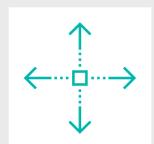
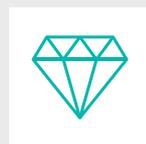


AUTOMATIC WINDER

EcoPulsarS

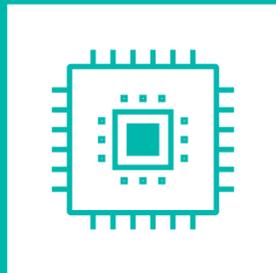
ROUND MAGAZINE TYPE

plus





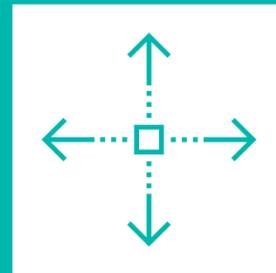
EFFICIENCY



TECHNOLOGY



QUALITY OUTPUT



FLEXIBILITY

AUTOMATIC WINDER

EcoPulsarS

ROUND MAGAZINE TYPE

Eco PulsarS plus: sustainable eco-green advantage.

The machine, with its sustainable eco-green advantage, replies to the markets demand of energy saving including room air conditioning, together with improved production performances, high quality packages and utmost flexibility.

MACHINE MODELS:

ECO PULSARS M

round magazine feeding (manual doffing)

ECO PULSARS L

round magazine feeding (automatic doffing)

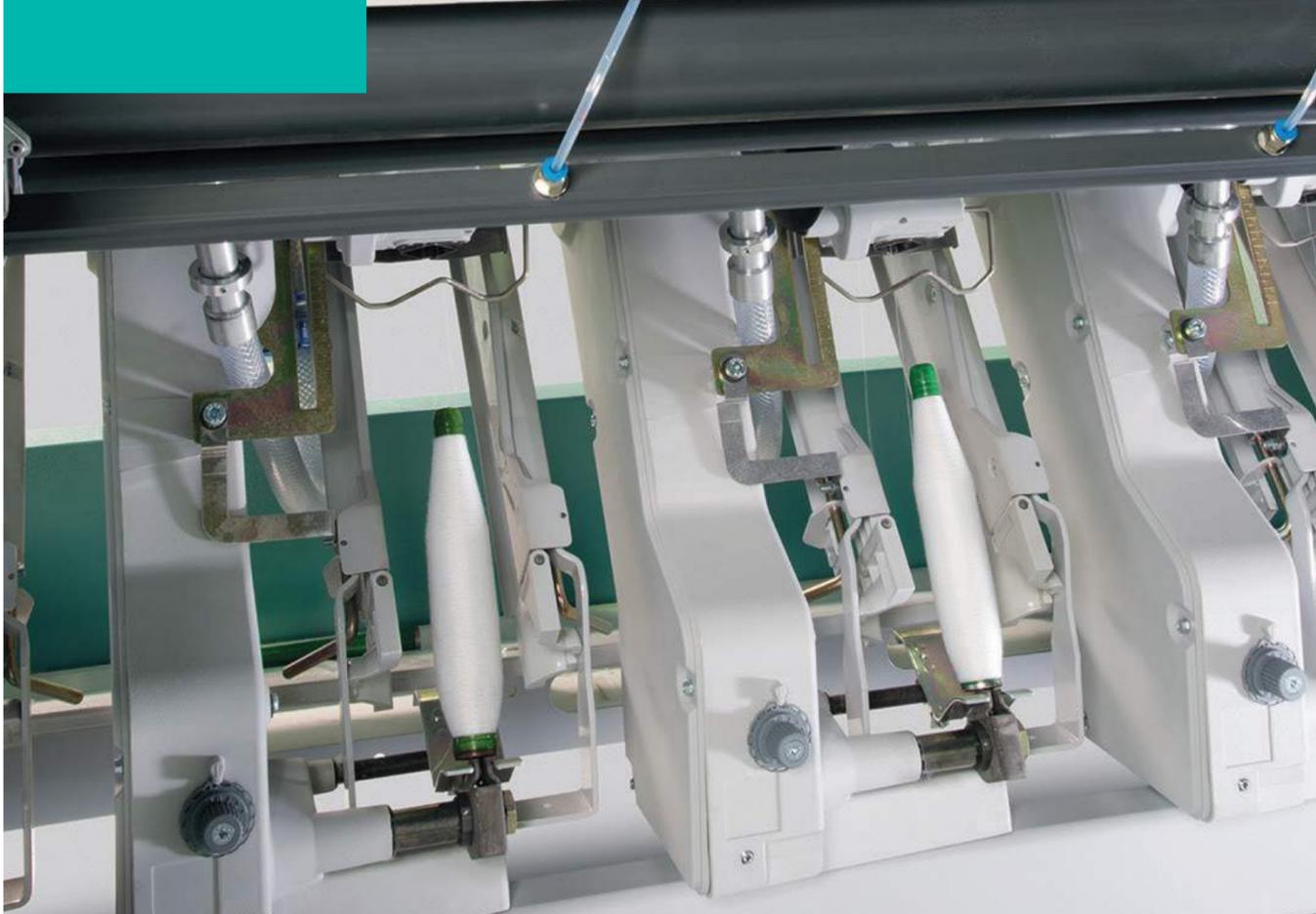
BENEFITS:

- Eco PulsarS with its innovative platform can save up to 30% power bill thanks to "Suction on Demand" system.
- New Controlled Cut System to reduce repetitions.
- Yarn Tension Control System: gate system /disc system for different fibers and finishing blends.
- Innovative Waste Collection to reduce yarn waste.
- Friendlier to the user: machine control and diagnostics.

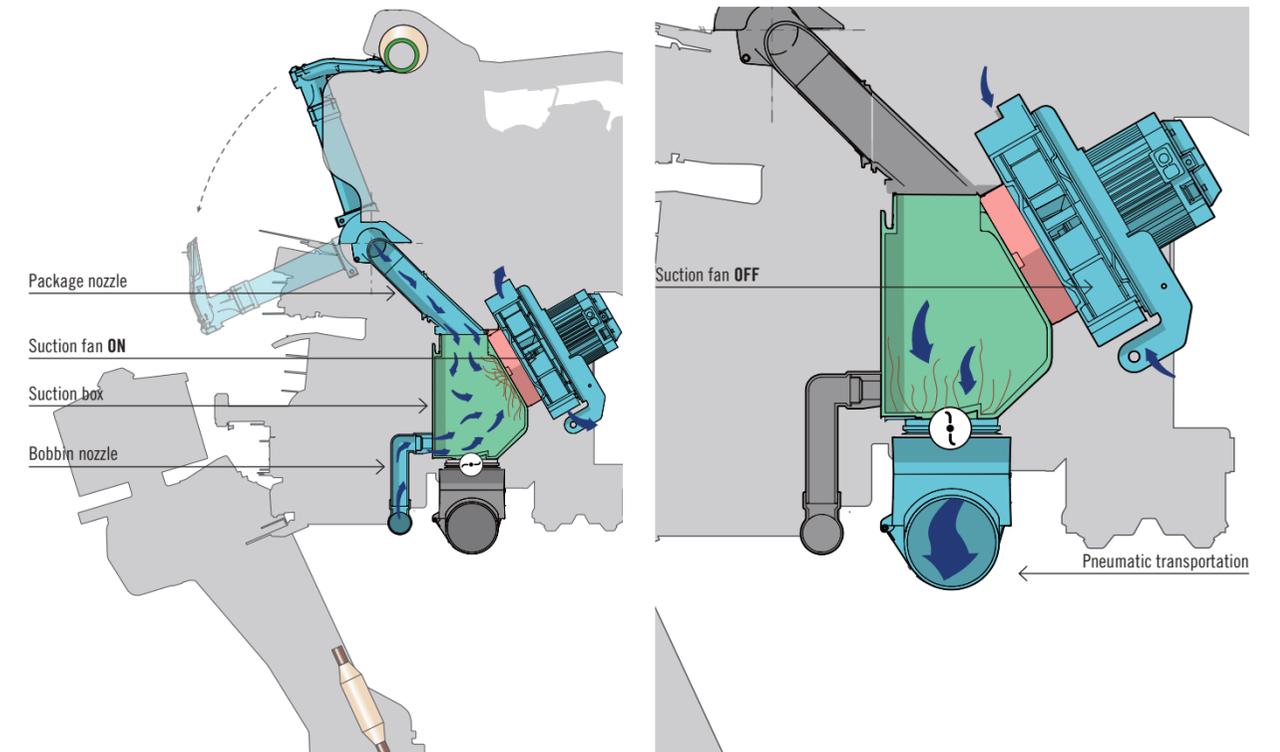


EFFICIENCY

The combination of all features and design of EcoPulsarS has created an environment in which each part of the machine can operate at its optimum efficiency without limitations. Spindles and bobbin feeding systems independently generate the level of suction required. Suction is generated as needed and used without losses. All new devices contribute to the overall reduction of process downtimes.



Suction on Demand System (S.D.S) Energy savings up to 30%



The solution of the “individual and independent suction unit per spindle” represents a real breakthrough versus the conventional system. Yarn suction is created and managed individually, only when required by the individual spindle and bobbin feeding system.

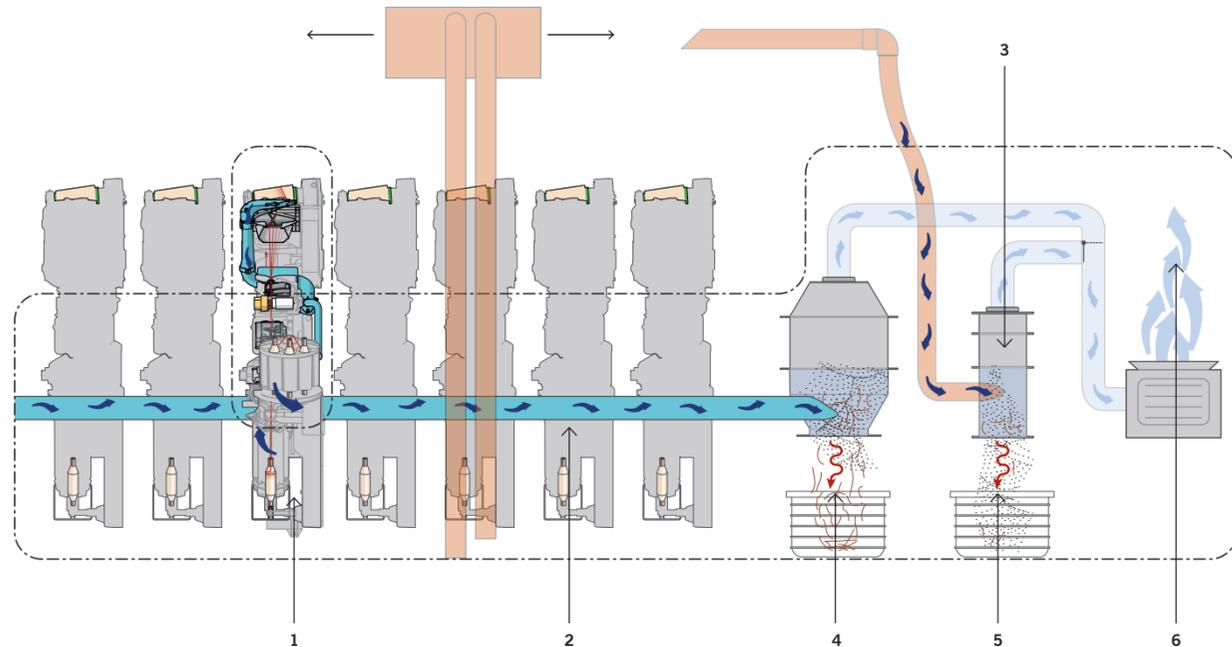
The self-sufficient units can individually optimize the suction required. Each unit operates at optimum suction values without influencing the rest of the machine: this means no more compromises in balancing the suction as in conventional centralized systems.

Better efficiency, a smoother winding process and overall superior package and yarn quality. Up to 30% power saving since suction is generated only when needed. Theoretically, no limitations on number of spindles per each machine.

Every single suction fan collects its yarn waste and dust in a dedicated suction box. The individual spindle waste is evacuated when required through a centralized pneumatic transportation, to guarantee the cleaning with the lowest energy consumption.



Waste collection system



Every single suction unit collects its own yarn waste in a dedicated suction box. The waste is evacuated when required through a centralized system. The waste is discharged, without influencing the winding process, into an innovative waste collector. This waste collector allows a great eco-green advantage.

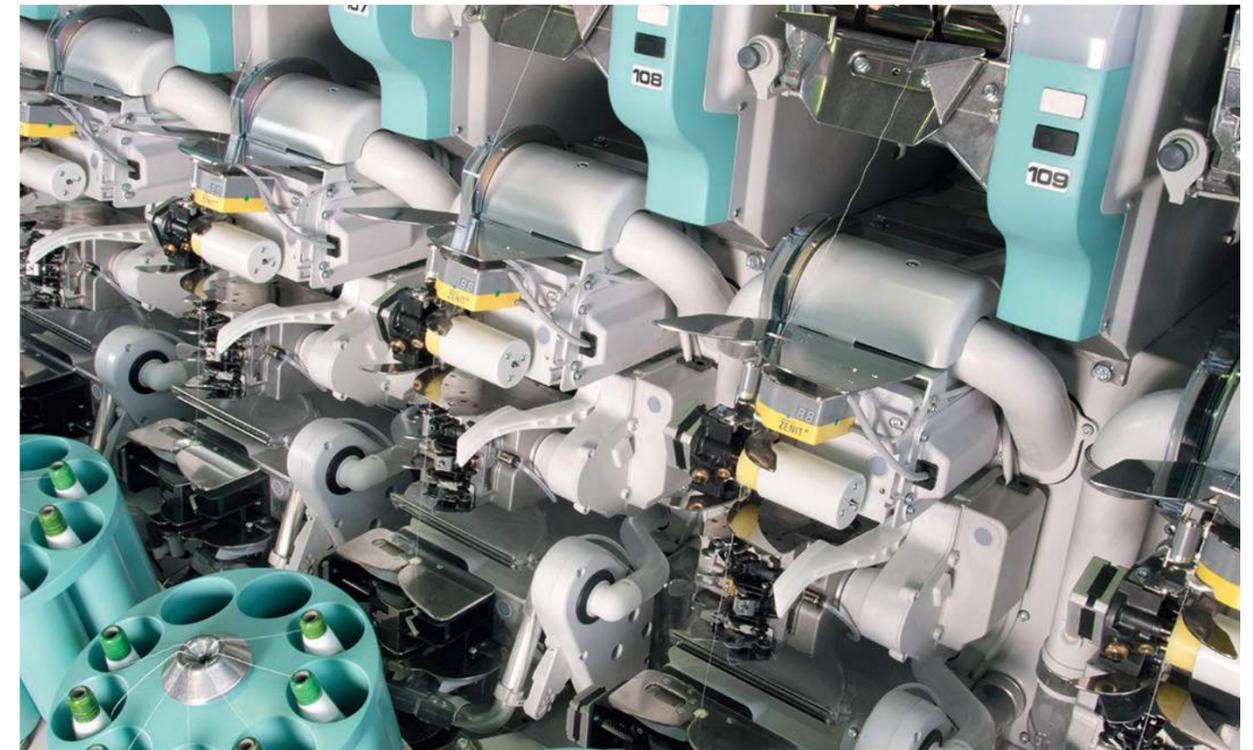
The exhausted air return cleaned and cooled into the winding room. The spindles dedicated suction system is also independent from any other machine equipment.



Winding room air conditioning
The Suction on Demand System implies a sensible reduction on both the volume and temperature of the exhausted air. Air is filtered and discharged directly into the winding room: no need for underground or overhead ducts for reconditioning. Compared to conventional systems, Eco PulsarS allows a significant reduction in size and capacity of the air conditioning plant.

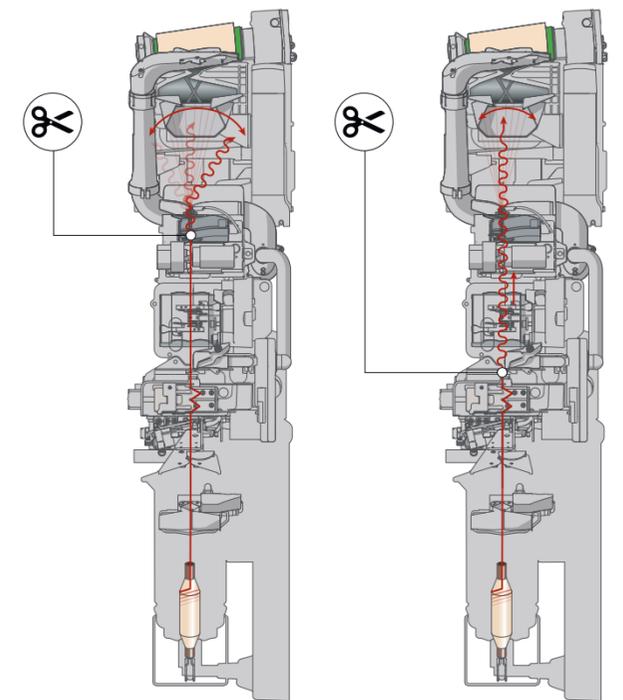
1. Spindle unit
2. Yarn waste collector
3. S.B.B. (Savio Belt Blower) waste collector
4. Machine yarn/dust waste
5. Dust / Dirt S.B.B. (Savio Belt Blower)
6. Clean air

Controlled Cut System (C.C.S.)



The electronic clearer intervention represents a critical factor for the full control of the “cut yarn end”. The high winding speed process, lively and/or elastomeric core yarns, both can create a “spring-like rebound” of the yarn end: yarn might be trapped on package flanks and adapters. In this case, the splicer cycle becomes uncertain and with low efficiency rate, because of the difficulty to retrieve the end.
The “Controlled Cut System” C.C.S. with its yarn cut function, separated from the electronic yarn clearer detection, has an independent smart cutter, which works in synchronism with the winding process. In this way, the cut is controlled, being done only when the yarn is perfectly aligned with the middle drum traverse stroke.

The final effect assures that yarn end can be easily found and retrieved during the subsequent splicing cycle, with minimum suction, avoiding unnecessary repeating cycles that might also damage the package quality. C.C.S. guarantees that hard waste generation is reduced, while the cycle efficiency is increased and the operator intervention minimized.



Yarn cut function along with clearing

Yarn cut function separated from clearing



Yarn Tensioning System options

Double possibility to choose the most appropriate tensioning system in accordance with fibers materials and counts.



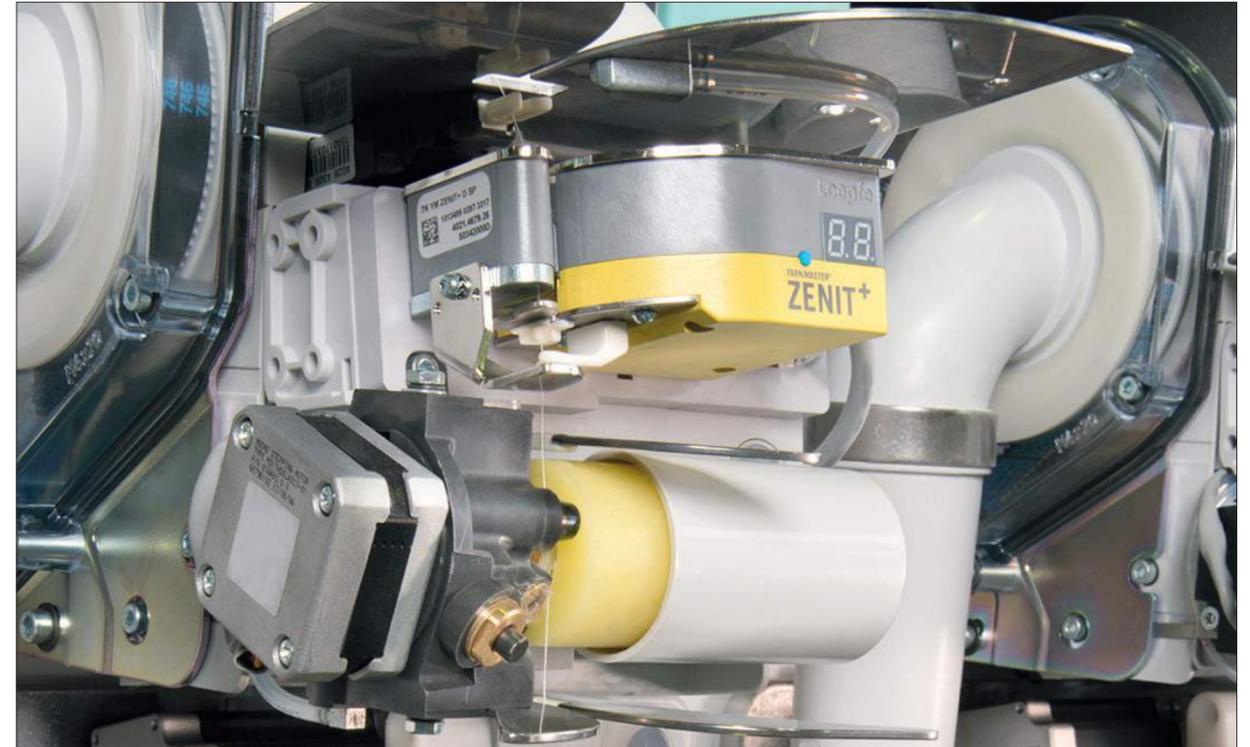
Yarn tension is controlled by a variable interference system, which works in synergy with the tension sensor. A precise step motor adjusts the interference in order to maintain the set tension. The system ensures total control of the yarn in all conditions, even in the case of slub or core/elastomeric yarns.

Gate tensioning
With this new principle sensitivity, tensioning range and reaction time have been enhanced. A combination of fixed and movable ceramic fingers traps stabilizes the yarn allowing higher winding speeds. The friction points have been reduced and harmonized, in order to preserve the overall quality of the yarn.

Disc
Yarn tension is given by the discs load, in accordance with the tension sensor value, through an electromagnetic system.



Yarn clearing logic Waxing



Yarn clearing logic
All the clearers of the last generation are totally integrated with the EcoPulsarS process logic. Each single spindle becomes a technological laboratory to ensure the production of a faultless package. In addition to the control of the main single or repetitive yarn defects, splice included, the system foresees the possibility to remove from the package all technological defects communicated by the clearer.

The spindle provides automatically to remove from the package the faulty portion of the yarn. The clearer PC is totally integrated.

Waxing (optional)
EcoPulsarS system allows a very fine wax uniformity on the yarn, thanks to a dedicated step motor. The user can optimize the waxing, as both sense of rotation and speed are settable. It is possible to select the position of the waxing device:

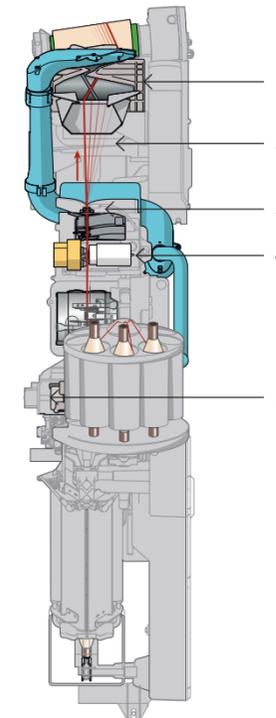
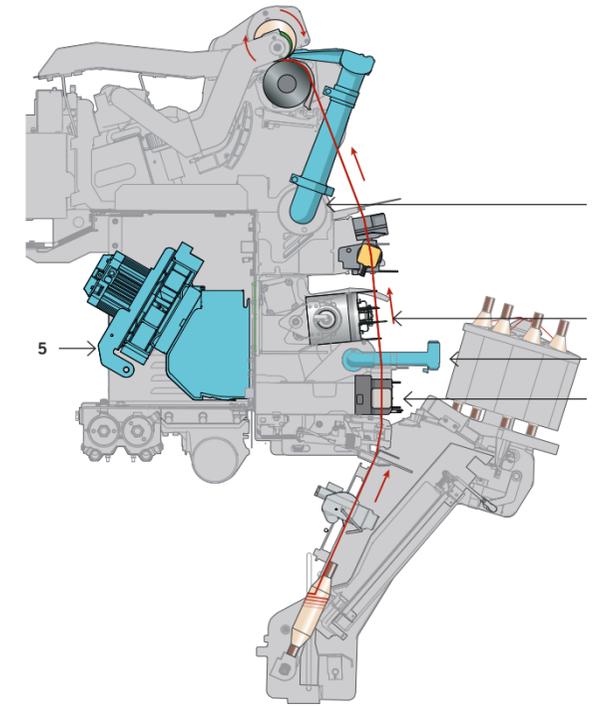
- above the clearer
- below the clearer (standard)

Double waxer: for wool and high quality materials (optional)
For particular yarns counts and materials, a double waxing device can be provided for a consistent waxing evenness to match knitting process requirements.

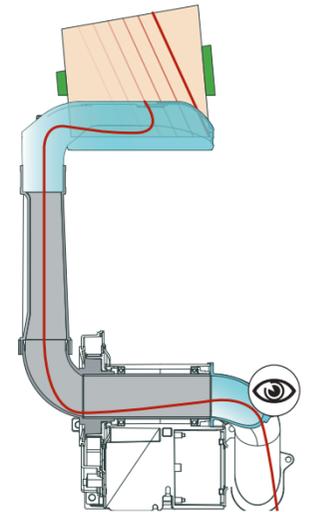




Smart and Flexible Cycle



Yarn presence sensor (optional)
To minimize the yarn hard waste at cycle, a sensor, located inside the package suction pipe, detects the yarn presence and stops the drum reverse movement. The suction vacuum is automatically adjusted in accordance with the reverse drum movement within a min. and max. value. This system allows energy savings and reduced cycle time.



The Suction on Demand System gives the possibility of smart cycle settings in terms of suction values and timing, relevant to potential different splicers attempts. The cycle time is also adjustable, in accordance with processed yarn type. This smart flexibility is coupled with the flexibility coming from the individual and independent movements of each cycle devices.

- Greater productivity
- Consistent package quality
- Power and compressed air savings because unnecessary splicing cycle are avoided
- Minimum wear of the parts
- Minimum yarn waste

C.A.T. - Computer Aided Tension
The winding tension is detected continuously by the Tensor, which interacts with the yarn tensioner device, through the machine PC, in order to adjust the load on the yarn as required. The Tensor, being positioned just before the drum detects online the real winding tension. The sensor does not have any movable parts and performs as "anti-wrap system".

Tensorflex (standard)
In presence of elastomeric yarn blended with any fiber, the tension values must be diversified during the package formation to ensure a perfect shape.

- 1 Independent movement of the package yarn suction nozzle
- 2 Independent movement of the splicer
- 3 Independent movement of the bobbin yarn suction nozzle
- 4 Independent movement of the yarn tensioner device
- 5 Suction fan

- 1 Drum
- 2 Traverse
- 3 Tension sensor TENSOR
- 4 Waxing device
- 5 Yarn tensioner





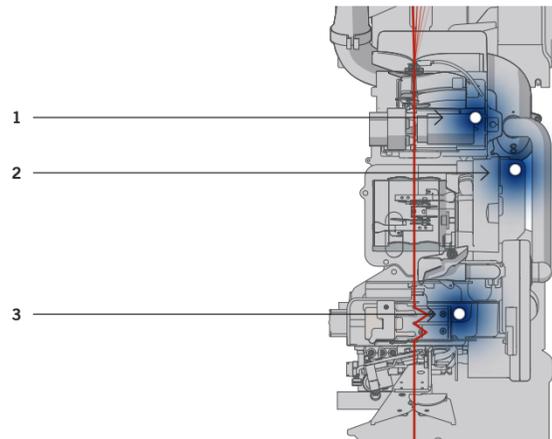
Friendlier to the user
Machine control and diagnostics



Machine monitoring
Monitoring through the machine control panel with iconographic diagnostic.

Spindle monitoring
Each critical area of the spindle is equipped with a warning blue LED to pinpoint where the operator's attention is required. Friendlier than complex alphanumeric codes based diagnostic solution.

Pc monitoring
Control panel with 15" industrial touchscreen PC prearranged for remote control connectivity. Integrated display for winder and electronic clearers settings and control.



- 1 Waxing device group
- 2 Splicer device group
- 3 Tension device group





TECHNOLOGY

A further step to catch up with the world of IT applications and the new textile synthetic and artificial fibers applications.



Multicone: the digital yarn layering technology

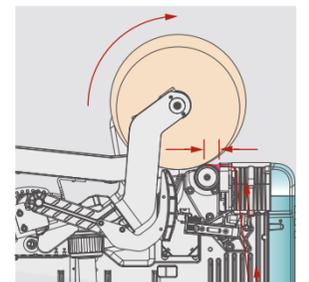
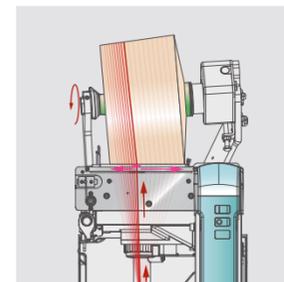


The different downstream processes require a wide flexibility in the wound package building, in order to optimize the specific efficiency. Packages for dyeing, warping, weft, knitting, double twisting, require a different and flexible package formation in terms of geometry, edges shape and density. "Multicone" system, the digital yarn layering technology (drumless) represents today the proper solution to achieve this kind of flexibility in the package formation.

Straight path layering system
The only one that allows a precise and controlled yarn deposit on the format, being the thread guide movement much closer to the package than any other "pendulum" system, keeping also a fixed distance delivery point. This guarantees a precise control of the thread during the whole traverse stroke and mainly of the package edges area, where the yarn dynamics is critical, because of the stroke inversion effect. Savio's thread guide system can easily prevent any possible yarn fall and package bad shape, which more frequently occur in the "pendulum" system.

Tension control
The C.A.T. (Computer Aided Tension) and Tensorflex directly interact with the Multicone digital system in order to even the winding tension during the whole process, with any yarn count and material type (including single / double core, siro spun, etc).

Density
In case of very fine single cotton yarn or finest wool for dyeing purposes, the machine can be equipped with the optional C.A.D. (Computer Aided Density).

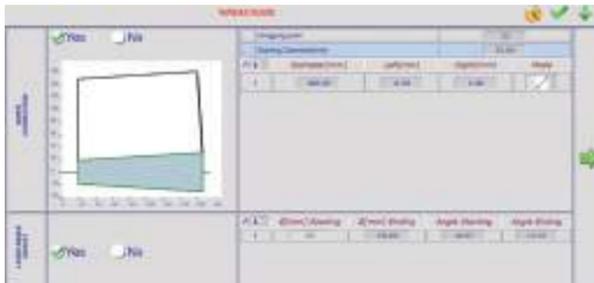


Much closer to the package than any other pendulum system



EcoPulsarS Multicone

The winding mode and package shapes



Step-precision winding

Control of the distance between two consecutive layers, through the continuous variation of the winding angle within the different ranges (steps) of package diameters. This assures a consistent density and avoids any possible ribbing effect.

Traverse stroke

Infinite variation deposit modes permit the building of the package with any individual geometrical design (tapered-cylindrical-round edges-pineapple). Relatively to the take-up tube, symmetrical, left/right wise asymmetrical building.

Package edges

Soft edges values ensured by different stroke length. Several edges shapes (taper or round) ensured by linear or curvilinear reduction stroke ratio.

Controlling the winding process

The simplified PC interface allows to easily program with few settings the working parameters and can be easily selected by any mill operator; this computer flexibility allows reducing setup times. The thread guide electronic control allows to set winding angle, traverse stroke, position on the package tube and the yarn distribution over the package. All above improves design and formation of the package, optimizing all the downstream processes, thus allowing

customers to obtain the best results.

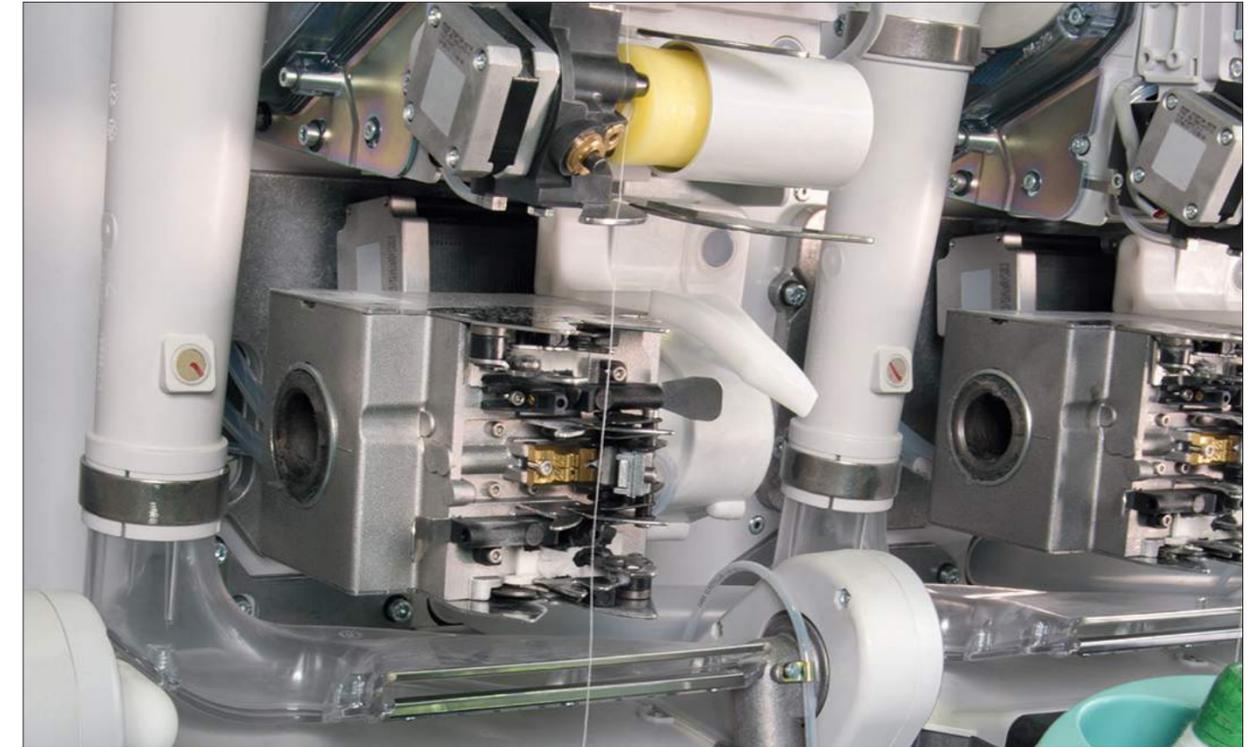
On an advanced setting page, the user can interact with a visual interface on the PC screen for almost drawing the final package, by setting the stroke mode variations along the package diameters.

The user is able to customize and tailor the package design, according to his requirements for the downstream process.



Upgraded splicing solutions - Duo Air Feeding system

Air and Moistair® splicers boasts a **Duo Air Feeding system**, for yarn tail preparation and splicing. This splitting allows the individual setting of the most appropriate value of air pressure, and makes these splicers able to easily process any different fibers and blends combination.



Air splicer

Settings are completely centralized in the PC:

- Fast and simple change
- Consistent uniformity of splice in each different spindle

Main application range:

- Cotton 100% and blends
- Cotton Compact yarns
- Fancy yarns
- Core yarns
- Synthetic and artificial yarns
- Wool 100% and blends
- Silk

Moistair® splicer (optional)

Moistair® is an innovative air splicer using a very small quantity of water (spray). It is endowed with a water valve with dosage setting to moisturize the splice. Suitable for almost all kind of short and long spun yarns. The Moistair® has delivered superior performances on TENCEL® and fine counts.

Settings are completely centralized in the PC:

- Fast and simple change
- Consistent uniformity of splice in each different spindle

Main application range:

- Short and long spun yarns
- TENCEL®
- Elastic core yarns (single core, dual core)
- Very fine cotton yarns
- Coarse and slub yarns





Splicer library

Settings of air and water parameters are individually adjusted per each winding head.

Twinsplicer (optional)

The way the splice is prepared and made, ranks the Twinsplicer at the top among all other splicing devices. The splicer strength is always above 95% keeping the appearance same as the parent yarn. The splicer on compact yarns, beside the strength, needs an extremely good appearance not to create a visible defect on the finest fabrics. The Twinsplicer for core yarns preserves the elastomeric filament entirely inside the joints.

Main application range:

- Cotton 100%
- Cotton 100% Effect yarns
- Compact Yarns
- Elastomeric yarns
- Cotton and blends



Heat-Splicer (optional)

The consolidated experience on the splicer air technology in combination with the use of the heat, guarantees a final joint with excellent appearance, high and consistent strength even with, difficult yarn structures, different blended materials and high twisted yarns.

Main application range:

- Carded wool coarse counts
- Mule spun yarn
- High twist yarns
- Wool 100% and blends



Water splicer (optional)

The splicing operation is made under vacuum while the water is injected (Duo-Stage). All the splicer parts are located in a "water proof" housing to avoid dangerous spray of water outside.

Main application range:

- Cotton 100% coarse counts (flat and fancy yarns)
- Cotton 100% compact yarns
- Mercerized/singed yarns
- Elastomeric yarns
- Two ply yarns
- Open End yarns
- Synthetic yarns
- Linen yarns

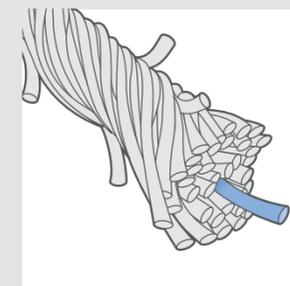


Core yarns

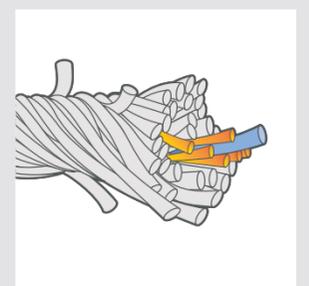


The demand for yarns with elastomeric core is expanding, and plays an important role because of fashion versatility and flexibility. Stretch garments are playing an important role inside this scenario, denim jeans and leggings are highly requested, especially for womenswear. Keeping up this trend of stretch denim, many yarn & fabric manufacturers are offering duo core yarns with improved recovery and strength, while retaining the comfort of cotton next to the skin. Dual core spun yarns are consisting of three components: a core filament - mainly Lycra®, a polyester multifilament as T-400® and a staple fiber- mainly cotton. This special yarn offers improved recovery and strength compared to traditional core spun technology.

Savio Polar Evolution can easily process special and challenging yarns. Savio winding unit is equipped with splicing and tension control devices for ensuring perfect joints and perfect package shape. A common problem faced by the stretch fabric manufacturers is the breakage of the yarns during downstream process. The well-known Savio Twinsplicer still represents the solution to achieve the best performance of a "perfect joint" on Core Yarns, mainly "single core" with cotton, but also positive results have been achieved with Dual Core Yarns. In this field, Savio can also offer the new splicing technology combining air and water, Moistair®, which represents the most flexible solution of any kind of yarn.



Core spun yarn is created by twisting staple fibers around a central elastomeric filament core, usually made of LYCRA® fiber. Different basic fibers (short and long staple) are commonly used: cotton, viscose, siro, woolen blends.



Dual core spun yarns are made of three components: a core filament - mainly LYCRA®, a polyester multifilament as T-400® and a cotton fiber. This special yarn offers improved recovery and strength compared to traditional core spun technology.



QUALITY OUTPUT

The Savio winding unit is equipped with control devices for ensuring perfect density, metering and perfect package shape. These unique devices contribute to produce packages without ribbon and ensure the minimum possibility of breakage, slough-off during unwinding at a very high speed, particularly in fine count, results into higher efficiency in Weaving & Warping department.



Premium package quality

Package formation

Electronic anti patterning system

It operates at critical diameters by modulating the drum speed. All the critical ratio between package and drum diameters are memorized by the computer and consequently the drum is accelerated and decelerated, according to variable ramps, when there are possibility of ribboning formation. The system operates also during the acceleration after the splicing cycle.

C.A.P - Computer Aided Package® (Optional)

It gives a perfect package, without ribboning and without changing the drum's speed. The computer checks the distance between two consecutive layers, and modifies the ratio between package and drum diameters by micrometric variation of the inclination of the package cradle, and consequently of the driving point.

C.A.D. - Computer Aided Density (Optional)

- Control of the package load on the drum.
- The package weight increase is detected by the length metering; consequently, the "electronic/pneumatic valve" is activated.
- Customized package load curve.
- The relevant parameters are programmable and stored in the machine PC.

The system is especially studied to process compact yarn producing soft packages for Dyeing (0.32 / 0.35 g/cm³).

C.A.M. - Computer Aided Metering (Optional)

- The combination of the laser detector beam with the package and drum speed sensor, is elaborated by the machine PC software.
- The system allows a metering high precision repetitiveness $\pm 0,5\%$.

Package yarn quality control

The package quality is checked by direct control on the yarn, as the off-standard bobbins are controlled and rejected before starting to be wound. The off-standard yarn is thus prevented from going into the cone. Furthermore, the maximum number of splicer joints that can be present in the package can be set on the machine PC. Package tracking with bio data (optional) can be also provided on request.





FLEXIBILITY

In terms of flexibility, the manual feeding winder can easily process different yarns and counts, allowing a very flexible production planning, since there's no rigid assignment of yarn allotments from ring spinning frames. Furthermore, PulsarS round magazine model is so flexible that can be customized according to feeding requirements.



M/L version: round magazine bobbin feeding



The manual feeding winder is available with manual package doffing (M) or automatic package doffing (L), remarkable for the following features:

Automatic cradle opening, touch & doff system - Take-up packages with different taper ratios with electronic on/off anti-patterning system - Complete range of splicers to cover all yarn needs - 6 or 9 pocket round magazine

Doffing trolley

- The doffer trolley is electronically integrated with the winding heads and the machine PC.
- All the moving parts are driven by individual independent motors so to reduce the doffing cycle time.
- The universal clamp is able to handle different empty tubes conicity simultaneously without parts change.
- A new designed basket geometry to store different tubes conicity with no parts change, and to allow the easy tube color recognition when different yarns are processed on same machine.
- The reserve tail length is adjustable by the machine PC in order to meet any end user request.
- A fast patrolling speed up to 60 mt/min. in order to increase the doffing efficiency.
- The laser technology ensures the precise positioning of the doffer with the winding heads.

Empty cones centralized magazine (Optional)

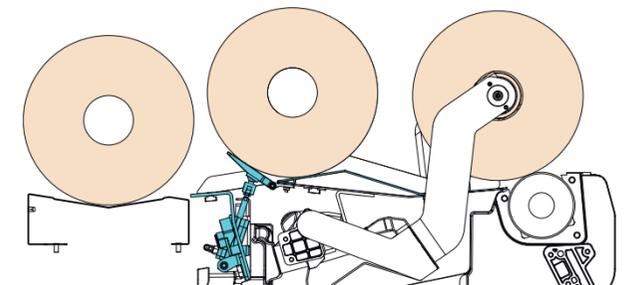
For the complete automation of the winding process, the machine can be equipped with a centralized magazine carrying all the empty tubes: the operator patrolling and intervention time is reduced. The empty cone is automatically delivered to the doffing trolley.

Automatic cradle opening Touch&Doff system

It has been given particular attention to the reduction of repetitive labor for mill operators. Operator can easily touch the cradle button to automatically open it and doff the package.

Flexible package unload (optional)

The package is unloaded in a "stand by position" to optimize the winding efficiency, while the spindle will keep on running. Being the unloading area individual and independent per each winding position, customized regrouping of packages can be delivered to the discharge conveyor belt. Unloading mode is managed by PC software, with high level of flexibility.





“R” version: package feeding

R version allows rewinding of packages of any taper, producing packages ideal for any subsequent use.

The main fields of use of ECO PULSARS MR/LR are rewinding packages coming from the dyeing process, packages of different shapes and contents, packages coming from Open End spinning frames and packages remains. The machine equipped with automatic feeding package change is available with (LR) or without (MR) automatic doffing trolley. A simplified version is also available with a fix single peg.

Technical features

Count range: natural, synthetic and blended staple yarns from Ne 2 to 147, from Nm 3.5 to 250.
Feeding packages: cylindrical or tapered packages max. 250mm, winding traverse ≤152mm / max 220mm, winding traverse = 200mm.

Automatic feeding package change device

With the Polar Evolution MR/LR the feeding packages are changed automatically. The operator intervention is limited to load the package located in an ergonomically favorable position.

Special Functions

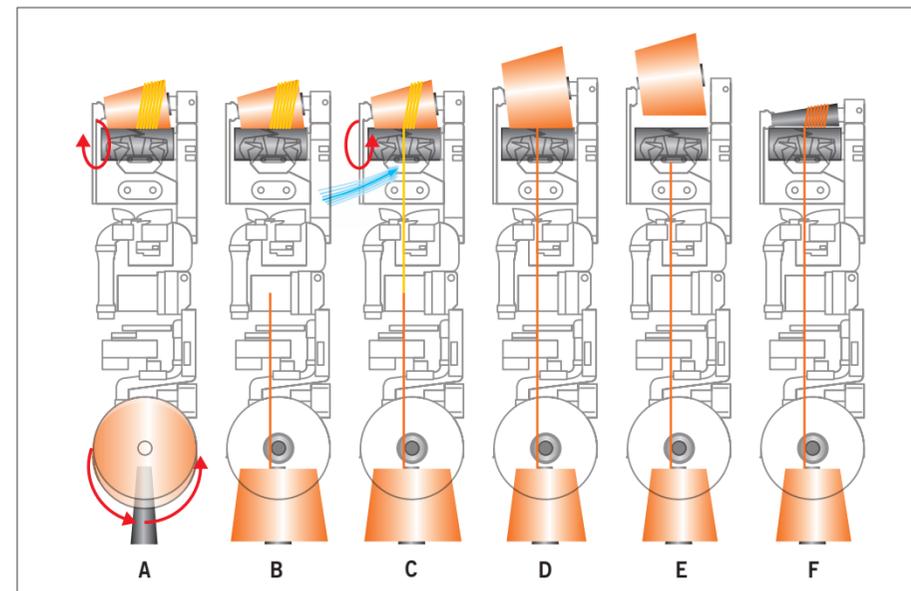
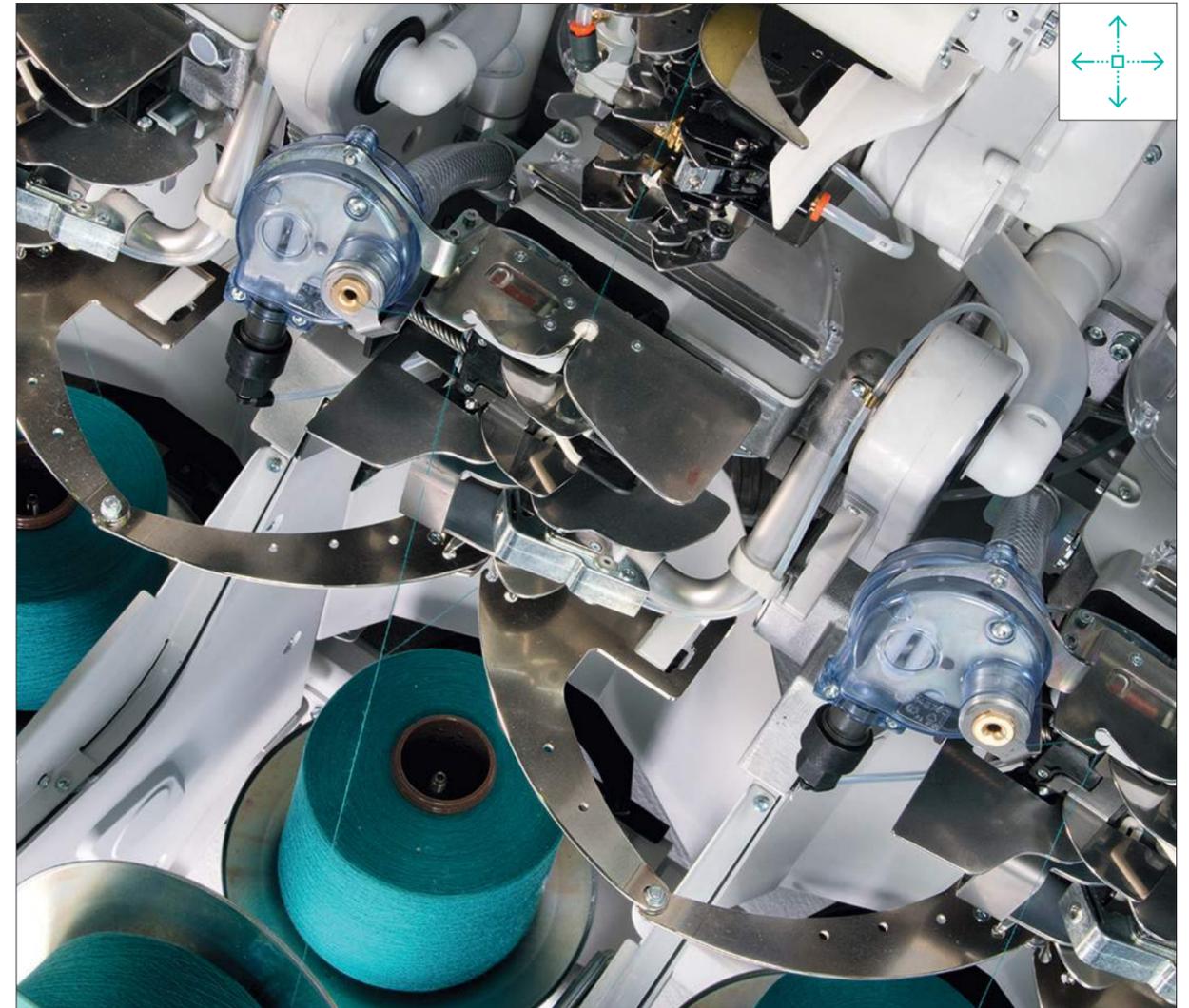
With the computer the following functions can be programmed:

Winding of a feeding package onto a take/up package

- With “sock” removal;
- With manual removal of the “sock”;
- With automatic removal of the “sock”;

Winding of two feeding package onto one take/up package

- Without “sock” removal;
- With automatic removal of the “sock”;
- Splice dispersion without removing the “sock”;
- Splice dispersion and automatic removal of the “sock”.



Automatic removal of the “sock”

- | | |
|---|--|
| <p>A Feeding package change</p> <p>B Splicing</p> <p>C The yarn is cut and the winding drum reversed for a set time to unwind the “sock” from the package, and remove it by means of the package suction nozzle.</p> | <p>D Cutting of the yarn</p> <p>E Splicing</p> <p>F Package doffing</p> |
|---|--|



Smart Industry Solutions for Textile Mills

Savio Winder 4.0



Three different levels of winding control monitoring

1. BASIC PACK SAVIO COMPUTER INTERFACE
Connectivity and data downloading

2. BUSINESS PACK WINDER BROWSER
Data management, remote machine set up and monitoring

3. EXECUTIVE PACK WINDER BROWSER + SAVIO SMART BRACELETES
Operators real-time interactivity

Industry 4.0 is the current trend of automation and data exchange in manufacturing technologies. It includes cyber-physical systems, the Internet of things and Cloud computing. Over the Internet of Things, systems communicate and cooperate with each other and with humans in real time. Some aspects that are summarized under the terms "Internet of Things" and "Industry 4.0" are not new for Savio and its textile machinery engineering. Electronics and remote services used for maintenance and process optimization have been applied for many years.

Connectivity, data management, remote machine set up and operator real-time interactivity: this is the Savio way for smart solutions for textile mills. Nowadays, Savio product development is focused on "smart" components that must transmit data online. Once composed solely by mechanical and electrical parts, now winding machines have become complex systems that combine hardware, sensors, data storage, microprocessors, software and connectivity. These smart machineries can increase the efficiency of the spinning mill and perform predictive maintenance avoiding breakdowns and downtimes.

Savio Winder 4.0 represents an important step towards a wide digitalization process, being a solution for intelligent networking of machines in the spinning/winding room. This data management system is a very modern and important management tool, relieving mill management staff of time-consuming routine work. The mill manager can have the winding room live monitoring directly from his/her desk. Thanks to data analytics, a wealth of data are available, allowing to manage the different production phases in the best possible way and to monitor all significant parameters anytime and anywhere, making use of mobile devices.

All these features enable Savio customers to control overall equipment effectiveness, increase workforce efficiency, and maximize quality and working time. Services are even going mobile. Savio Winder 4.0 is also meant as communication between machine operator and service specialist in case of need.



P.T.S. - Package Tracking System (optional)

The package handling automation, external to the winding machine, may require the possibility to identify and monitor the package yarn quality. For enhanced traceability and inventory management, we can offer a solution for package identification. A RFID tag is applied inside the package cone for uniquely identifying the product and track processes and operations. The external automation system, being provided with a reader, enables the selection and grouping of the packages on the pallets, creels or other supports. This system is studied for product traceability and visibility in the assembly line, warehouse logistics management, inventories and reliable item level identity.

A dedicated winding room data collector receives all the information available from the machines. The system generates a unique ID for each package. The ID is associated to the bio data of the package, which can be retrieved later for in-house tracking. The bio data can be stored in cloud-based applications and retrieved everywhere.

Machine computer can provide the Package Bio Data such as:

- Product code
- Origin identity (machine serial number, spindle number)
- Date/time of production, shift information
- Lot name, winding speed, yarn count
- Length and weight

TECHNICAL SUMMARY

The manual feeding winder is a reply to those spinning mills using ring spinning frames with different bobbin sizes, for different counts and fiber. This winder can easily process different yarns and counts, allowing a very flexible production planning, since there is no rigid assignment of yarn allotments from ring spinning frames.



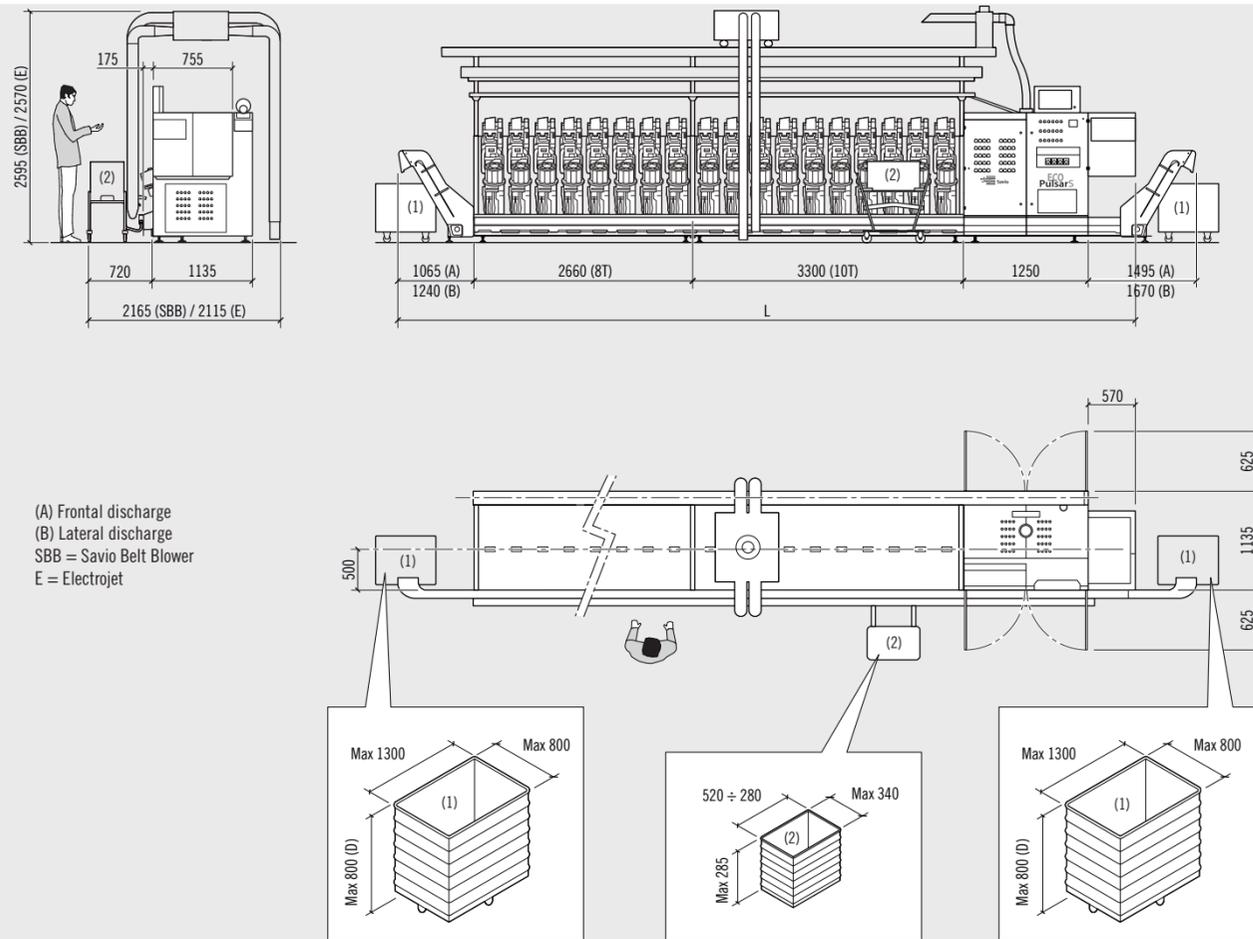
	M model	L model	R model
Features	Manual bobbin feeding and manual package doffing	Manual bobbin feeding and automatic package doffing	Package feeding for the rewinding of packages of any taper.
Feeding formats	Bobbin size: tube length from 180 to 180 mm with a bobbin diameter of 32 to 57 mm.	Bobbin size: tube length from 180 to 350 mm with a bobbin diameter of 32 to 72 mm. Mule Cops: tube length 305 mm, bobbin diameter max 72 mm	Feeding packages: cylindrical or tapered packages max. 250mm, winding traverse ≤152mm / max 220mm, winding traverse = 200mm.
Materials	Natural, synthetic and blended staple yarns		
Count range	From tex 286 to tex 4, from Ne 2 to Ne 147, from Nm 3.5 to Nm 250		
Headstock	Right or left with respect to the working front		
Frame	Modular frame consisting of 6, 8, 10 head sections		
Number of heads/machine:	From a minimum of 12 to a maximum of 100.		
Take-up	Crossed packages: winding traverse 110, 152 mm (3/2 EVO drum) 157 mm (2 EVO drum), taper 0°÷5°57', maximum diameter 320 mm.		
Take-up speed - Grooved drums	400 ÷ 2200 m/min with step less setting		
Take-up speed - Multicone	400 ÷ 1600 m/min with step less setting		
Pocket magazine	9	9	-

■ Standard	□ Optional	M model	L model	R model
WINDING UNIT				
Grooved drums		■	■	■
Individual spindle suction system		■	■	■
Electronic anti patterning system		■	■	■
Package taper increase: 0°÷5°, mechanical type, electronic only with C.A.P.		□	□	□
Axial displacement: with individual motor		□	□	□

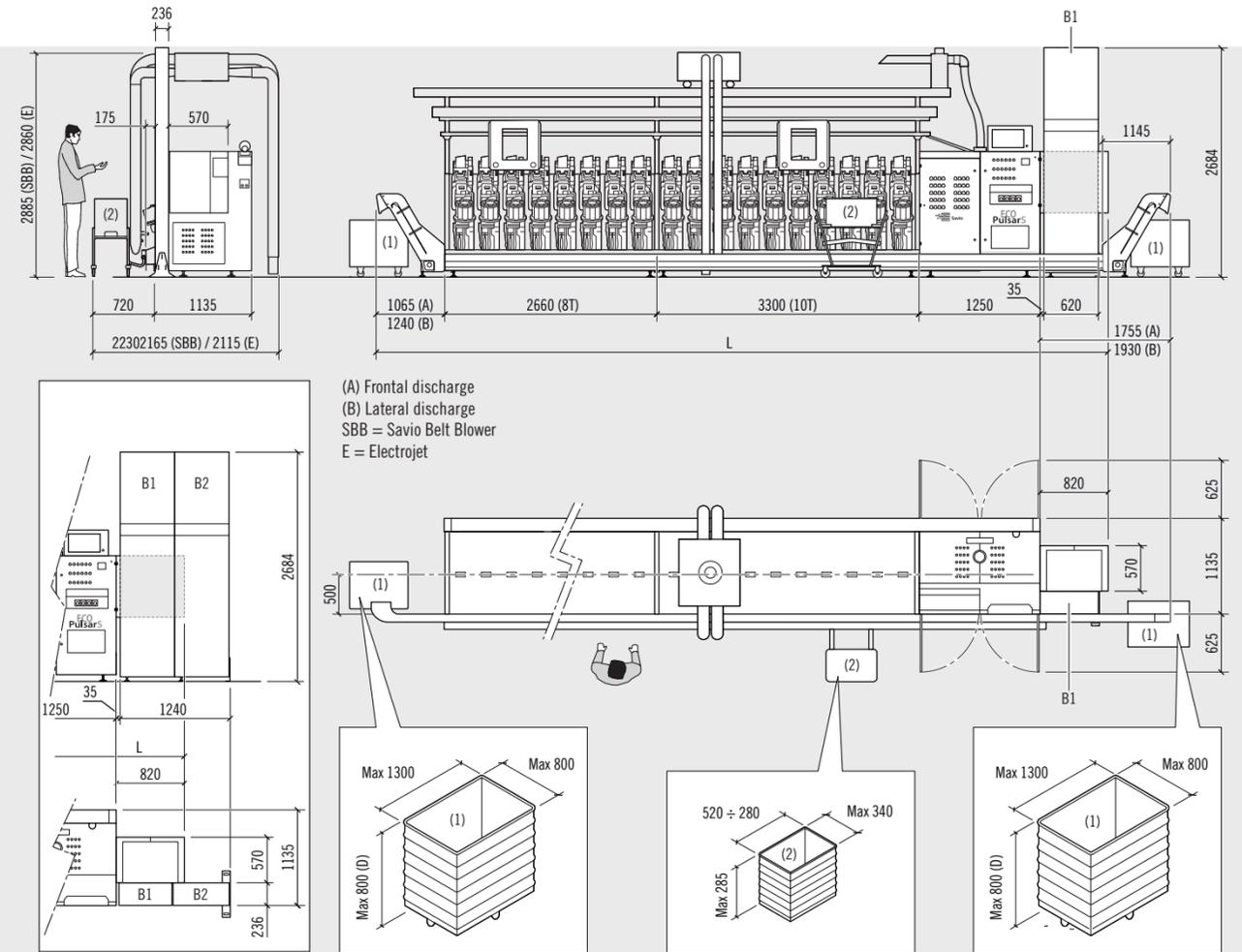
Electronic clearers: Uster, Loepfe basic model with global and continuous yarn and splice control. Other manufacturers on request	■	■	■
Yarn defects cutter: separate cutter, located on the yarn tensioner	■	■	■
Yarn ends suction: through individual suction unit	■	■	■
Duo Air Splicer System: Jointair type	■	■	■
Splicers: Water, Moistair®, Twinsplicer, Heat-Splicer, knotters	□	□	□
Yarn tensioner: gate system/disc system according to fibers and blends	■	■	■
Pre-cleaver: variable width	■	■	■
Tensor - C.A.T. Computer Aided Tension	■	■	■
Yarn presence sensor	□	□	□
Waxing unit, deflection type	□	□	□
Double waxing units	□	□	□
Wax finished detection probe	□	□	□
C.A.M. Computer Aided Metering	□	□	□
C.A.P. Computerized control of the drum-package diameter ratio	□	□	□
Counterweight: standard pneumatic device or self-adjusting	■	■	■
C.A.D. Computer Aided Density	□	□	□
Diagnostics: with colored LED fitted on the winding head functional groups	■	■	■
Dust removal: through a suction nozzle aside the bobbin, and standard suction pipes along the yarn path, by the individual suction unit	□	□	□
MACHINE BODY			
Package conveyor belt: single lot towards the headstock	□	□	□
Lighting along the machine	□	□	□
Travelling blower/suction unit	■	■	■
Waste yarn and dust collection system: through a collector along the machine towards the headstock	■	■	■
Centralized pneumatic adjustments: located near the computer, for package cradle counterweight and splicer air pressure	■	■	■
COMPUTER			
Centralised electronic adjustments: machine data, processing parameters, air splicer working parameters (Duo Air types only), yarn tensioner pressure, V.S.S., electronic modulation, pneumatic adjustments values	■	■	■
Setting, collecting and displaying production data: of winding units, bobbin loading station, doffing trolley, display of the peripheral alarms	■	■	■
DATA MANAGEMENT SYSTEMS			
Basic Pack Savio Computer Interface: connectivity and data downloading	■	■	■
Business Pack Savio Winder Browser: connectivity, data management, remote machine set up and monitoring	□	□	□
Executive Pack Savio Winder 4.0: connectivity, data management, remote machine set up, monitoring and operators real time interactivity	□	□	□
P.T.S. Package Tracking System: for enhanced traceability and inventory management, a RFID tag is applied inside the package cone for uniquely identifying the product and track processes and operations.	-	□	□
HEADSTOCK			
Machine Control Panel	■	■	■
Waste discharge: by filters at the headstock end, automatic discharge into external separated boxes, without stopping the machine	■	■	■
PACKAGE UNLOADING SYSTEM			
Doffing trolley: automatic package doffing, insertion of the cone on the spindle head	-	■	□
Double doffing trolley	-	□	□
Cones feeding: individual cradle on each winding unit	□	■	□
Centralized cone magazine	□	□	□
Double centralized magazine	□	□	□
Flexible package unload: stand-by unloading position independent for each winding unit	-	□	□

Overall dimensions

EcoPulsarS M



EcoPulsarS L



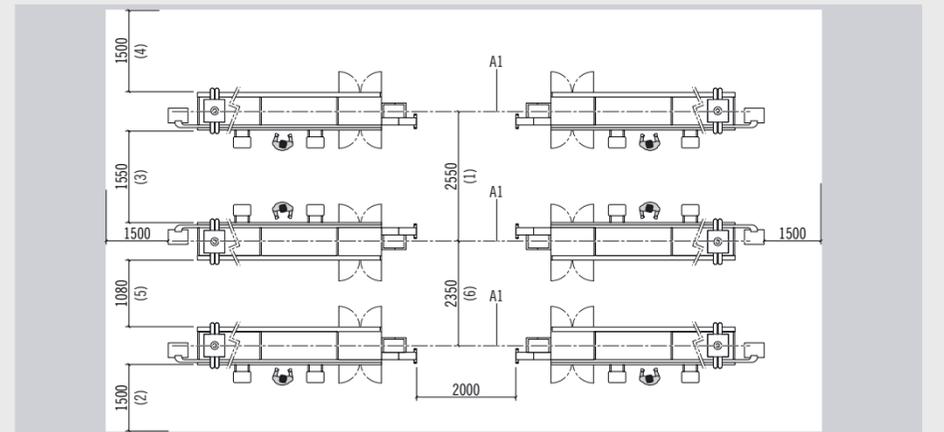
N. heads	Sections		Length (mm)		
	8H	10H	NO B1+B2	B1	B1+B2
40	0	4	16260	16510	16510
50	0	5	19560	19810	19810
60	0	6	22860	23110	23110
64	3	4	24240	24490	24490
70	0	7	26160	26410	26410
72	4	4	26900	27150	27150
80	0	8	29460	29710	29710
90	0	9	32760	33010	33010
100	0	10	36060	36310	36310

Length with lateral discharge



Machine installation Minimum dimensions in mm

- (1) 3150 with feeding bobbin box
- (2) 1800 with feeding bobbin box
- (3) 2150 with feeding bobbin box
- (4) 2000 with intermediate package unloading
- (5) 2880 with intermediate package unloading
- (6) 4150 with intermediate package unloading



COMPANY WITH
MANAGEMENT SYSTEM
CERTIFIED BY DNV GL
= ISO 9001 =
= ISO 14001 =

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We reserve the right to modify the characteristics of the machines described herein without prior notice. The data given in this brochure are not intended as a guarantee.

Savio machines are equipped with safety devices in compliance with existing regulations.

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