

Toscotec’s **deaerator unit** on the primary water recovery line is designed to reduce the air entrained in the water recovered from the forming roll’s save-all water pan. Internally, the deaerator is designed without any movable parts, which guarantees consistent performance and virtually maintenance-free operations. The **flume**, which is installed immediately after the deaerator unit, is designed to extend the effect of air removal before the water is fed back to the fan pump. The total air content measured

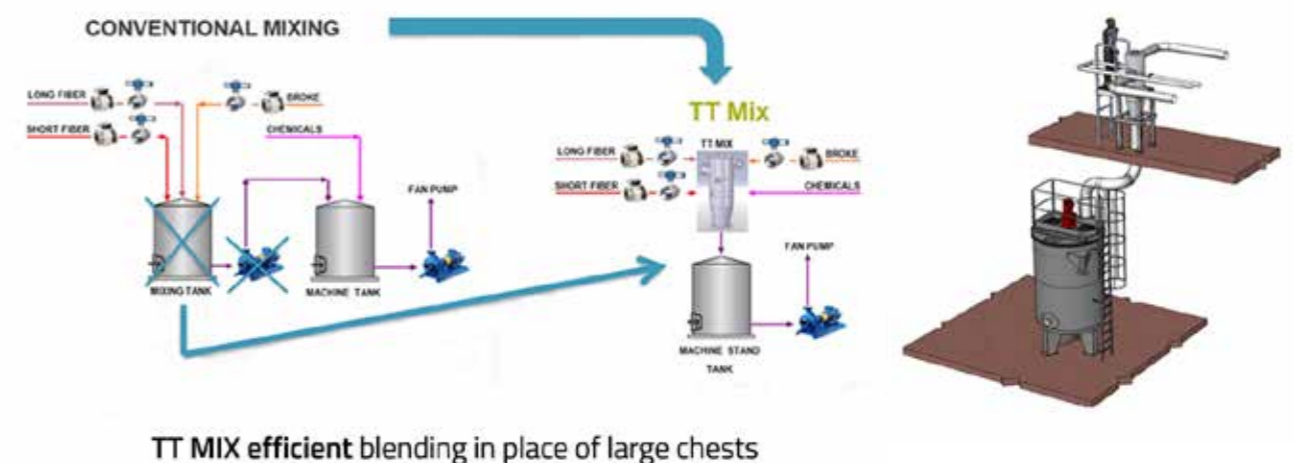
at the fan pump suction point can be as low as 0,2%.

The flume is connected to the fan pump through a **stand pipe** which replaces the traditional large-dimension silo.



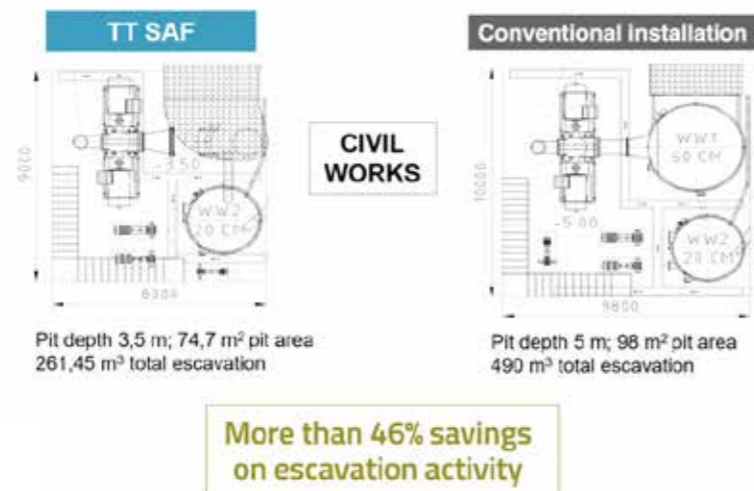
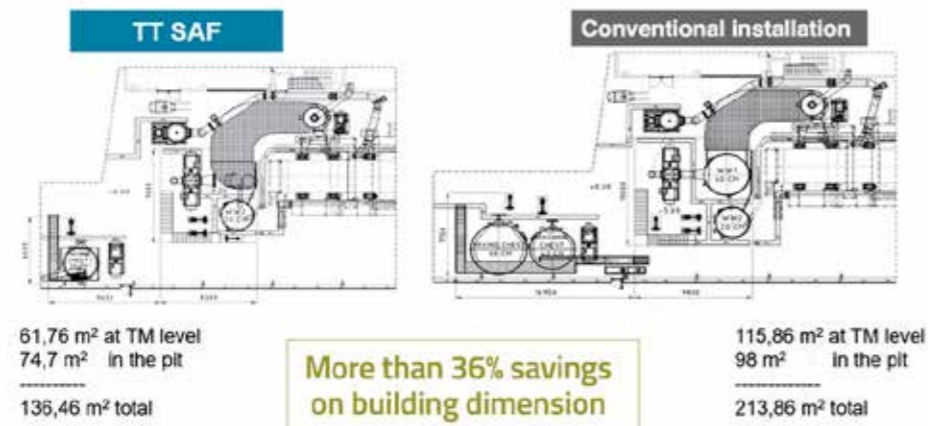
Toscotec introduced the **TT Mix unit** on the stock line in order to deliver efficient hydraulic mixing of fibers with **low pressure losses**, and entirely eliminate the installation of an intermediate mixing chest with its agitator and discharge pump. The key advantages of TT Mix include:

- important reduction of energy per ton: compared to previous solutions with a mixing chest, this solution saves up to 10% of the total energy required for the approach flow system
- reduction of space required in the mill layout
- reduction of buffer volumes on the line for easier and faster cleaning and grade and/or color changes
- reduction of chemicals usage



The design solution complete with TT Mix, TT De-aerator, TT Flume and TT Stand Pipe determines an overall 35% - 40% reduction in required space if compared with previous solutions.

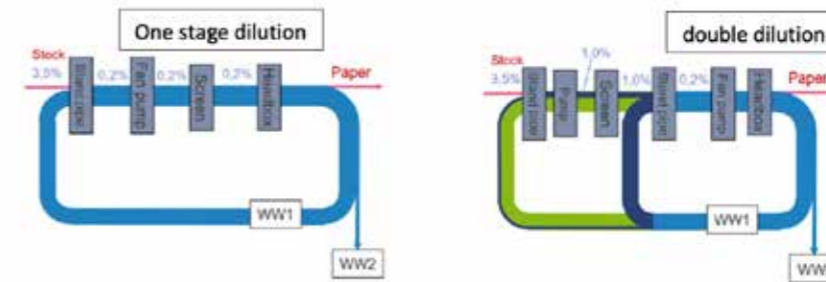
The elimination of the mixing tank and the silo has also led to a reduction of approximately 50% in excavation activities for a single floor machine installation.



In addition, Toscotec's complete solution for stock mixing and primary water recovery depicted above has led to an overall reduction of storage volumes in the approach system of up to 75%, which corresponds to faster and more flexible cleaning and grade-change operations.

Toscotec has also recently included a Double Dilution System as a standard feature on its approach lines to the headbox. The idea underlying the new double dilution system is that any contaminant that might enter the system comes from the stock preparation line. The double dilution is designed so initially the dense stock flow is only diluted to

only approximately 1% consistency before passing through the pressure screen, then it is diluted to desired consistency for the fan pump and headbox. This solution reduces energy consumptions due to the reduction of the flow passing through the screen. In particular, the system achieves a flow reduction of 85 - 90 % at the screen, which leads to substantial energy savings, up to 15 kWhr/ton.



The removal of the screening unit from the headbox dilution system approach line for crescent former and C-wrap former configurations has now become a standard solution for Toscotec. Screening on the dilution system line is traditionally only a coarse filtration, like a rough mechanical barrier on a line which is naturally clean and where build-up of fiber slings is not an issue. Toscotec's solution saves more energy by eliminating losses in the screen and the motor normally installed on the unit.

The removal of the Basis weight control valve from the high-consistency stock line has also been introduced. The main advantages are that the control of the stock flow becomes easier without affecting the stability of its dosing, and the losses through the thick stock valve are eliminated with subsequent energy savings.

There is an upgrade of the thick stock injection line ahead of the fan pump with a new in-line concentric injection design protruding inside the stand pipe line and with a specially designed nozzle at the end to boost fiber mixing into the

main stream flow. Toscotec used CFD (Computerized Fluid Dynamics) simulation and several FFT (Fast Fourier Transform) analysis of scanner readings in fixed position to identify the best design for the injection system, in terms of optimal velocity ratio between stock and white water speeds, location of the injection versus fan pump suction, and geometry of the nozzle at the end of stock feeding pipe in order to avoid MD disturbances of the paper weight due to poor fiber mixing in that area.

TT Headbox: a unique design for top efficiency
Toscotec reviewed the fluid dynamics inside TT Headbox with the aim to guarantee superior final paper properties by operating at the highest possible consistency level. This review has led to a reduction of approximately 10% of fan pump electric power consumption.

The reduction of **TT Headbox recirculation rate** – now less than 3% of the incoming headbox flow – has delivered further reduction of energy use.

Toscotec partners again with Cartiere Saci for new paper machine rebuild

Toscotec will complete the dryer section rebuild of PM2 at Cartiere Saci's paper mill in Verona, Italy. With this new order, Toscotec will carry through the modification of PM2 it started performing in 2015 through different steps supplying a new calender and rebuilding part of the dryer section followed by the rebuild of the entire press section.

The project includes the full replacement of PM2's existing cast-iron dryers with Toscotec's TT SteelDryers designed for a maximum operating pressure of 10 barg. The new steel dryer cans will be customized with a diameter of 1,600 mm, instead of the standard 1,500 mm, in order to maximise the machine's drying

capacity inside the available space of the existing dryer section. The scope of supply of this last order is on a turnkey basis and it includes the complete electrification and control systems, the optimization of the auxiliary systems, and a comprehensive service package with design, on-site erection, commissioning, and start-up assistance.

The cooperation between Cartiere Saci and Toscotec began almost ten years ago with the supply of single components and small modifications, and it gradually grew into an important partnership leading to major rebuilding projects of PM1 and PM2 at Verona paper mill. The modification of PM1 started in 2014



with part of the dryer section, which was then entirely rebuilt in 2018 on a full-on turnkey rebuilding operation. The most recent project was successfully accomplished last year during the Covid-19 pandemic where Toscotec rebuilt the entire press section of PM2.

Lorenzo Poli, CEO of Cartiere Saci, says: "We are very satisfied with our partnership with Toscotec, step by step we are driving our paper machine to adopt a modern mechanical concept.

Both speed and efficiency have been increasing with each rebuilding project, and Toscotec is the right partner to improve different sections of the paper

machine with a complete view of a modern paper mill."

Enrico Fazio, Sales Director of Toscotec's Paper & Board division, says: "Toscotec considers Cartiere Saci a key customer, because it gives us the opportunity of delivering technological rebuilds and continuously develop a trust-based cooperation through repeated orders. Our technology will support their growth providing them with the tools to achieve their targets of efficiency, quality and energy savings."

Toscotec TT SteelDryers started up at Omnia Advanced Materials in Italy

Toscotec participated in the dryer section rebuild of PM2 at Omnia Advanced Materials Alife mill in Italy with the supply of 16 TT SteelDryers. PM2 produces highly customized specialty paper including gaskets, absorbency, and filtration media for numerous industrial and consumer applications.

Toscotec has designed and customized the new TT SteelDryers according to PM2 specifications, with a diameter of 1,250 mm,

a trim width of over 2,300 mm, and an operating pressure of 10barg, and it applied a cover on many of the dryer cans to guarantee high cleanliness throughout the papermaking process following the press section. With their higher operating pressure, Toscotec's TT SteelDryers, are set to improve PM2 performance, as they guarantee a higher specific evaporation rate, compared with the existing cast iron cans.

Francesco Giusti, Plant Manager at Omnia Advanced Materials, says: "We chose Toscotec for the steel dryers supply, because they were able to offer the best guarantees of quality and the highest number of references. Toscotec has achieved technological excellence in the design and manufacture of TT SteelDryers. Based on their reputation in the market, we are confident they will also provide professional solutions."

Enrico Fazio, Sales Director of Toscotec's Paper & Board division, says, "It is important for Toscotec to strengthen its experience in the rebuild of machines manufacturing specialty papers. The size of these TT SteelDryers will be entirely customized following the specific requirements of Omnia Advanced Materials. It is the perfect opportunity for Toscotec to prove its flexibility and customer-oriented approach."



Toscotec introduces energy-efficient innovation for Crescent Former

Toscotec has successfully introduced **TT LowMistFormer**, the latest innovation of the wire section of Crescent Former tissue machines. Originally designed by Voith, the system has been integrated into Toscotec's design as part of the efficient know-how exchange between Voith and Toscotec following the acquisition. TT LowMistFormer technology has been applied on several AHEAD tissue machines manufactured by Toscotec.

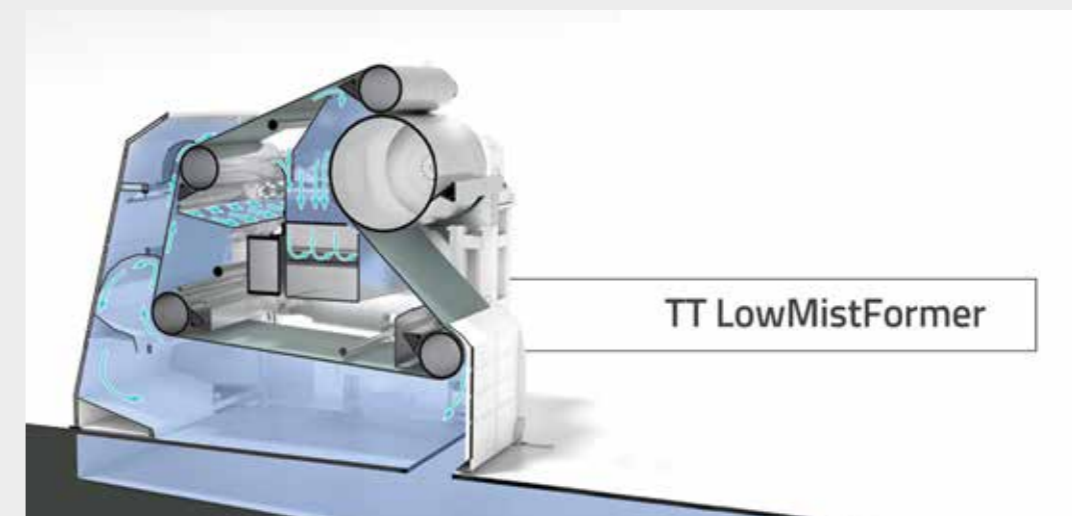
Enrico Raffanti, Toscotec Deputy CTO, says: "TT LowMistFormer improves the runnability of the machine in the key section of paper formation, leading to higher process stability. This new concept is perfectly in line with our mission as manufacturers of advanced technology: developing innovative solutions to boost production efficiency while reducing energy consumption, in order to increase sustainability in paper production."

Significant mist reduction with zero energy

By creating a screened area in the wire section with an optimized combination of fixed elements, TT LowMistFormer delivers remarkable air, water, and mist flows performance. The contained mist is captured and swiftly carried away through the Venturi effect generated by the jet speed of TT Headbox. The system ensures both a substantial reduction of mist expansion in the environment and its fast removal with zero energy consumption. With TT LowMistFormer the installation of a mist removal system in the forming section becomes unnecessary. This results in the elimination of more than half of the total installed power of a mist removal system, which saves a significant amount of energy.

A key tool to reduce maintenance and improve the working environment

TT LowMistFormer ensures a cleaner and healthier environment around the wire section, which normally produces the highest concentration of mist of the entire tissue line. The system also delivers a significant reduction of dirt build-up on the machine, which leads to a reduction of cleaning and maintenance operations on the production line and on the building. A cleaner environment is also reflected in the increase of machine efficiency and the improvement of working conditions for machine operators.





S.T.O.R.I. celebrates 50th anniversary with ten-year growth trend

In 2021 S.T.O.R.I. confirmed a ten-year growth trend during which its turnover increased by more than 25%. This result comes on the fiftieth anniversary of S.T.O.R.I.'s foundation in 1972.

Owned by Toscotec, a Voith company, S.T.O.R.I. is located at Toscotec's headquarters in Lucca (Italy) and specializes in rolls maintenance services for paper and converting machines of the tissue and paper industry. Its service offer includes predictive and preventive maintenance, press roll refurbishing up to a complete rebuild, grinding, dynamic balancing, upgrade installations, non-destructive examinations, and spare parts supply.

Lorenzo Iacopi, Production Manager of S.T.O.R.I., says: "In 2021 we made important investments in new machinery for crown measurement, dynamic balancing, and run tests with the aim to continue delivering state-of-the-art services to our customer base. This year, we will be able to perform run tests on cylinders to verify their working conditions while simulating the actual operating conditions of the paper machine. We have strengthened our offer with complete services packages inclusive of inspection, repairs and overhaul of press rolls and other rolls, so that paper mills can rely on accurate planning to increase their OEE and avoid unscheduled maintenance stops."

An aerial photograph of a large industrial facility, likely a paper mill, featuring numerous blue buildings, large silos, and a river with several ships docked. The facility is situated in an urban or semi-urban area with greenery in the background.

Toscotec to supply a turnkey tissue line to City Group for new market entry

Toscotec will supply an AHEAD 2.2 tissue line on a turnkey basis to the Bangladeshi consumer goods manufacturer City Group who sets out

to enter 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.

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.

The turnkey supply encompasses the complete stock preparation and fiber recovery systems, the patented TT SAF® Short Approach Flow with double dilution, the full electrification plant, Toscotec's proprietary control system, and all associated auxiliary systems. Toscotec will also deliver the new OPTIMA 2200 slitter rewinder 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.

Md. Imran Uddin, Director of Planning & Business Development at City Group, says, "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. 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."

Gabriele Martinelli, Toscotec Sales Manager, says, "It is always exciting for us to take on a project of a company entering the tissue market. This is the second turnkey project in two years in Southeast Asia. We are happy to share our experience with City Group through technical meetings, visits to our workshops and to paper mills operating Toscotec's tissue lines. We knew it was important for them to look at key components such as TT SYD and TT NextPress, and then see them in operation."

IF WE COULD REVIVE YOUR TECHNOLOGY MAKING IT COMPATIBLE WITH YOUR NEW NEEDS?



IF INSPIRING THE FUTURE

Something that already exists, that is reborn and becomes something else is a miracle. It is a bit like a metaphor for what happens when we rebuild a paper machine. We revive and bring them back to life with our expertise, technology and experience accumulated over years of installed machines. Thanks to the cooperation with Voith, we are now able to provide you with an even wider and more advanced product range. So yes, we revive your installations. With care. In Paper & Board.

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

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.

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.

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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 machinery

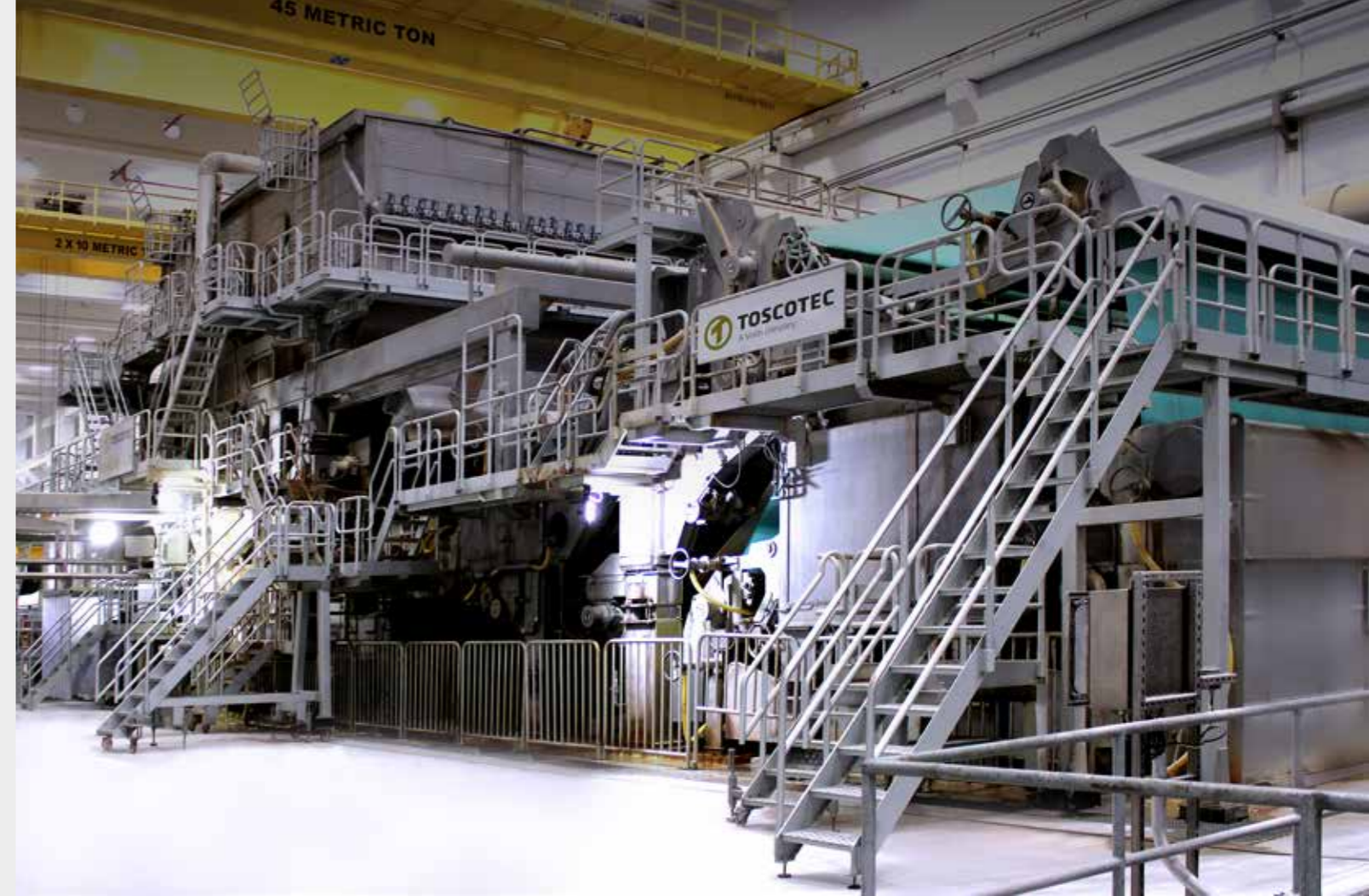


manufacturers who have such considerable internal resources have the actual capability to manage turnkey projects. The second asset is the ability to provide paper mills with the necessary technical expertise, support and experience related to every detail of the turnkey supply, so that they can stay 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 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 to supply a press section rebuild to ETAP in Egypt

Toscotec will supply to linerboard manufacturer ETAP a technological rebuild of PM2's press section at their Borg Elarab paper mill, near Alexandria in Egypt. The paper machine has a sheet trim width of 2,520 mm and it manufactures testliner and kraftliner in the range from 125 to 240 gsm. This is a repeat order for Toscotec, who in 2018 had completely rebuilt in stainless steel the Fourdrinier wire section of PM2.

This new order includes the supply of the new bi-nip concept that will replace an existing plain press installed in the

first part of PM2's press section. The bi-nip configuration will deliver twofold benefits: an increase in the post-press dryness rate of the paper machine and an increase in the press section efficiency by significantly reducing paper breaks.

Mohamed Ashour, Managing Director of ETAP, says: "With this new rebuild project, we aim to step up our production taking advantage of Toscotec's advanced technology. Based on the fruitful cooperation we had with Toscotec in the past, we are confident in the positive outcome of this investment."

Enrico Fazio, Sales Director of Toscotec's Paper & Board division, says: "Toscotec is glad to have the opportunity of cooperating again with ETAP, who is a key customer in the Egyptian market and the Middle East at large. We are very satisfied to continue the fruitful cooperation we have established three years ago. We are confident that selecting a supplier of advanced technology such as Toscotec will be rewarding for their growth strategy in the market."

Sameh Habib, CEO at Chemitex Egypt for Trading & Agencies, says: "We are delighted to work again with an important paper producer such as ETAP who is very well positioned in the Egyptian market."



Toscotec to supply TT SYD Steel Yankee Dryer to Shawano Specialty Papers

Toscotec is pleased to announce the purchase of a TT SYD Steel Yankee Dryer for Shawano Specialty Papers, a division of Little Rapids Corporation. The dryer will be installed on PM3 at their paper mill in Shawano, Wisconsin, USA. The installation is scheduled for the third quarter of 2022.

The new TT SYD is Toscotec's latest generation Steel Yankee and will replace Shawano Specialty Papers existing cast-iron dryer. It will deliver multiple benefits, including significant production increase and thermal energy savings. The new SYD will cut back the operating costs of the tissue machine and guarantee higher safety for their associates. Toscotec is the leading global manufacturer of Steel

Yankee dryers counting more than 240 TT SYDs sold worldwide. With this new order, it strengthens its position in the US market as top supplier of Steel Yankee dryers with the largest market share.

"The decision to choose Toscotec for this replacement is based on our trust in their first-rate technology and Toscotec's years of experience with SYDs," said **Shawano Specialty Papers Engineering Manager Jeff Wolf**. "We have two main focuses: first to provide high quality solutions for our customers and second to continuously reduce our energy consumption and overall environmental impact utilizing state-of-the-art technology."

Michael Drage, President of Toscotec North America, Inc., says, "We expect Shawano Specialty Papers to start reaping the benefits of our latest-generation design Steel Yankee dryer right after start-up. Drying efficiency is key in the tissue industry. A high-tech, energy-efficient component such as TT SYD will give them an important competitive advantage to further expand their business in North America."



Toscotec continues expansion at Lucca headquarters in Italy

Toscotec continues the expansion of its covered production area with the inauguration of a new building - Workshop 9 - at its headquarters in Lucca, Italy. The new workshop is primarily dedicated to equipment loading and logistic operations, and it frees up space for the increasing manufacturing and pre-assembly activities at the facility. This addition testifies to Toscotec's growth as a prominent supplier of advanced, energy efficient technology for the tissue and paper industry and global leader of turnkey tissue projects.

Alessandro Mennucci, CEO of Toscotec, says, "In our vision, sustained growth and tangible improvements in carbon reduction go hand in hand. While pursuing technological innovation for the decarbonisation of the paper making industry, Toscotec also strives to enhance its environmental performance and achieve maximum efficiency at its production sites."

Toscotec's production base in Lucca covers an area of more than 65,000 square meters which is devised for maximum manufacturing efficiency. Inspired by lean production, the site's new layout has been designed to serve a fully integrated and compact logistic flow. Driven by a strong commitment to constantly improving the sustainability of its operations, Toscotec has streamlined material handling processes and has accomplished a significant reduction of energy consumptions and carbon footprint.



— Toscotec to install TT SteelDryers in North America

Toscotec will supply several TT SteelDryer cylinders for two paper machines at the facilities of two confidential manufacturers in North America. The projects are slated for completion in 2022.

By replacing the mills' existing cast iron cans, the new TT SteelDryers will boost the drying capacity of the paper machines and lead to a significant production increase. The steel dryers are custom sized, which allows for an easy replacement of the old cylinders maintaining the same overall dimensions of the dryer section and avoiding the costly substitution of the machine frame, housings, bearings and steam equipment. Finally, Toscotec's steel dryer cylinders will keep the same total face length of the existing dryers while allowing the enlargement of the paper width of the machine.

Fabrizio Charrier, Sales Manager of Toscotec's Paper & Board division, says: "Toscotec continues to grow in the North American market that is clearly moving towards more energy efficient solutions, and the upgrade of existing equipment with state-of-the-art technology such as TT SteelDryers."

Toscotec strengthens its position as leading supplier of steel dryer cylinders, which deliver significantly higher performances than cast iron cans. Building on its substantial expertise in customizing the design of TT SteelDryers to the specific needs of the mill, Toscotec delivers tailor-made technology designed to achieve the highest possible production capacity and energy efficiency.



— Toscotec to supply a wet end rebuild to Cartonificio Sandreschi in Italy



Toscotec will rebuild the forming and press sections of PM1 at Cartonificio Sandreschi’s paper mill in Villa Basilica, Italy. Cartonificio Sandreschi had previously installed on PM1 several custom-made TT SteelDryers of 2,000 mm diameter to replace its existing cast iron cans. With this new order, the Italian cardboard manufacturer taps Toscotec for a complete rebuild, scheduled for the third quarter of 2022.

The project consists of a modification of the wet end with the inclusion of mould cylinder at the end of the Fourdrinier

section, and the rebuild of the press section with the replacement of the existing frame of the first two presses with a new stainless steel frame, the felt runs re-design and the addition of a new suction press roll to increase the post-press dryness rate. The scope also includes the renovation of the auxiliary systems, as well as dismantling and erection operations, commissioning, and start-up assistance. The rebuild is aimed to increase machine efficiency by achieving an important upgrade of PM1 with the replacement of obsolete parts with a robust stainless steel frame.

Benedetto Sandreschi, Owner of Cartonificio Sandreschi, says: “We trust in Toscotec’s expertise to successfully deliver this project. Even in difficult times, we carry on investing in technology to strengthen our position and continue offering high quality cardboard to our customer base.”

Enrico Fazio, Sales Director of Toscotec’s Paper & Board division, says: “It is a pleasure to collaborate with a cardboard manufacturer well rooted in the territory of Tuscany such as Cartonificio Sandreschi. In the past, Toscotec had installed its steel cylinders on this paper machine. We are now eager to start this partnership with them on a complete rebuild for the first time.”

Toscotec steps up sustainable performance with environmental certifications

Toscotec has successfully renewed its ISO 14001 certification and Eco-Management and Audit Scheme registration for environmental protection and is on track to obtain the ISO 45001 certification validating a significant improvement in occupational safety. Toscotec has been complying with these stringent environmental standards for 16 years, attesting to its consistent commitment to sustainability.

Besides pursuing sustainable operations, Toscotec is proud to advance the decarbonization of the paper industry by designing and manufacturing energy efficient technology and services that significantly reduce the energy demand of the paper making process and preserve natural resources such as water and fibres.



Validated improvements in sustainability

Toscotec is the only tissue machinery manufacturer in Italy to participate in the Eco-Management and Audit Scheme (EMAS) devised by the European Commission. EMAS constitutes a premium benchmark for environmental management, as it sets forth demanding guidelines that voluntarily registered organisations comply with to improve their green performance, credibility, and transparency. Toscotec's environmental management system is also certified to ISO 14001 since 2005.

In addition, Toscotec is strictly implementing an occupational safety management system, which includes key policies and objectives driving the improvement of health and safety at work in compliance with the ISO 45001 international standard.

This set of actions demonstrates a complete, effective, and fully integrated HSE (Health, Safety, Environment) management system.

"Toscotec has confirmed an ever-growing commitment to corporate sustainability with notable improvements in energy efficiency and waste management capacity. To name a few examples, since 2011 at our headquarters facility, we have been abandoning halogen and fluorescent lamps for LED lights, a move that has reduced our electrical consumption from illumination by 40%," says Andrea Marzaro, Toscotec's Operations Director (COO). "For heating, we replaced fuel oil boilers with natural gas boilers equipped with state-of-the-art burners that have both cleared the issue of fuel oil disposal and increased our energy efficiency. In the space of green energy, we have made significant progress in energy self-generation at our main production site and have progressively replaced diesel-fuelled forklifts with new electric ones," adds Andrea Marzaro.

Toscotec has been generating electric power from solar energy for more than 10 years. Through four implementation phases, it stepped up its photovoltaic system by over 360 kWh, of which 260 KW/h are used for the internal demand of Toscotec's manufacturing operations and 100 KW/h are sent back to the grid. Since 2011, by generating more than 3,500 MW/h of renewable energy, Toscotec's photovoltaic solar plant has saved more than 1,800 tons of CO2 emissions into the atmosphere.

Toscotec to supply a wet end rebuild to Cartiere di Guarcino in Italy

Specialty paper manufacturer Cartiere di Guarcino selected Toscotec for the rebuild of PM2 at its Guarcino paper mill near Frosinone in Italy. The project is scheduled for December 2022.

The rebuild consists of the modification of the paper machine's forming and press sections with installation of both Toscotec's and Voith's technology. In the forming section, the supply of a customized breast roll and Voith's FloatBearings will substantially enhance paper formation by boosting the performance of an existing shaking unit. Secondly, the installation of Voith's EdgeMasters on the forming wire will deliver optimal paper web edge. Finally, the rebuild of the Fourdrinier section will be completed by a new wire stretcher and tail cutting unit.

In the press section, Toscotec will supply an additional press nip with associated felt run, the overhauling of the hydraulic system, and a technological doctoring system equipped with savealls to improve water removal. PM2's press rolls will be equipped with polyurethane covers customized by Voith for each position: an AquaFlow cover on the first nip to minimize shadow marking and a SolarPress cover on the second and third nips to optimize dewatering. The service package of the rebuild includes erection supervision, commissioning, and start-up assistance.

The project has a twofold purpose of enhancing paper quality and increasing production capacity. By ensuring the shaking system's efficient operation, the rebuild will increase fibres orientation



in cross direction and deliver a more homogeneous distribution. This will result in better formation and improved paper quality. The modification of the press section will boost post-press drying rate, leading to a production increase.

Simone Principia, Plant Manager of Cartiere di Guarcino, says: "This investment fits into the growth strategy of Neodecortech Group. Cartiere di Guarcino is set to increase production performance through a fully customized technological solution. We aim to raise the bar on product quality and achieve the utmost differentiation in the high-end market of decor papers."

Enrico Fazio, Sales Director of Toscotec's Paper & Board division, says: "On this new project, we have achieved a very strong synergy with Voith and were able to meet the favour of Cartiere di Guarcino by including both Toscotec's and Voith's highly technological solutions. In the spirit of great flexibility that defines Toscotec, we devised a tailor-made solution for their unique and demanding market segment. Cartiere di Guarcino certainly has all the papermaking skills to realize the full potential of our technology."



Toscotec launches new concept machine for a more sustainable structured tissue

Toscotec launches INGENIA, a new concept tissue machine to produce premium quality structured tissue paper. The quality generated by INGENIA line is substantially higher than textured tissue and close to Through Air Drying (TAD) produced paper, but using 35% less energy.

With INGENIA Toscotec responds to the challenge of today's paper market calling for premium quality tissue obtained with lower energy use and lower capital investment than TAD lines. INGENIA's concept is based on consolidated technologies for premium tissue, building on vast internal know-how of Toscotec's and Voith's R&D, and field data validation on TAD and structured paper systems.

Paolo Raffaelli, Toscotec Chief

Technology Officer, says: "The key factor for energy reduction compared to TAD, is that INGENIA achieves significantly higher dryness through non-thermal dewatering on a structured moulding fabric. With TAD, the thermal drying starts from 24-26%, whereas INGENIA achieves a much higher dryness level without using hot air or steam. This maintains the premium quality obtained through rush transfer and structured moulding fabric, but uses much less energy."

Ultra-premium tissue quality

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

The specific pattern of the structured fabric and the use of a calender can further enhance the quality of end products.

Energy Efficiency through Process Innovation

The process of this new concept machine begins with a dilution profiling layered TT Headbox-ML operating on a twin-wire forming section. Like TAD machines, INGENIA operates wire rush transfer at low consistency, but its key capability is an enhanced vacuum de-watering system without pressing the paper web, which ensures that dryness is greatly increased while fibers are being supported in the same shape as they originally formed when fully water saturated.

At the end of the wet section, TT NextPress shoe press uses low loading pressure to gently stabilize the web dryness content and transfer the paper to the drying section without bulk compression. The combined action of a third-generation design TT SYD Steel Yankee Dryer and high-efficiency TT Hood achieves the final desired dryness. The process is completed by dry creping, sheet stabilization integrated with dust removal, and precision winding using an electro-mechanical TT BulkyReel fitted with a Center Wind Assist on the primary and the secondary arms. The Center Wind Assist fully preserves bulk by reducing the nip pressure against the reel drum during the winding process.

Flexible Configuration

The new INGENIA offers top flexibility, as it can easily swing from the production of premium quality structured tissue to conventional DCT. When in conventional mode, INGENIA delivers top machine speed and production capacity.

INGENIA features widths up to 6 m, a production capacity from 100 to 250 tpd, and operating speeds up to 1,500 m/min in structured tissue mode or 2,000 m/min in conventional mode, depending on machine size and customer requirements.

IF TISSUE TECHNOLOGY COULD RUN ON HALF THE ENERGY?

IF

INSPIRING THE FUTURE

IF is a conjunction.

It is the bridge with our best expectations.

It is the way to anticipate the answers.

IF growth didn't come at the cost of the planet?

IF tissue technology could run on half the energy?

Let's discover it together.

Toscotec launches new TT Headbox-SL generation design for paper and board

1. Introduction

Considering the very demanding operating conditions of headboxes, and in order to guarantee high quality and uniform profiles, Toscotec has developed a strict design and quality control protocol especially devised for headbox manufacturing.

This protocol involves raw materials tracing, manufacturing control of single parts, and final pre-assembly in the workshop with the objective of certifying the following features of the final headbox assembly:

- Lip opening uniformity (at different slice openings and during slice movement)
- Surface integrity, planarity, and roughness
- Sharp lip edges integrity and linearity
- Stability under operating conditions (pressure test)
- Material quality

Toscotec has installed more than 100 TT Headbox on tissue and paper and board machines. Based on its vast experience in design and operation, Toscotec has recently introduced the new generation design of TT Headbox-SL for paper and board application by benefiting from the experience of its headboxes for tissue machines. Considering their high performances, tissue production is very demanding due to the following features:

- High speed required at the jet (up to 2200 m/min) with corresponding high structural strength required due to high internal pressure. This pressure poses the challenge of reducing headbox deformation or allowing manifestation of inherent minor manufacturing issues.
- High flow due to typical low consistencies used in tissue machines (up to 0,15%) with corresponding large size headboxes to be fit into a typical gap forming geometry.
- Most tissue market headboxes manufactured are prepared for the installation of a dilution control system in order to ensure very precise paper profile control on a very low basis weight (11-12 gsm).

2. TT Headbox-SL for paper and board: key technical features

Toscotec's TT Headbox-SL has a robust structure to withstand internal pressure and large machine width, and a compact design for easy installation both on new machines and on rebuilds.

The internal components are designed to guarantee good fiber distribution across the machine width and good fiber mixing before jet delivery to the forming section (both on Fourdrinier or gap former).

The special design of the tube bank's tubes ensures an optimal uniformity in cross direction and good preparation of the fiber slurry before the converging zone with minimal head losses.

After the tube bank, a series of lamellas (blades) are installed to maintain a high level of microturbulence for optimal fiber mixing just before leaving the headbox making it optimized for the final jet delivery out of the lip.



On both sides of the tube bank structure, specially designed valves control the flow at the extreme edges of the headbox, in order to ensure a uniform fiber orientation on the entire width up to the edges.



A comprehensive system of mechanical jacks and electrical motor reducers allows operators to have full control of the top slice to adjust jet thickness across the lip and the jet landing (impingement) according to production needs.

A pulse attenuator is normally installed just before the inlet of the headbox header to reduce disturbances coming from the approach flow system, in terms of pressure pulsation in the incoming stock. The complete headbox and pulse attenuator are manufactured in solid stainless steel with tight mechanical finish for all surfaces in contact with the stock.

3. Toscotec's new TT Headbox-SL generation design

Toscotec has recently started up a new generation design TT Headbox-SL for a packaging paper application in Russia. The TT Headbox-SL is designed to operate on

a Fourdrinier machine with 2,830 mm wire width producing fluting and test liner in the range from 90 to 175 gsm, using 100% mixed recycled and raw fibres. The headbox was supplied with TT D-Profiler dilution system for precise bone dry profile control.

The TT Headbox-SL is part of a complete refurbishing two-step plan for the paper machine, where the headbox was planned in the first step and is prepared for future speed-ups to 900 m/min.

During this first project step, Toscotec also modified the Fourdrinier table adding new dewatering elements to increase the drainage capacity of the wire section and supplying a new flume and the complete approach flow system feeding the new headbox and its dilution system.

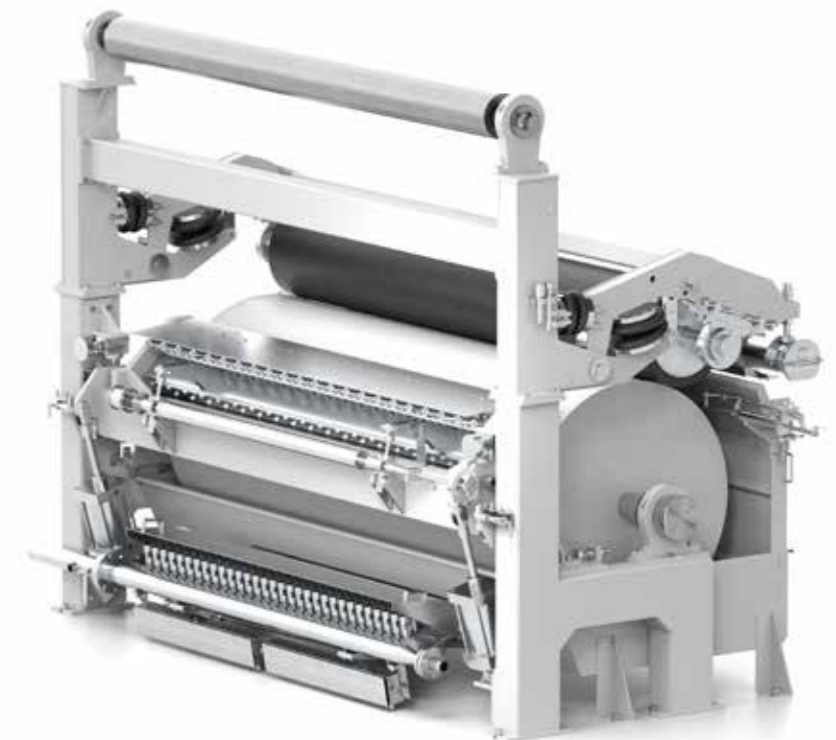
After the rebuild, the paper machine achieved good paper formation and the expected performances.

In particular, the headbox was started up with a uniform slice opening and there was no need to adjust the lip profile using the profiling screw jacks installed on top of the headbox slice. The TT D-Profiler dilution control system operated at full capacity from the first day, delivering immediate response on the profile, in line with the guaranteed values of two sigma variation below 0,5 COV for all productions, and all parameters of the system ran according to the design.



Toscotec was awarded an order for another TT Headbox-SL with TT D-Profiler dilution control system to be installed in the United States on an existing MG machine. This new headbox will have a pond width of 3405 mm and an expected maximum speed of 800 m/min. Start-up is planned for the last quarter of 2021.

In the first quarter 2022, Toscotec will also start up two new special TT Headbox-PF operating on new pressure former units installed on an existing multi-layer board machine. It is worth mentioning that these special headboxes feature a dilution control system specially developed for this project. The target of this rebuild is to increase machine production and to improve paper quality in terms of paper profile.



Toscotec launches breakthrough in Steel Yankee Dryers for sustainable papermaking

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

In 2000, Toscotec pioneered a major technological innovation, TT SYD, the first Yankee dryer entirely made of steel. Steel Yankees have since surpassed their cast-iron equivalent to become the benchmark for drying efficiency and safety in the paper industry. TT Induction SYD is now set to be the new game changer in tissue for its capability to use clean energy and slash direct carbon emissions associated with the drying process.

A disruptive innovation for dry crepe and TAD tissue machines

With TT Induction SYD, the internal steam distribution and steam/condensate removal systems are entirely replaced by an induction system composed of static coils installed inside the shell and electrical controls and instrumentation located outside for easy maintenance and monitoring. As a result of precise coil geometry, the induction system delivers a very fast and accurate heating effect exactly on the areas of the shell where it is required, while preventing residual circulating currents in other areas.

Steam-heated Yankees use steam energy typically generated by burning fossil fuels. TT Induction SYD uses electrical energy that can be derived from renewable energy sources while delivering the

same result, i.e. uniformly heating up the Yankee's shell in contact with the paper web to achieve dryness. TT Induction SYD is suitable for installation on dry crepe as well as Through-Air-Drying (TAD) tissue lines.



Luca Ghelli, Toscotec R&D Director, says, "Sustainability is the guiding idea of TT Induction SYD's design. As a proven industrial technology, an induction system offers multiple advantages when applied to the most energy-intensive section of the tissue machine. The efficiency of this cutting-edge technology will dramatically reduce the carbon footprint of papermaking. Based on our expertise in steam-heated TT SYD and induction systems, we succeeded in developing a more efficient and sustainable steel Yankee dryer."

Substantial carbon reduction with unchanged productivity and paper quality

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

Maximum safety, easier operation, and maintenance

TT Induction SYD was designed without any electrical, mechanical, and radiation risk to ensure maximum safety. Besides offering safe operations, it also clears all issues related to the maintenance of steam-heated Yankees, including pressure vessel's mandatory and planned controls, maintenance of condensate straw pipes against potential plugging and of special heads for steam and condensate inlet and outlet. The entire Yankee system is simplified in the absence of steam: the heads, the internal surface which is groove-less, and the steam and condensate auxiliary system disappears entirely, including the steam generator with related maintenance and controls and delicate controls for steam quality. TT Induction SYD simply requires relatively easy maintenance on the electromagnetic induction system.

Toscotec's turnkey tissue line starts up at Vajda-Papír in Hungary



Vajda-Papír started up a double-width AHEAD 2.2L tissue machine supplied by Toscotec (PM2) at its Dunaföldvár facility in Hungary. The supply was full-on turnkey, including the entire tissue production line and all erection operations at the mill.

A complete turnkey supply

The turnkey scope included the entire stock preparation system and Toscotec's patented TT SAF® (Short Approach Flow) fitted with a double dilution system to maximize energy savings. It comprised the electrification and controls, dust and mist removal systems, boiler plant, bridge cranes, air compressor station, roll handling and wrapping systems, and hall ventilation with conditioning system.

For the mill's PM1, Toscotec also supplied an OPTIMA 2600 slitter rewinder equipped with automatic shaft puller and dust removal system that came online in February 2022.

Toscotec's turnkey scope included a complete service package with detailed mill engineering, erection, training, commissioning, and start-up assistance. The installation of this double-width tissue line required a substantial erection team of more than 190 technicians over a period of approximately 200 days.

A tissue machine designed for superior energy efficiency

The AHEAD 2.2L machine features a net sheet width of 5,600 mm, a maximum operating speed of 2,200 m/min, and a production capacity of over 80,000 tons/year. It is equipped with Toscotec's state-of-the-art technology, including a fully hydraulic TT Headbox-MLT, a shoe press of the upgraded design TT NextPress, a third-generation TT SYD Steel Yankee Dryer, and TT Hood system designed for maximum energy recovery.

Attila Vajda, Managing Director of Vajda-Papír, says,

"This new Toscotec line constitutes our flagship investment at Dunaföldvár site. We have a vision for Vajda-Papír's expansion to be in harmony with the environment, and that is why we chose the most energy efficient technology available on the market. Throughout the entire project, the whole Toscotec team demonstrated their extensive expertise and great passion for tissue-making. The successful start-up of PM2 represents a key achievement and an important step forward for Vajda-Papír's sustainable growth."

Gabriele Barattini, Toscotec Project Manager, says,

"Successfully completing a turnkey project of this magnitude is a great satisfaction indeed. The cooperation with Vajda-Papír's team has been excellent all along and has allowed us to manage every phase in the best possible way. Toscotec's flexibility is crucial for the success of any project, even more so for turnkey projects."

Vajda-Papír taps OnCare.eDoc for easy access of technical documentation

Vajda-Papír has chosen Voith Paper and Toscotec's digital documentation platform OnCare.eDoc for the comprehensive and user-friendly management of all the technical information of its new tissue line. On 6 July 2022, Vajda-Papír has started up an AHEAD 2.2L tissue machine supplied by Toscotec on a full turnkey basis including the complete production line and all auxiliary systems.

Zoltan Pataki, Operations Director at Vajda-Papír, says, "The OnCare.eDoc platform contains the entire scope of supply of our new line. It is very easy to pull any type of technical document such as manuals, drawings, and process flow diagrams. Easy access to specific information allows us to increase operation and maintenance efficiency. With this flexible platform we can finally say goodbye to hours spent searching for documents and data".

OnCare.eDoc delivers a clear user guidance and easy-to-use structure both from desktop and from portable devices. As a key advantage, it includes all the technical documentation of the entire paper mill, so that any equipment supplied by Toscotec and Voith can be sourced in one single point. Due to the large amount of collected data, OnCare.eDoc also offers an effective search function for all kinds of documentation needs.

"Efficiency and digitalisation go together. In the future Toscotec's technical documentation will be delivered on OnCare.eDoc. Our goal is to provide customers with a clear and easy-to-manage digital documentation platform. On a large supply such as Vajda-Papír's turnkey project, we are confident that OnCare.eDoc will make the difference" comments Lorenzo Melani, Documentation Technical Coordinator at Toscotec.



Henrik Tallowitz, Strategic Product Manager Webshop at Voith Paper, adds: "Many customers from us benefit from the advantages of OnCare.eDoc. With customized functions such as a favorites list, paper manufacturers can sort their documentation according to specific requirements. This can minimize future search efforts."

Toscotec to rebuild PM1 at KMK Paper in Turkey

Turkish cardboard manufacturer KMK Paper selected Toscotec for the complete rebuild of PM1 at its Kahramanmaraş paper mill in Turkey. Scheduled for the first quarter of 2023, the project will increase the machine's production capacity and significantly improve paper quality. PM1 produces packaging paper grades, including fluting, testliner, kraft paper, and gypsum board.

The rebuild encompasses the entire paper machine from the forming section to the reel and it incorporates both Toscotec and Voith's leading technology. The supply includes a DuoShake unit in the wet section to ensure optimal formation at a low MD/CD tensile ratio, and a NipcoFlex shoe press to achieve higher paper quality and dryness. After the size press, the installation of a CB-Turn unit will effectively stabilize the sheet on an air cushion and avoid roll contamination. In the dryer section, Toscotec will install new TT SteelDryers

operating at the maximum pressure of 10 barg, and DuoCleaner Express for the effective cleaning of the dryer fabrics. The supply will also include a complete tail threading system.

Bekir Yemşen, General Manager of KMK Paper and Board Member of Key Holding, says: "This is a strategic investment for KMK Paper where we will realize an extensive upgrade of PM1, and we are happy to have reached an agreement with Toscotec. We support the strong synergy between Toscotec and Voith, which perfectly matched the needs of our project."

Cihangir Hakan Oba, Project Manager of KMK Paper, adds: "We pursue continuous improvement and development through the adoption of the latest technological innovations. We have a tight schedule on this rebuild, but we got off to a good start and are cooperating well with Toscotec."

Fabrizio Charrier, Sales Manager of Toscotec's Paper & Board division, says: "I am very glad that KMK Paper has placed its trust in Toscotec for this important project, where we'll manage a complete technological rebuild that incorporates Voith's key components, including a high load shoe press that reaches 1,600 kN/m. This project strengthens Toscotec's position in a very important market for paper machine rebuilds."



Toscotec supports sustainability festival Pianeta Terra in Lucca

Toscotec will sponsor Pianeta Terra Festival, a celebration of sustainability in all its shapes and forms running from 6th to 9th October in Lucca, Italy. Organized by publisher Laterza and directed by internationally renowned plant neurobiologist and author Stefano Mancuso, this first edition of the festival offers insightful conferences, talks, and joyful night music, featuring multidisciplinary experts and creatives. Sustainability is explored far and wide to offer a 360-degree view that spans from ecology to literature, sociology, economics, finance, art, nutrition, and more. The festival's mission is to encourage a new connection with the natural environment and make space for creativity and conversations around the theme of sustainable living.

Alessandro Mennucci, CEO of Toscotec, says: "Supporting a purpose-driven festival on sustainability here in Lucca was an opportunity we just could not miss. We hope many people will join us in discovering new angles to this far-reaching and multi-faceted subject, so crucial in today's world."

The program of Pianeta Terra Festival is online: <https://www.pianetaterrafestival.it/>



— Cartiera Confalone achieves top performances on Toscotec's tissue line

The AHEAD 2.2 tissue machine supplied by Toscotec to Cartiera Confalone is operating at the maximum speed and is largely exceeding its guaranteed production capacity. After start-up of this turnkey tissue line in September 2021, Toscotec has followed through supporting Cartiera Confalone to optimize the process and achieve top performances.

Valter Di Nardo, Chief Customer Service Officer of Toscotec, says, "Considering the soaring costs of energy here in Italy, our service team has worked closely with Cartiera Confalone to maximise the drying performance of the machine by fine-tuning TT NextPress and TT Hoods to take full advantage of the cogeneration

system. Toscotec also went the extra mile to provide the mill's new staff with the best training: our papermaker has consistently worked with their production department on site and all our specialist have been assisting onsite or remotely as needed."

With more than 20 projects since 2015, Toscotec is the global leading supplier of turnkey tissue plants. Part of its responsibility as turnkey supplier is the continuous assistance to achieve the guaranteed performance and the fine-tuning of the tissuemaking process.

Gaetano Confalone, Sole Director of Cartiera Confalone, says, "The great cooperation between our team and Toscotec stands behind today's results. Together we have executed this project in the midst of the Covid-19 pandemic, and we wouldn't be here today if it weren't for our joint efforts to achieve excellence on this new line both in terms of tissue quality and production capacity. We appreciated Toscotec's expertise and flexibility throughout this whole journey together."

Riccardo Gennai, Sales Manager of Toscotec, comments, "Toscotec has a long-standing partnership of more than 20 years with Cartiera Confalone. In 1999, we installed their first tissue line at Maiori mill. A decade later, we proposed to replace PM1's cast-iron Yankee with Toscotec's most updated technology, our leading-edge TT SYD Steel Yankee Dryer. We have always worked together as trusted partners, and we will continue on this path in the future."



Toscotec introduces 100% hydrogen fueled burners for sustainable papermaking

Toscotec launches TT Hydrogen Burner, a new generation of 100% hydrogen fueled burners designed and tested for Yankee hoods. Within the context of the energy transition from fossil-based to zero-carbon industrial operations, Toscotec developed this patented innovation to drive the conversion of paper manufacturing to clean energy.

TT Hydrogen Burner is an in-line burner featuring precisely controlled combustion and two safe operation modes. In carbon-free mode it runs on 100% hydrogen; in carbon-reduction mode it is fueled by a mixture of natural gas and hydrogen, where the percentage of hydrogen is accepted across a wide range.

Fossil-free fuel for a more sustainable tissuemaking

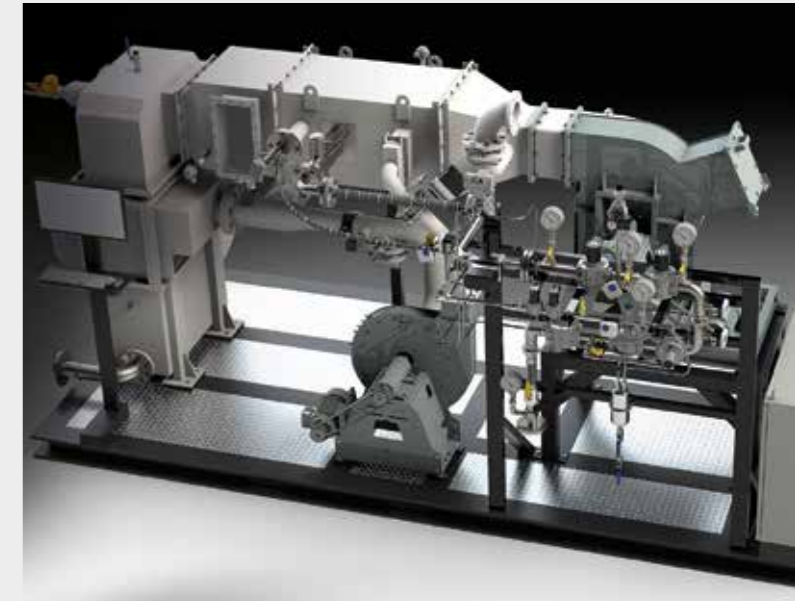
TT Hydrogen Burner entirely matches the high performance of gas-fired burners, using a carbon-free fuel. In fact, hydrogen combustion does not emit carbon dioxide into the atmosphere. The key factor in the overall energy balance is that hydrogen fuel is produced from renewable energy sources. If this is the case, in the future hydrogen may possibly replace fossil fuels in all thermal processes associated with tissuemaking, including steam production and air system burners. In terms of its infrastructure, hydrogen can be stored in pressure vessels, or injected into the existing natural gas grid.

Stefano Pecchia, Energy Technology Director at Toscotec, says,

"Tissue producers are asking for technological innovations that will allow them to work in full hydrogen mode. Whether they choose to replace their existing burners or install new tissue lines, tissue producers aim to be ready for when this fuel will be widely available, cost competitive and green. In response to this demand, Toscotec has invested in building a dedicated air system test bench to ensure guaranteed results according to the specific operating requirements of paper mills".

Ready for industrial application

The design of TT Hydrogen Burner is ready for industrial scale production because it has been successfully tested to operate under the same conditions of air speed, temperature, and humidity of the actual air system of a tissue machine. TT Hydrogen Burner is suitable for immediate installation. Currently, hydrogen availability for tissue mills is limited, so the burner can be set to operate burning hydrogen mixed with natural gas in carbon-reduction mode, or even only natural gas if necessary. When hydrogen becomes readily available, in order to switch to full hydrogen mode, TT Hydrogen Burner simply requires a nozzles replacement, which is a one-day easy procedure. This will guarantee the highest possible combustion efficiency based on 100% hydrogen gas.



— Toscotec to supply low-carbon design tissue line to MP hygiène

MP hygiène has selected Toscotec for the supply of its second tissue line at Annonay mill in France. Scheduled for start-up in 2024, the new AHEAD 2.2 (PM2) will be supplied on a turnkey basis. This is Toscotec's second turnkey supply to MP hygiène, following PM1 that came online in 2012.

Innovative low-carbon design and high flexibility

The high performance machine has a sheet trim width of 2,800 mm, a design speed of 2,200 m/min and a capacity of 38,000 tpy. Equipped with Toscotec's winning combination of latest design shoe press TT NextPress and TT SYD Steel Yankee Dryer, this AHEAD 2.2 will also be the first high speed machine in the tissue industry to feature an entirely electrical air system with three stages of heat recovery. Toscotec's high efficiency TT Hoods are equipped with both natural gas fueled burners and electric heaters. The air system is designed to offer three efficient operation modes: gas-heated, electrically heated and a combination of the two, to ensure maximum flexibility in the choice of energy sources based on availability, cost, and carbon footprint. In full electrical configuration, MP hygiène will eliminate the direct carbon emissions linked to the hood drying process.



Turnkey supply for the highest performance guarantees

The supply includes the stock preparation system featuring two complete lines, one for virgin wood fibres and one for waste paper specifically designed to feed both PM1 and PM2, as well as a machine broke line to maximize fiber recovery. Toscotec will supply its patented TT SAF® DD (Short Approach Flow system with Double Dilution), fiber recovery and water clarification systems, the complete tissue line with electrification and controls, as well as dust and mist removal systems. The scope includes mechanical erection, dismantling and repositioning of key equipment shared between PM1 and PM2, erection supervision, training, commissioning, and start-up assistance.

Christopher Colin, COO of MP hygiène, says: "We trust Toscotec is the right partner for our strategic expansion project, based on their proven capabilities managing complex turnkey operations and their focus on innovation. Toscotec's turnkey expertise and experience allows them to offer us the flexibility we need to achieve our growth targets".

Riccardo Gennai, Toscotec's Sales Manager, says: "Ten years after the start-up of PM1, Toscotec is very pleased to partner again with MP hygiène on a highly technological project. This innovative electrical air system will offer them a key tool to continue on their current path of decarbonisation. To optimize the use of resources, we also designed the layout and turnkey supply of PM2 as perfectly integrated with PM1".



Superior drying efficiency for over 60 years.

Toscotec SteelDryers are the cutting-edge technology you need to achieve your maximum drying capacity, increase production and improve operating efficiency. Full-scale customization: we design the size of **TT SteelDryers** and custom make the rebuild of your machine according to your needs.

Toscotec, world-leading supplier of steel dryers for the paper and board industry.

Toscotec strengthens leadership of tissue machine rebuilds with over 25 projects in 2022



In 2022 Toscotec has managed more than 25 tissue machine rebuilds for leading manufacturers that remain confidential. The projects are located at different mills across 6 continents: Africa, North and South America, Asia, Europe, and Oceania.

Rebuilds and process optimization equal increased profitability

The main targets of Toscotec's tissue rebuilds are threefold. The first is increasing the productivity of an existing machine both by boosting its drying capacity and by reducing its energy consumptions. The second is improving paper quality, which allows the mill to achieve premium quality or to produce lower basis weight, high quality tissue paper, thereby reducing raw material

costs. The third is ensuring equipment safety: by upgrading outdated machinery, Toscotec guarantees maximum operation safety on the production line.

The highest value for a limited scope

The scope of supply of Toscotec's rebuilds ranges from single components such as Steel Yankee Dryers to entire systems such as the approach flow system and the tissue machine's wet end, the air system, as well as the pope reel and the rewinder, which ensure the optimization of an entire section of the tissue line and associated processes. Customization is key. Therefore, site surveys and rebuilding analysis are an integral part of rebuilds because they allow Toscotec to pinpoint the most effective targets for upgrades

and process optimizing solutions.

They can also serve as guidelines for tissue manufacturers to identify the technological investments that yield the highest returns.

Nicole Foley, Toscotec Project Manager, says, "Technological rebuilds call for specific project management skills, including the ability to effectively manage numerous projects simultaneously, and to rigorously respect the project timetable as we intervene on operating tissue lines."

Riccardo Gennai, Toscotec Sales

Manager, says, "The key added value that Toscotec offers as leading supplier of tissue rebuilds is the ability to build trust with customers and provide technological and customized solutions for all their needs. We often receive repeated orders encompassing all the production lines of a tissue mill, including equipment upgrades and process optimizations aimed at carbon reduction and energy savings."

Toscotec to supply second tissue line to Saudi Paper Group on a turnkey basis

Saudi Paper Group selected Toscotec for a second tissue line to be installed at its Dammam facility in Saudi Arabia. The new AHEAD 2.2L machine (PM5) will be a full-on turnkey project and it follows Toscotec's supply of a complete AHEAD 2.2S line that is currently undergoing erection at the same tissue mill. The start-up of PM5 is scheduled for 2024.

The new AHEAD 2.2L line has a sheet trim width of 5,600 mm, a maximum design speed of 2,200 m/min, and an annual production capacity of over 60,000 tons. Designed for superior performance and energy efficiency, the tissue machine is equipped with TT NextPress upgraded design shoe press, a third-generation design TT SYD Steel Yankee Dryer, and high efficiency TT Hood. The scope also includes two OPTIMA 2600L slitter rewinders devised to preserve bulk and softness while ensuring optimal winding performance.

In order to guarantee superior energy efficiency, Toscotec will design the new line to operate with a gas turbine that produces the electricity and the steam required to meet the mill's needs. A full service package with detailed mill engineering, erection, training, commissioning, and start-up assistance completes Toscotec's turnkey supply.

Youssef Abdel Hamid Abdel Aziz El Bishry, CEO of Saudi Paper Group (SPG), says, "Progressing on the path of strong expansion we have set for SPG, we selected Toscotec for this second tissue line, because we value both their ability to deliver first-in-class technology and their proven history of successfully managing complex turnkey operations."

Alessandro Mennucci, CEO of Toscotec, says, "At Toscotec, we strongly believe in partnerships as the basis for success. Therefore, we look forward to continuing our close partnership with Saudi Paper Group. As Toscotec's fourth tissue order in the fast growing Middle Eastern region, this major project represents the perfect opportunity to strengthen our market leadership as supplier of turnkey tissue projects."



Toscotec starts up two tissue machine rebuilds in North and South America on the same day

On 11 November 2022, Toscotec has started up two tissue machine rebuilds at the production facilities of two major producers in North and South America. On both projects, the scope of the modifications was extensive, covering the wet and the dry section of the two lines. The tight periods of machine stop have been executed according to schedule.

Andrea Paganucci, Toscotec Project Manager, says, "One of the most challenging aspects on this large rebuild was the integration of Toscotec's key components with the existing equipment. Creating an effective interface between different systems requires strong multi-stakeholder coordination. We are happy that the machine is now running efficiently as expected."

Flavio D'Orlando, Toscotec Site Manager, says, "After the rebuild, the machine started producing sellable paper right away. We are now fine-tuning the new equipment, which is already meeting the mill's product quality requirements. The on-site operations, including dismantling, erection, commissioning, and start-up, all went very smoothly."



Toscotec to supply first tissue line to Indian Paper and Board Manufacturer Gayatrishakti



Toscotec will supply a complete AHEAD 1.8 tissue machine to Gayatrishakti Tissue to be installed at their paper mill in Vapi, Gujarat. The Indian manufacturer is entering the tissue market with this new line slated for start-up in 2024.

The AHEAD 1.8 tissue machine has sheet trim width of 2,850 mm, an operating speed of 1,800 m/min, a production of over 35,000 tpy.

It features Toscotec's best-in-class drying configuration including an upgraded design shoe press TT NextPress, a third-generation design TT SYD Steel Yankee Dryer and high-efficiency TT Hood. The supply comprises key stock preparation and fiber recovery equipment, Toscotec's patented TT SAF® DD (Short Approach Flow System with Double Dilution) for superior energy efficiency, and two OPTIMA 2200 slitter rewinders. The service package includes erection supervision, commissioning, training programs, YES-CONNECT-VISION Augmented Reality on remote assistance system, and start-up support.

Shri G. N. Agarwal, Managing Director of Gayatrishakti Paper & Board, says, "We selected Toscotec because we wanted to invest in state-of-the-art tissue-making technology. We value their solid experience in guiding and sharing their expertise with newcomers in tissue. Gayatrishakti is a well-established board manufacturer in India and based on our strong background in Paper and Board, we understand the importance of choosing the right partner for this new market entry."

Marco Dalle Piagge, Sales Director of Toscotec, says, "Toscotec is committed to providing Gayatrishakti with first class support to ensure their successful penetration of the Indian tissue market. Thanks to Voith's global presence, they can also benefit from local services offered by Voith Paper India. With this new project, Toscotec strengthens its presence in Southeast Asia where we received two new orders of complete tissue lines in 2022."

— Essel Kâğıt achieves maximum production efficiency with Toscotec's tissue line



Turkish tissue producer Essel Kâğıt's new AHEAD 2.2L machine has exceeded its guaranteed production by a large margin and surpassed bulk and softness parameters. Supplied by Toscotec on a turnkey basis, PM3 had come online at Essel's Osmaniye mill in Turkey in October 2021. After start-up, Toscotec has been providing continuous support to fine-tune the whole plant and achieve top performance.

Ahmet Temuroglu, Production Coordinator and Burak Ipek, Maintenance Manager at Essel Kâğıt, say, "The target of our performance test was successfully accomplished with a production of 290.5 tpd on a 23 gsm towel grade at the speed of 1,810 m/min. We are now fully reaping the benefits of Toscotec's first-in-class technology across our entire product range both for tissue quality and consumptions."

Nicola Fontana, Senior Papermaker at Toscotec, says, "This double-width AHEAD line is delivering a high and stable performance. TT NextPress is offering good results of bulk and hand-feel even at maximum load on low basis weights, exceeding Essel Kâğıt's strict quality standards."

Andrea Rossi, Toscotec's Commissioning Manager, says, "The performance test confirmed the machine's low energy usage we had been monitoring including at the speed of 2,000 m/min. The total energy consumption is well below the guaranteed figure. The cooperation with Essel's team was extraordinary and they did a fantastic job in getting the machine ready to achieve its top efficiency."

IF

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