

# paptech

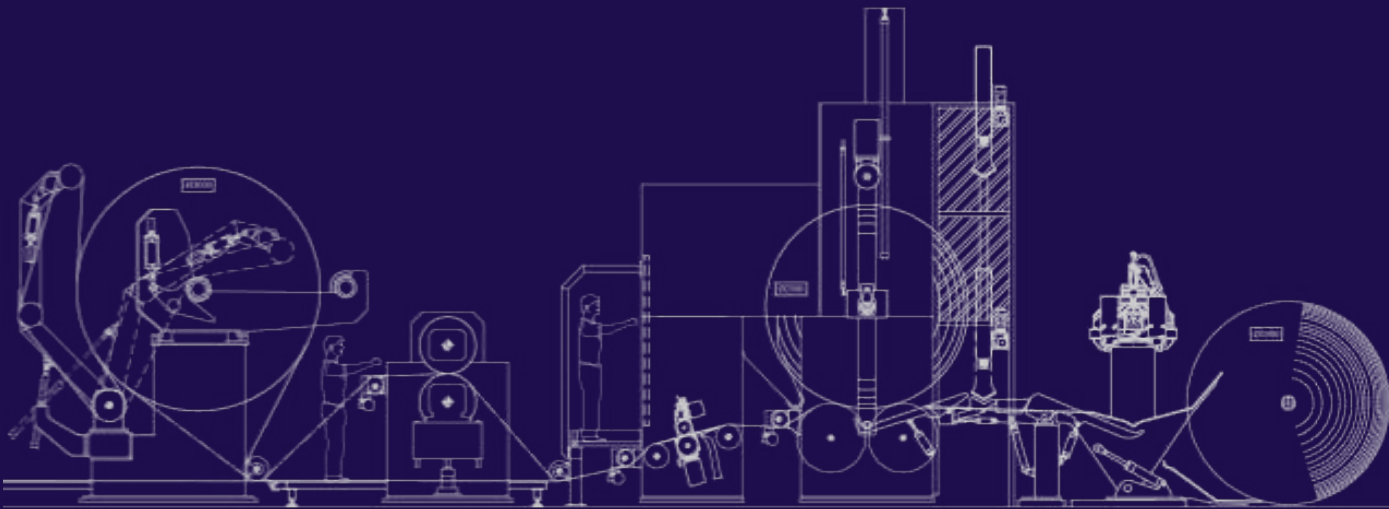
turnkey **paper** innovation

 **tecnopaper**

LUCCA - ITALY

 **Sael**

automation electronic systems





# Tough demands are our business

## Equipments & engineering for the pulp & paper industry

The PAPTECH ALLIANCE offers new equipments, as well as revamping of existing machines, according to the customer's needs and/or specifications

### Customized Design&construction

Design of new plants or specific machines

Single tailored machinery

Realization of single parts of the continuous machine and components for any kind of papermaking machine

Patented © machines for NON WOVEN

Realization of pilot machinery for test of new technologies

Automation, control and drives machine & equipment PLC management

The above services can be provided thanks to highly specialized technical personnel operating advanced systems of CAD design, following a certified ISO 9001:2000 design process.

### Upgrade Service&revamping

Professional and skilled team to provide ideas, solutions, developments including machines manufacturing

Revamping and studies of modernization of current plants / existing lines

Rolls and cylinders rectification of with any type of covering

Certified dynamic balancing, turning, grinding

Long term machines care, insurance and maintenance guarantee

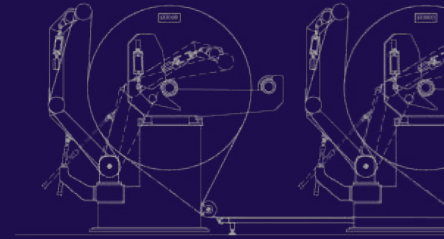
Remote assistance

Manuals of use and maintenance according to EU regulation

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# Revamping & upgrade plant modernization

Revamping and studies of modernization of  
current plants / existing lines



**Technical surveys  
in paper mills**

Thanks to a staff of technicians and designers specialised in a wide variety of technologies, we are able to make our technological and professional know-how available for offering competent and effective consultancy for the modernising and automation of the paper winding and rewinding lines, or simply for upgrading the machinery to the current safety standards.



**Study, engineering  
and design**

Painstaking attention is always paid to the use of technologies and materials that make it possible to improve the work conditions right from the preliminary study of each reconstruction and modernisation, also enabling significant enhancement for the final users. Participation with one's own resources and technologies in that ongoing process of creation and innovation is the basis for technological development that adds value to all our design solutions.



**Safety Certification  
(CE or other standards)**

We support our customers with a detailed and comprehensive evaluation of the existing machinery that allows for determining the most appropriate safety measures, while at the same time ensuring the operating requirements necessary for use and defining safe work methods, not only for operating in the strict sense of the word, but also for all those activities required for proper functioning, such as maintenance, equipping and cleaning. The objective is to provide the customer with everything necessary for guaranteeing the safety of the systems and the operators, not only in compliance with the standard requirements, but also by balancing them with a dedicated technical/operational assessment.



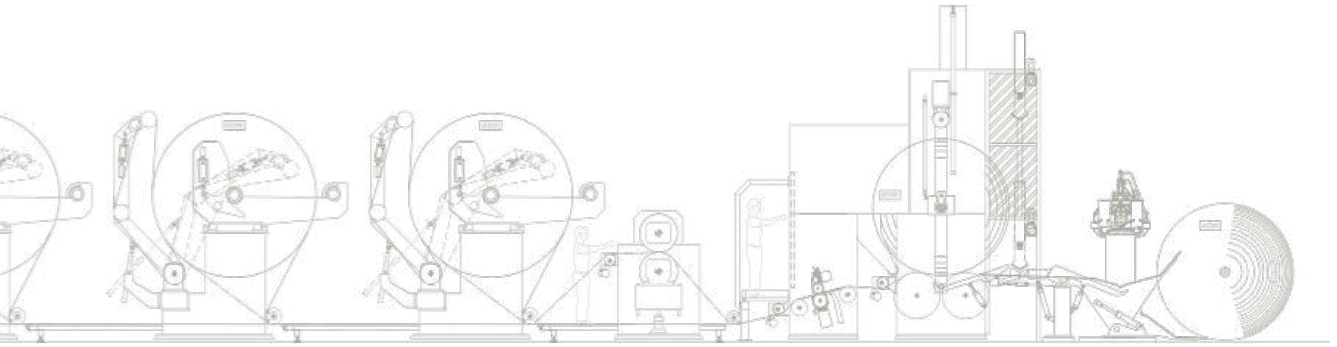
**Construction  
of mechanical parts**

We are able to produce and supply a series of new mechanical precision components for pre-existing paper and tissue producing lines, both heavy and small-sized, while adopting all the measures necessary for ensuring efficient, reliable processing that also complies with the application purposes. Each component can be made to the customer's design or to a sample taken from the paper mill, otherwise we can even make the construction design ourselves based on specific technical surveys.



**Electrical, Pneumatic  
and Hydraulic Systems**

Our revamping solutions include the reconstruction of electrical, pneumatic and hydraulic systems existing on board the machinery, guaranteeing perfect integration of the mechanical equipment in movement on the machine with the software. We conduct functional tests, verifications of the correct operation, commissioning and the necessary settings with the paper, all directly in the customer's factory.



**On-site service**

Pulptech Alliance offers companies a wide range of maintenance services designed to achieve all their maintenance objectives. The purpose of the interventions in the paper mill, both scheduled and due to malfunctioning, is to guarantee assistance by our specialised technical staff for restoring and maintaining the efficiency of the existing production lines.



**Motors, Drives and automation**

In the reconstruction of the machine controls for the winding and rewinding of the paper, not only does the Alliance provide the components, but it also offers complete operational and automation solutions. The experience acquired and the ongoing progress of our automation and control systems allow us to provide customers with a considerable increase in productivity together with a reduction in energy costs.



**Machine efficiencies**

The upgrading of the machinelines thanks to the replacement of old components with high-tech products is an essential requirement for ensuring the utmost in production performance over time and also guaranteeing higher quality standards. New cutting systems and adequate paper spreading systems are often required, as well as accessories for the introduction and conveying of the sheets of paper along the production line. This all improves the yield of the production lines as well as the operability of the lines themselves by the workers.



**Installation, start-up, training**

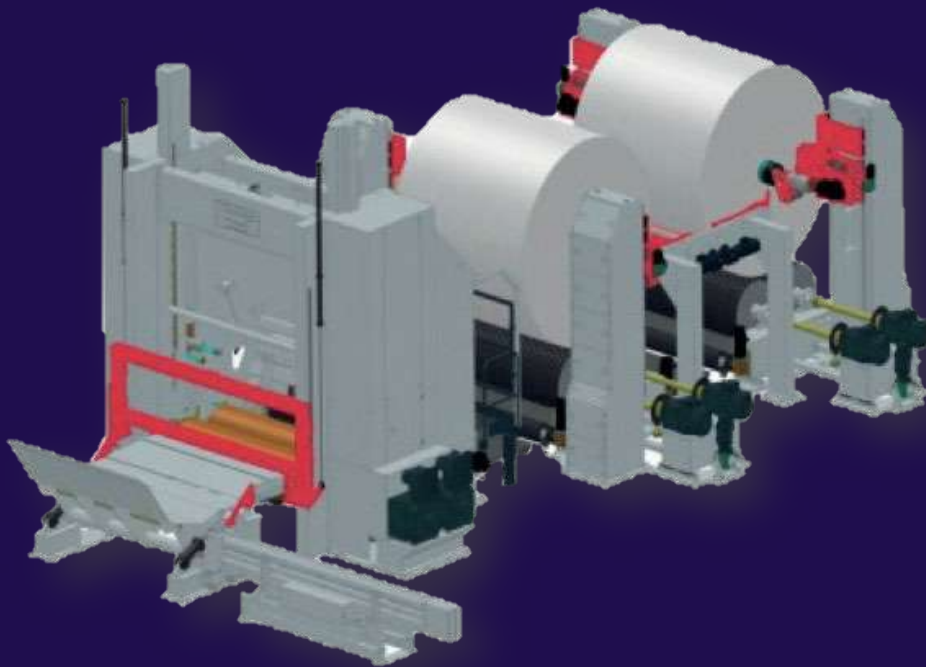
Qualified technicians, possessing all necessary skills, provide assistance in the paper mill by means of project management, installation, commissioning, training and maintenance services, bringing with them our vast expertise and technical know-how accrued thanks to installations carried out all over the world. This not only includes knowledge of our own machinery, but also that of other manufacturers, a key requirement for every revamping activity on pre-existing lines.



**Alignment service**

The perfect alignment of the production lines and mechanical transmissions is a fundamental requirement for maintaining high production performance over time and avoiding serious damage to the systems. For this reason, our Group offers a service for measuring and controlling the alignments via use of laser aligners, high precision optical levelling devices and theodolites, with the issuing of specific reports for the customer that give a clear indication of any non-compliances detected as well as suggestions on what steps to take to resolve the problems.

# Winding systems & Paper machines



Rewinders for Paper, Coreboard and Tissue represent the core business of the company. Under the leadership of the company and together with Sael Srl and the best Italian partners in the market, the Alliance is able to provide any kind of pulp & paper solution within the continuous machine lines.

Significant investments in R&D in order to supply the paper industry with new solutions

and machinery able to satisfy the rapidly changing requirements of tissue and paper producers, adopting their technology with the evolution of finished products. Solid and well balanced machines, easy to operate, each version is equipped with the highest technology.

# Kraft

## Slitter winder



	TP - KRB 15	TP - KRS 20	TP - KRH 22	TP - KRP 24
Basis weight	80 ÷ 240 gsm	80 ÷ 240 gsm	80 ÷ 240 gsm	80 ÷ 240 gsm
Speed up to	1.600 m/min	2.000 m/min	2.200 m/min	2.400 m/min
Finished reel diam. up to	1.300 mm	1.600 mm	1.800 mm	1.800 mm
Trim width up to	2.800 mm	3.200 mm	4.200 mm	5.200 mm
Carrying drum	600 mm	650 mm	750 mm	850 mm
Relieving system	Hydraulic	Hydraulic	Hydraulic	Hydraulic

## Standard equipment

- Axial adjustment of parent reel
- Automatic empty spool removal
- Empty spool parking
- Automatic tension control
- Set web length or reel diameter control
- Automatic finished reel change
- Unloading table for finished reels
- Tangential slitting system
- Manual slitters positioning
- Rider roll pressure control
- Hydraulic and pneumatic on board plants
- Safety protections
- Trim removal system
- Operator friendly control system
- Easy access for maintenance

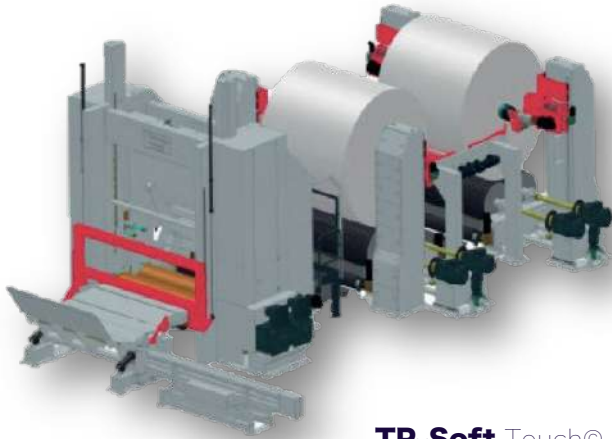
## Options

- Automatic slitters positioning
- Visualization of slitters positioning
- Dust removal system
- Drive on chucks
- Drive on rider roll
- Automatic core feeding
- Automatic gluing on cores
- Automatic gluing on tail for reel sealing

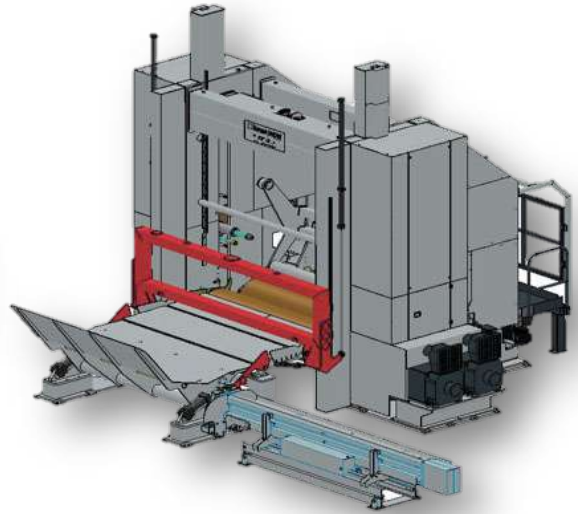
Designed to process all grades of uncoated paper, Kraft, Packaging paper and corrugated products or board. Produces high quality paper reels with perfect consistency and diameter according to custom specifics



# Tissue Slitter winder



**TP-Soft Touch**©  
Innovative winding  
concept fo supersoft  
tissued  
(patented)



## TP-Soft Touch © The innovative winding concept for Super Soft Tissue

The high deformability of both mother and finished reels creates problems in Rewinding Super Soft high volume tissue grades, if not properly handled.

Tecno Paper has developed, and patented, rewinding solutions purposely dedicated to such "difficult to wind" products. They avoid the Super Soft reels are permanently deformed and the loss of bulk is huge. The lastproduct which comes in to join the family of the TP-Soft Touch equipment is the new Unwinder, designed and developed by Tecnopaper's technical team.

It is fitted with innovative and dedicated drive and control systems for low density tissue reels, thus allowing to reach, and ensuring, high precision, accuracy and productivity for the unwind process on rewinding lines.

## TP-Soft Touch Rewinder

Hydraulic type, Closed Loop

- Bulk control by means of signals from load cells on chucks carriages and rider roll
- TP-Soft Touch – Benefits offered by the innovative winding concept TP-Soft Touch
- Reels (mother and finished) fully supported during all the process by full width driving rolls;
- Nullification of all the inertia forces thanks to addition of center drive at unwinder;
- High precision NIP control thanks to special hydraulic or electromechanical relieving systems, both working in "Closed Loop" mode with constant feedback from the on board sensors;
- High operation efficiency thanks to spools and shaft automatic removal and handling;
- Minimized bulk loss;
- Integration with TP-Win 4.0 e TP-Service. Operator friendly control system and HMI;
- Easy to switch from "Closed Loop" automatic NIP control to "Open Loop" control by curves set in the control system and adjustable by the operator



## Standard equipment

- Modular unwind stands
- Automatic empty spool removal
- Winding on cores with expanding shafts
- Automatic winding shafts loading system
- Set web length or reel diameter control
- Automatic finished reel changes
- Unloading table for finished reels
- Shaft puller / winding shaft handling system
- Hydraulic and pneumatic on board plants
- Tangential slitting system
- Manual slitters positioning
- Translating walkway in front of slitting group
- Safety protections
- Wound reel density control
- Relieving system for chucks and rider roll
- Trim removal system
- Operator friendly control system
- Easy access for maintenance

## Options

- Automatic slitter positioning
- Visualization of slitter position
- Dust removal system
- Calender
- Finished reel wrapping and handling



	TP - BWIND	TP - SWIND	TP - HWIND ST	TP - HWIND <sup>E</sup> ST	TP - PWIND ST	TP - PWIND <sup>E</sup> ST
Basis weight	12:40 gsm	12:40 gsm	12:40 gsm	12:40 gsm	12:40 gsm	12:40 gsm
Speed up to	800 m/min	1.000 m/min	1.500 m/min	1.600 m/min	2.000 m/min	2.000 m/min
Finished reel diam. up to	1.300 mm	1.500 mm	1.800 mm	2.000 mm	2.200/2500 mm	2.500 mm
Trim width up to	2.800 mm	2.800 mm	3.800 mm	3.800 mm	5.600 mm	5.600 mm
Carrying drum	400 mm	500 mm	605 mm	650 mm	750/850 mm	850 mm
Relieving system	Pneumatic	Pneumatic	Hydraulic	ElectroMechanical	Hydraulic	ElectroMechanical
NIP control system	Curves set in control system, changeable by the operator Manual, with special trolley	Curves set in control system, changeable by the operator Manual, with special trolley	Curves set in control system, changeable by the operator Manual, with special trolley or Automatic	Automatic	Both Automatic and by curves set in control system, changeable by the operator	Automatic
Spool handling	Manual, with special trolley	Manual, with special trolley	Manual, with special trolley or Automatic	Automatic	Automatic	Automatic
Special version <b>ST</b> <sup>(1)</sup>	N	N	N	Y	Y	Y
Shaftless version <b>S-L</b> <sup>(2)</sup>	N	N	Y	N	Y	N

# Paper Slitter winder



## Cardboard strips winder

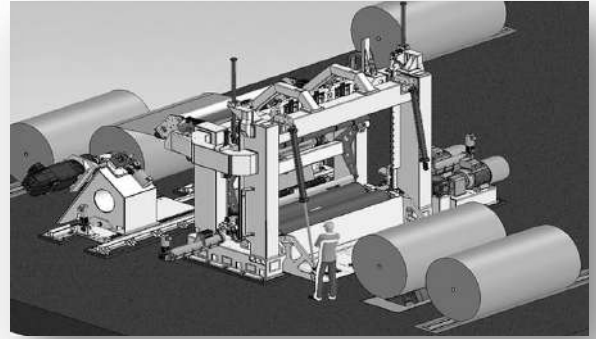
Dedicated paper passage designed for the production of coreboard strips, where it is essential to minimize the distance between cutting and winding area.

- Reduced times for all automated processing cycles
- Web threading system from unwinder to winder
- Chucks with automatic positioning system
- Core introducer device with automatic positioning system
- Cutting unit with auto-positioning dust suction system
- Web cross cutting system
- Auto-spool expelling system on unwinder, with spool's Storage
- Scalink supervisor system

## Multifunctional slitter winder

A unique special winder for Tissue and MG / light weight Kraft

- Design speed 1.800 m/min
- Special devices to work with different jumbo reel widths
- Two different and dedicated paper passage systems
- Two different and dedicated drives on the first unwinder
- Double control system: web lightening / web tension
- Double NIP control system for rider roll and chucks
- Auto-paper cross cut system with movable barrier
- Automatic shaft extractor system and shaft re-introduction

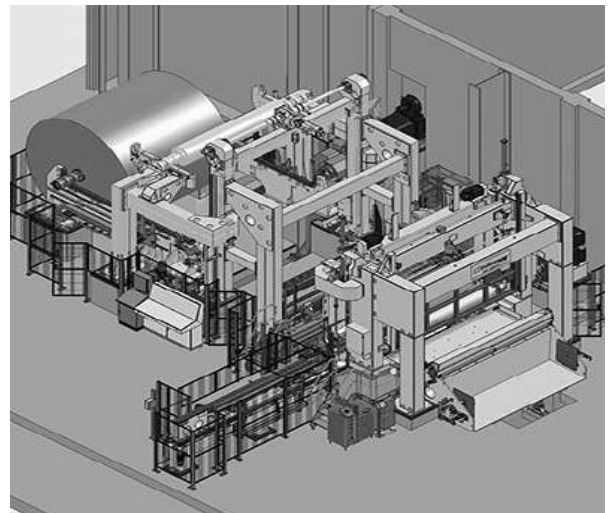


RAW MATERIAL	GRAMMAGE	WEB WIDTH
Card Board	200 ÷ 1.000 gr/m <sup>2</sup>	2.000 ÷ 6.400 mm

## Shafter slitter winder

Rewinder for offset paper, copy paper, kraft, cardboard, MG paper, naturals paper

- Max Speed 1800 m/min
- Width production range from 200 mm to 2.800 mm
- Unwinding station including roll's pick-up
- Automatic web edge guiding system



# Components & accessories



- Control panel extraction cycle
- Electrical system on the machine
- Hydraulic tilting movement
- Easy to assemble, use and placement

REEL FILTER 90°	
Total shaft width	max. 3.600 mm
Diameter shaft	max. ø 3.000 mm
Motor power	N° 1 A.C. 7 kW 4 poles 400 V 50/60 Hz
Hydraulic unit	with tank 55 Liter



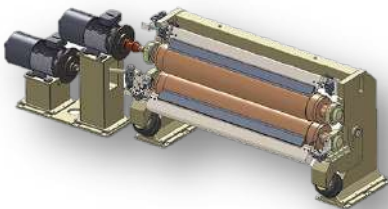
- Control panel extraction cycle
- Electrical system on the machine
- 2 axes movement of the head extraction
- Hydraulic unit for hydraulic system
- Automatic self alignment with shaft head
- Easy to assemble, use and placement

SHAFT EXTRACTOR	
Total shaft width	max. 3.600 mm
Diameter shaft	max. ø 600mm
Motor power	N° 1 A.C. 3 kW 50/60 Hz
Hydraulic unit	with tank 20 Liter



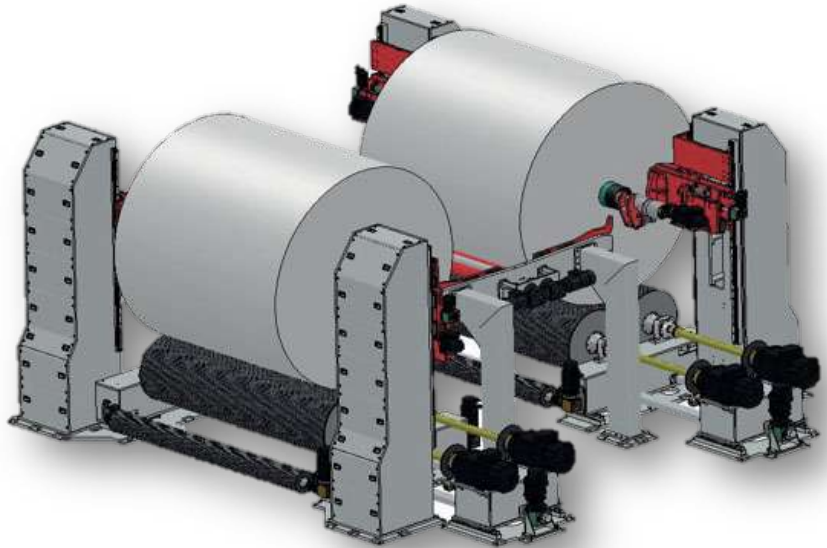
- Control panel
- Electrical system
- Cam to distribute a carton cores
- Easy to assemble and placement

CARTON CORE AUTOMATIC LOADING SYSTEM	
Total length carton cores	max. 3.600 mm
Core Internal ø	to be required
Drives	pneumatic cylinders
Capacity	on request the customer



TYPE	Rolls diam. (mm)	Trim width (mm)	Speed (m/min)	Nip Value (Kg/cm)	Operation
SKEWING	400	up to 3.600	max. 1.500	up to 20	Pneumatic
	750	up to 5.600	max. 2.000	up to 20	Hydraulic
CROWN CONTROL	600	up to 5.600	max. 2.000	up to 20	Hydraulic

# Tissue Unwinders



## TP-Soft Touch Unwinder

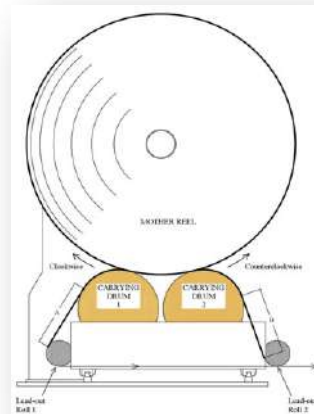
### The innovative winding concept of Tecnapaper for Super Soft Tissue

The main features of the TP-Soft Touch Unwinder are two large diameter carbon fiber rolls (driving rolls) – independently driven by variable speed motors, sustaining the reel and giving it the rotation movement – and a centre drive assist, still with variable speed motors, that nullifies the rotation inertia, thus avoiding any torsion effect in the structure of the reel.

This unwinder offers also a high production efficiency thanks to its automatic functions of reel change and return of the empty spool to a parking station. Its control system with double load cells allows to obtain constant and extremely precise measurement and control of the NIP of the reel on the driving rolls during the entire unwinding phase; the accurate relieving movement is obtained by an electromechanical system. The TP-Soft Touch Unwinder DOESNT GIVE any deformation to the tissue reel and it can be installed in Converting Lines as well.

Another important advantage offered by this type of unwinder is that the free paths "A" and "B" (no matter which is the reel rotation direction) are very short and remain the same during all reel unwinding phase. So they do not represent a factor limiting the working speed of the line.

On traditional "Belt" type unwinders, where the rotation centre is fixed, these two paths increase while the reel diameter decrease, thus reducing the web stability and obliging in many cases to reduce speed or to increase web tension.



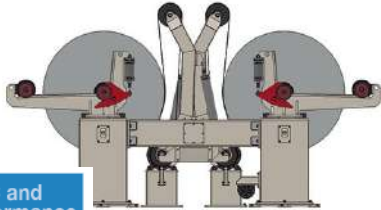
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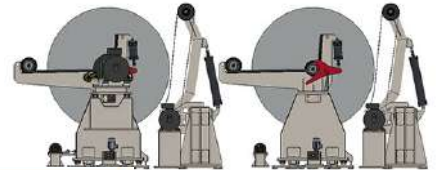


# Unwind Stands



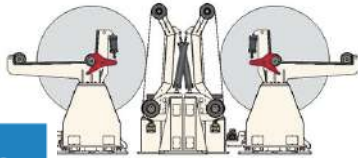
## Tissue BASIC and STANDARD performance

N. of belts	1
Max Reel Diam.	2.200 mm
Trim Width up to	2.850 mm
Speed up to	1.000 m/min



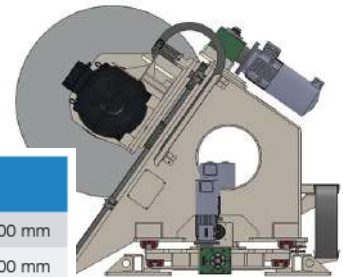
## Multifunction

N. of belts	2 or 4
Max Reel Diam.	3.000 mm
Trim Width up to	5.600 mm
Speed up to	1.800 m/min



## Tissue HIGH performance

N. of belts	2
Max Reel Diam.	2.500 mm
Trim Width up to	3.750 mm
Speed up to	1.600 m/min



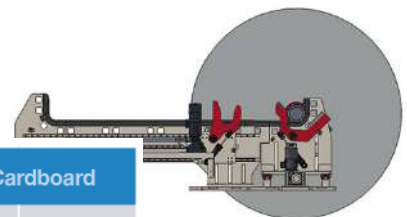
## Shaftless

Max Reel Diam.	1.500 mm
Trim Width up to	3.200 mm
Speed up to	1.800 m/min



## Tissue HIGH and PLUS performance

N. of belts	2 or 4
Max Reel Diam.	3.000 mm
Trim Width up to	5.600 mm
Speed up to	2.000 m/min



## Kraft & Cardboard

Max Reel Diam.	3.600 mm
Trim Width up to	5.400 mm
Speed up to	2.400 m/min



## Pope Reelers

Depending on the version, the machine is equipped with a spools rack with gravity or hydraulic feed and with controlled braking of the reel. Completely automatic roll change is possible on this version. A roll transfer rack can be combined to the roller. This allows for the movement of both full and empty reels without the use of a bridge crane.

### Specification

Centre winding group can be added to the rollers of the AR series for the correct winding of very light paper (less than 50 gr/m<sup>2</sup>). These operate directly on the spools guaranteeing even tension on the bobbin and eliminating the problem of the paper slipping. Grooving the surface of the cooling cylinders means coated and siliconed paper can be wound. It is possible to install a conveying

cutting module to automate roll change. Research has been carried out on safety and protection for the prevention of accidents in accordance with current machine regulations. For this reason, the AR series carries the "CE" mark. A PLC with its own personalized software manages the reels in terms of diameter or metres of paper wound. All information regarding the winding reels, the alarms, safety and the diagnostics of every component of the machine is supplied on the software.



## Headboxes

The headbox is designed in such a way to create some microturbulences in order to guarantee the perfect distribution of the stock avoiding the phenomenon of flocculation on the wire and assuring a CD profile with deflections within the limit of international standards.

### Specifications

The headbox, entirely made of stainless steel, is manufactured with components which are bolted together. The internal surfaces are finely polished with  $RA=0,2$ . All the adjustment movements, either manual or automatic with remote control, can be carried out with the machine operating. Interstices for the thermal exchange for the temperature control are provided. Possibility to correct the CD profile with manual micrometric actuators or motorized ones, controlled by machine PLC Digital display for lips opening of impulse-count type with set up value. Total head and level are independently controlled either working under pressure or with vacuum inside.



## Fourdrinier

The need in the paper mills to increase the production speed more and more, and the maintenance times has carried the paper producers from year to year towards the formation on one or multi-fourdrinier cantilever machines. The cantilever multi-fourdrinier machines, together with the air cushioned headboxes are the company's pride in the formation field.

In order to satisfy the more and more exigent market, thanks to its utmost flexibility, in the construction of its plants. It uses both painted or covered carbon steel and stainless steel of any kind. Putting a particular care in the choice of the materials to use, in order to prolong the life of each element of the plants, such as: aluminum for the movable parts, ceramic coverings for drainage parts and hard rubber for rolls.



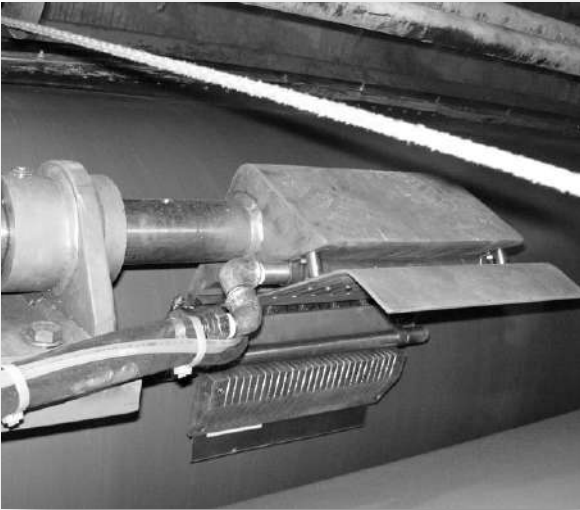


## Stretcher

We supply stretchers and stretch-compensators with different technical solutions, are designed to be used in all sections of the paper machine when it is necessary to check felt/wire tension, within the values set up by the operator. Furthermore, the stretch-compensators allow the control of the felt/wire line by means of misalignment of the stretching roll which in turn allows for the compensation of the felt/wire length differenced in CD. The production of this equipment has been designed with the aim of optimizing the production process. Each single stretcher and/or stretch-compensator is studied and positioned in order to maximize the efficiency of the system. With this in mind, a complete range of machines which takes into account all the fundamental parameters has been designed

The stretchers, typically used on fourdrinier machines, are made of stainless steel, while the others can be made either of stainless steel or carbon steel if used respectively for the press section or the dry end. Both the machines can be manually or automatically operated. The automatic tension control for felt/wire can be both electronic (with a load cell) and pneumatic (torpress or pneumatic cylinders), depending on the precision needed and the paper machine section.

The electronic stretch-compensators have the following advantages:  
 The felt /wire line adjustment in the stretch-compensators is carried out by a screw-jack which limits the adjustment field of the roll and at the same time measures its misalignment. This adjustment can be manual or motorized and the measure of misalignment can be visual or remote-controlled for the sections of the machine which are less accessible.



## Tail transfer system

A correct trailing end system is essential for high efficiency of the continuous machine.

- systems with wires;
- systems with air;
- combined systems.



## Pulper L/M density

- complete pulpers or rotors for low and medium density;
- pulpers and rotors for trim pits and under machines.

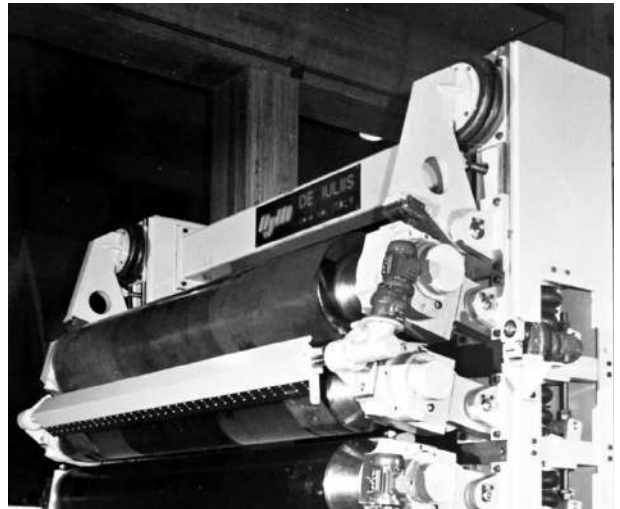
Light regulation between the perforated plate and the impeller is effected without having to dismount the impeller, with consequent remarkable reduction of time.



## Transfert roll systems

The system of automatic conveyance of the reel from the pole to the rewinding machine increases the efficiency of the production line thanks to:

- handling of the reels in maximum safety;
- reduced times for winding the reel and recovering the empty pole;
- reduction of rejects.



## Calender

Our calenders and soft calenders assure maximum homogeneity in thickness and smoothness.

The cylinders installed on our calenders have different technical features in line with the types of paper / cardboard produced and the goals to be achieved.

We can supply:

- single nip
- multi-nip calenders



## Dry End

In the design of new dry ends or in the rebuilding of existing groups the attention is always turned to:

- Energy saving;
- Machine optimization, by making the operators' action
- Elimination of open draws and/or sheet flag-waving;
- Easing and acceleration of the tail passage;
- Cleaning improvement of the drying wire system.

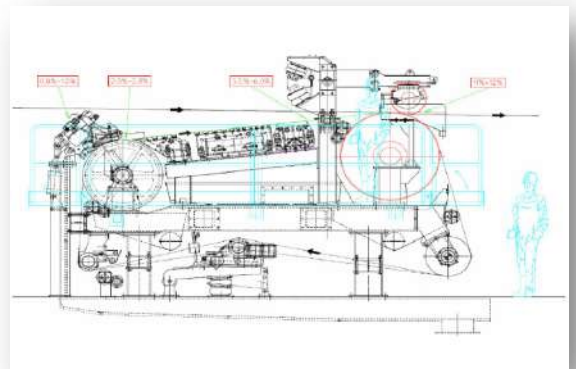


## Size Press

The aim of the Size Press is to apply a solution of starch, glue or colour to the dry surface of the paper. This operation improves the mechanical and printing features of the sheet. Other benefits can be to lessen the tendency to become dirty, to give more strength and to reduce its permeability to air. The impregnation of the sheet can take place on both sides or on one side only.

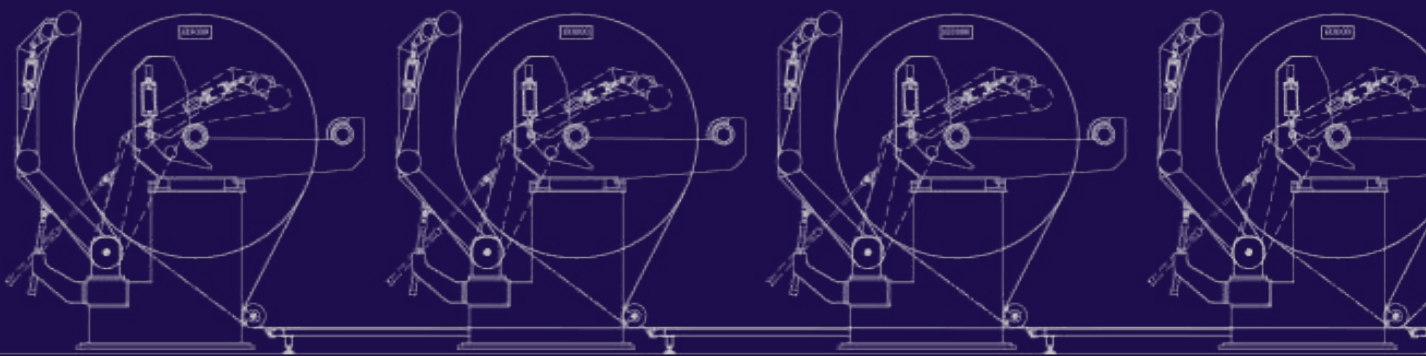
A series of jets with adjustable flow creates a sump between the two cylinders of the press and the side collecting tanks with a uniform concentration of the additive to be added.

The passing of the web in the NIP determines the impregnation of the sheet on one or both sides. For web impregnation of the sheet on one side only, the size press is equipped with a lubrication system with a jet of nebulized water on the dry cylinder. The machine is designed for semi-automatic working management. The web coming from the pre-dryer section is guided by paper-guide rolls through the size press. Subsequently, while the cylinders rotate in synchronism of speed with the machine, the operator controls the closing down of the press.



## Formers

It is a modular "mini-canvas" for production of cardboard and multilayer cardboard (280 - 1100 gr/m<sup>2</sup>) to be installed as an alternative to forming drums or flat tables.





# Automation & control



## About Us

The paper production has three key words: quality, efficiency, 24/24 continuous production. A committed and specialized Team focused on innovative solutions development: from the revamping of the existing machines up to the brand new production lines. Custom and Flexible solutions for easier and quick installations: Systems and friendly user interfaces for any production stage. A long experience over the years allows the full integration between the most popular branded components - Inverter, Converter, Plc - and the own Drives made by Sael. This is the strength to fulfil any specific customer need and application.

Since 1987 Sael has been developing integrated systems and process control solutions for industrial automation. A solid Italian company. A leader in paper mill automation, with important business in steel, plastic, rubber, CNC and metallic wire machines.

Two sites and over 50 employees in Italy, with hardware and software technical teams focused on projects and development.

12% of the budget is re-invested in R&D projects and new technology research.

Own AC and DC drives implementing the main field buss communication protocols.

Supervision control systems with own technology and system integration using the most popular Drives.



## Frequency Converters V-Series Drive

# One Drive Platform

The long experience in the heavy-duty industry, has led to the last series of AC drives, which are characterized by a compact design, robust – all die-cast – and fast to install.

Due to the market requirements and the latest energy efficiency demands, the V drives support all the existing motor types, including Induction motors (IM), Permanent magnet Synchronous motors (PMSM) and Synchronous reluctance motors (SynRM).

The intuitive control panel and the removable eeprom unit leads to easy maintenance in case of replacement of the AC drive.

SAEL'S "ONE platform" is now completed by the new LONG LIFE inverter series. Product designed to meet the mission of "last over time" as much as "repairable in every part": a huge gap from any Competitor else, slave of the commercial policy who forces them to continuous changings over the years.

ONE-INVERTER OUTSTANDING FEATURES:

- Film capacitors vs. traditional electrolytic - virtually infinite lifetime component -
- Just "ONE" control board for any power rating,
- Faster replacement of the control board in case of failure - due to the removable eeprom, no parameters are required -
- Performances improved by the newest Tri-Core processor,
- AC motor parameters detection by the accurate identification algorithm Smart auto tuning: faster inverter set-up in three steps, From today on, all our drives will need only "ONE" control board as a spare part - no matters if AC, DC, Brushless or Reborn drives - Maximum 3 minutes for a replacement in case of failure. No skilled operators are required; and no programming steps as well.

## AC Drives

Full Digital Control of AC motors, Induction Motors (IM), Permanent Magnet Synchronous Motors (PMSM-SPM and PMSM-IPM) as well as Synchronous Reluctance Motors (SynRM).

From 2 to 1500kw - With common DC bus, for industrial application that need high static and dynamic performances and independent controls or combination of speed, acceleration, torque and space. Examples: PID regulation, programmable rotund ramps for acceleration and deceleration, diameter control or pull for winder and unwinder, pull control or material stretching, space control (positioning), absolute electric shaft control with programmable numeric connection and settable through serial way. STO Certified. - Water cooling system (VW series)

### Main features

Sensorless control of IM, PMSM (both isotropic and anisotropic motor types) and SynRM with high overloading capability -Field Oriented Control (FOC) for IM, PMSM and SynRM motors with optimized flux weakening control - Flying restart functionality - Open loop scalar V/F control with current monitoring (2-300% of the nominal speed) for IMs - BLDC control option.

### AC Drives Power part

Power circuit with IGBT, film capacitors with long life, connection to low inductance. PWM modulation with frequency settable from 2 to 5KHz; 3 phases AC/DC power supply available in different size and type: standard bridge, with brake resistor, regenerative with breaking power line recovery (reactive power and harmonic currents almost no).



## DC Drive

Control of DC motors, and purely resistive and inductive loads in general; rapid switching for inversion of polarity of the output terminals (only 4 quadrant version); feedback by encoder or tachometric dynamo (input with resistive divider); internal structural in blocks that can be fully configured to obtain (for example): speed control over the motor, with a reference speed (default); control over the motor with torque reference; feed-forward for position / speed / current, calculated inside the unit and/or coming from outside; following references from the encoder /electric shaft with gearing ratio settable); calculation of diameter and servo diameter; control of the dancer roller speed with / without reference to the line speed; reference selectors for differentiated jogging or differentiated references for machines with mechanical gearboxes or to exclude dancer roller control; positioners rooted in space; load shedding between two motors. limitation of one of the internal values, with suitable blocks; register cutting or cutting fly function. RC protection groups; pulse transformers board; transducers for the signal indicating automating limiting of the current.





## REBORN Platform

On the way of refreshing the existing drives SAE's R&D developed a specific device. To achieve the best reliability on old DC equipments, we optimized a regulation rack fit to replace every market drive - already

This replaces the old regulation board by a new full digital "one" board - One universal board for all the AC and DC sizes. The philosophy is to use the existing power section - main switch, distribution lines, SCR bridge, capacitor and fuses -. The old devices used for regulations are replaced. It remains the line switch and two serial lines only. The rack - named "REBORN" is directly linked to the SCR bridge getting a full digital system with double field bus vs. the original analogical or semi-digital drive. Old devices without PLC have been upgraded on a drive level too. The big plus is to get the best technology higher performance at a competitive cost ever. Since the beginning of the 2000 year has been applied to many customers. The system offers the same benefits of our entire new product lines like "ONE Inverter", DC Drives, and so on: tough and rough, fully compatible to Siemens S7 PLC - there is a specific direct link to the Bridge board on Can-Bus / Profi-Bus.



## Your Back-upP in the hand

It is worth noting that the removable memory unit contains all the drive data and configuration. It makes replacement of the drive easy, in case of fault or maintenance. Extract the Flash memory from the broken drive, plug it into the new drive, and restart: no programming, no parameter setting, no skilled operator is required.

The drive commissioning and configuration is handled by the Web configuration interface, which is built-in the new series of Sael drives. In accordance with the international standards, Sael drives are equipped with safety functions and safe torque-off (STO) certified.

### Main features

- Supports various motor types including Induction Motors (IM), Permanent Magnet Synchronous Motors (PMSM-SPM and PMSM-IPM) as well as Synchronous Reluctance Motors (SynRM)
- Removable EEPROM memory unit for easy start-up and board replacement
- Web interface for commissioning and settings
- Integrated safety including safe torque off (STO)
- Intuitive remote control panel (keypad)
- Support for a wide range of fieldbuses, input/output options and position/speed feedback
- EMC filter option
- *du / dt* filter option for motor protection

# Automation & Supervision

## Supervision – DCS In Drive

The Supervisor in combination with the Engineering Station is a powerful control device. It allows quick and easy management of each single working process by direct operator engagement. The architecture is based on windows with driving programs on SCALINK and MMI-SCADA platforms: fully available to programming key holders.

The package is completed by the remote assistance IWSA (Internet World Sael Assistance).



## AZWeb & AXRunner Interface

**The AzWeb interface** is an optional cross-platform SW tool, which guarantees the connectivity among a wide range of systems; from smartphones and standard laptop to UNIX workstations or any other device with web-capability. The tool ensures the same functionality of AzRunner, and it includes the parameter settings, download and compare multiple configuration settings, configure a real time tracking of desired signals (with the capability of triggering on a specific event) and remote handling of the AC drive.

### Additional features:

- Allows the parameterization and monitoring of the AC drive via any Windows, Mac, Android, iOS, Unix device
- Works over any TCP/IP connection
- Works over local area networks as well as Internet connections
- Secure authentications guaranteed

# Connectivity & interface



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## RKC

### remote keypad control

The Multilingual alphanumeric keypad panel features intuitive use as well as easy navigation. The panel integrates all the PC-tool functionality.

It basically provides the following features:

- Backup and restore function of all the parameters of the drive
- Parameter settings and variable monitoring
- Local start/stop of the drive with speed/torque reference set point
- Friendly jog/shuttle key to increase quickly the set point reference.

For companies product catalogues and more informations please contact our Commercial Team at:



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