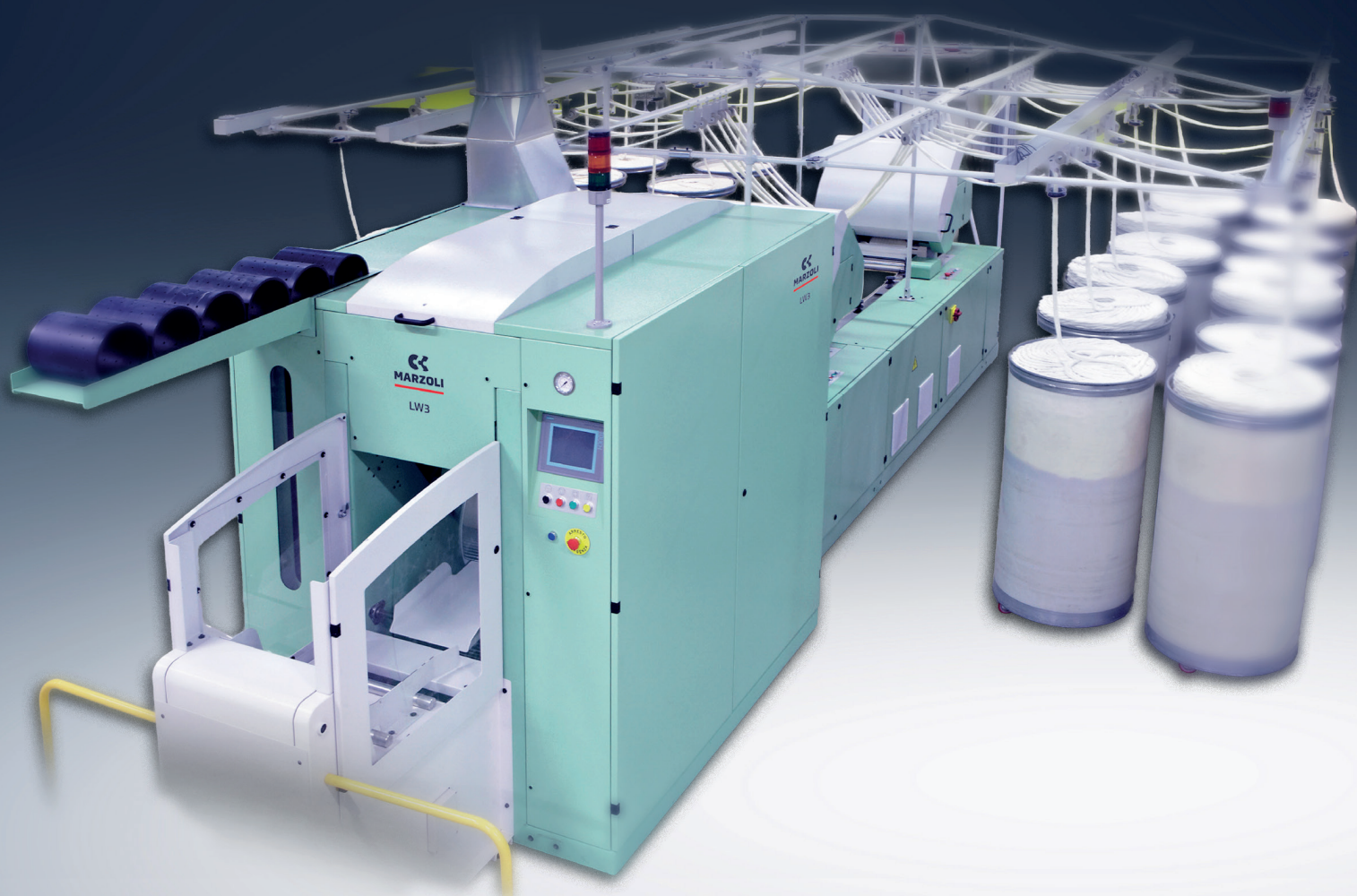


LAP WINDER LW3

The desired quality of the lap



Marzoli

Complete spinning line,
components and digitalized
solutions for the best performance
of the spinning process



THE ONE SOURCE FOR A FULLY-AUTOMATED AND DIGITALIZED SPINNING MILL



Marzoli, one of the major brands of the textile sector worldwide, is a unique European manufacturer of the complete line of machines for the opening, preparation and spinning of short-staple fiber. From the bale opener to the ring spinning frame, Marzoli offers the most advanced technology for a completely-automated spinning mill. Through its global sales and service network, its expertise on each type of fiber and application and the competence on the entire process, Marzoli represents a competent and reliable partner. And through its experience, know-how and commitment, it provides its customers with:

- Advanced spinning solutions through a careful activity of textile engineering. Marzoli assists its customers from the study of the spinning plan, throughout sourcing, erection and commissioning, up to maintenance of the resulting turnkey spinning plant, which can comprise Marzoli but also third-party machinery. The customer can rely on the competence and capability of a unique partner, responsible for the quality and productivity of the entire spinning mill.
- The advantages of smart spinning. No matter what the brand(s) of the machinery is, Marzoli can install its software platforms, YarNet and MRM, its hardware applications for gathering data on waste percentages and its composition, quality values, productivity indexes and other kpi data to let the customer build on the potential of Industry 4.0, optimize the entire spinning process through well-informed decisions and reach the highest performance in production operations.

OVER
170 ■ YEARS
OF SUCCESSES

OVER
70 ■ COUNTRIES
WITH ACTIVE CLIENTS



OPENING SECTION

- Openers & Cleaners
- Mixers & Blenders
- Card



COMBING SECTION

- Draw Frames
- Lap Winder
- Comber
- Lap Transport



SPINNING SECTION

- Roving Frame
- Ring Spinning Frame
- Bobbin Transport System

LAP WINDER LW3

KEY POINTS

- HIGH PRODUCTIVITY UP TO 620 Kg/h
- HIGH LAP QUALITY
- MODERN DESIGN
- PRODUCTION SETUP AND CONTROL BY MARZOLI SOFTWARE FROM TOUCH SCREEN



The LW3 Lap Winder has been conceived to grant the best results on quality and productivity. The machine design and the lap formation system make it possible to start operations at a speed of 220 m/min and then reduce the speed while approaching lap completion. In this way LW3 lap winder yields top quality laps, but at the same achieves the highest productivity standards: the LW3 lap winder can reach an average lap formation speed of 190 m/min. The high speed and the fast doffing cycle, which lasts

around twenty seconds, allow the LW3 lap winder to reach production levels up to 620 Kg/h and feed up to six CM7 combers with top quality laps.

Modern Design

The LW3 lap winder is a machine that continues Marzoli tradition of performance, quality, and reliability. The LW3 responds to the requirements of technological innovation, with greater production and quality than competitors, affirming Marzoli advancements in research and development.

■ HIGH LAP QUALITY

Thanks to the advanced technology and the innovative lap formation system, the LW3 lap winder allows to obtain outstanding quality levels.

The consistent and even quality of the superimposed cotton layers, which maintain homogeneous and uniform weight from the beginning to the end of the formation process, makes it feasible

for the comber to process laps from the LW3 at very high production rates with improved quality of the combed sliver. The unwinding of the laps on the comber, with parallel and well positioned fibers, allows a more effective combing process with a reduction of long fibers in the waste. It follows that the same sliver quality can be obtained with a lower noil ratio.



Standard lap winders: **irregularity** of the superimposed cotton layers



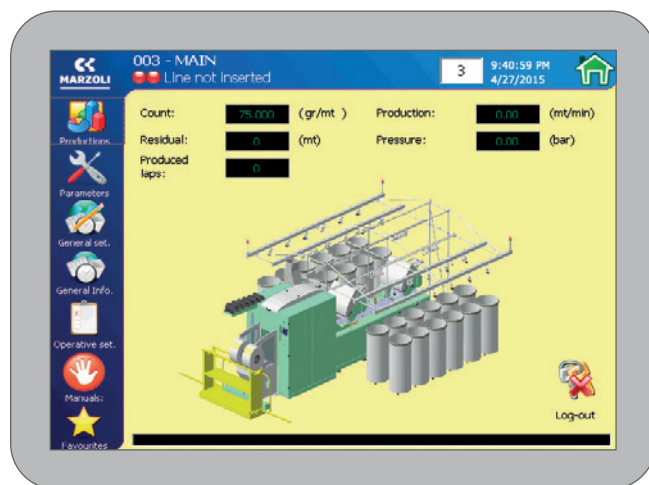
LW3: **regularity** of the superimposed cotton layers for a superior quality of the laps



■ USER INTERFACE

The multi-language and user friendly HMI allows a simple management of the machine thanks to diagrams, detailed monitoring pages and step-by-step troubleshooting procedures.

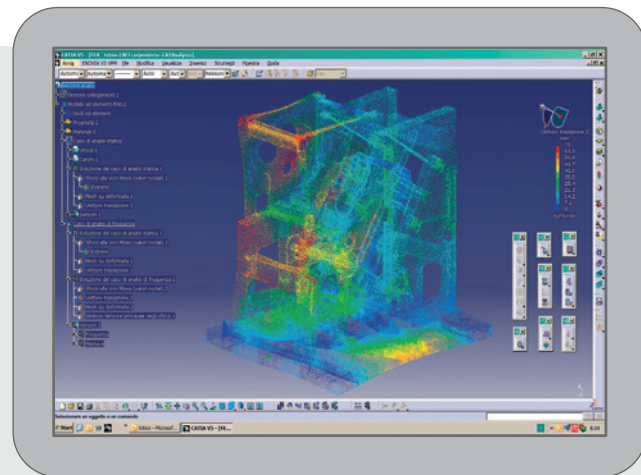
The LW3 lap winder is controlled by a modern PC microprocessor. All production data and working parameters are controlled and saved during the production cycle allowing perfect monitoring of the machine and all doffing procedures.



3D CAD ENGINEERING

The LW3 lap winder, like any other Marzoli's machine, has been designed with the latest CAD technology.

This enables our engineers to study the forces acting inside the machine while it is working at high speeds and find innovative solutions to further reduce inertial forces, uncontrolled vibrations and mechanical frictions while enhancing productivity and quality standards.

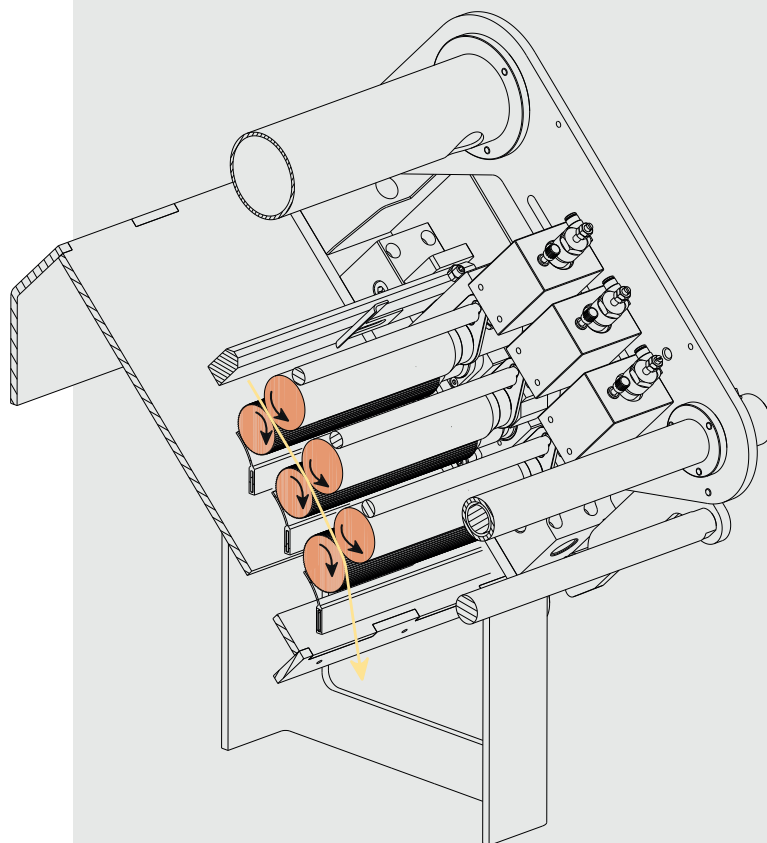


DRAFTING SYSTEM - 3 OVER 3 DRAFTING UNITS

The system features easy setting of back and main draft values through interchangeable toothed pulleys, thereby boosting the machine flexibility.

The pressure on the top roller is adjustable. When the machine stops, the top rollers are automatically relieved from air pressure to protect the rubber surface. Scrapers at constant contact with the rollers assure high cleaning and avoid roller lapping.

Overall, the LW3's drafting unit guarantees high productivity, perfect reliability, high drafting quality and precision, low maintenance and high flexibility.





■ WEBS SUPERIMPOSITION

The position of the two drafting groups, in line with the lap formation calenders, enables the stacking of two webs on top of each other without using convoy plates.

This important innovation makes the superimposition of the two webs simpler and more precise and, by avoiding friction of the sliver against the convoy plates, it also reduces laps hairiness.

■ LAP TAPERING DEVICE

The two webs, perfectly superimposed and compacted by two pairs of calenders with adjustable mechanical pressure, are driven by movable guides located at the entrance of the formation calenders.

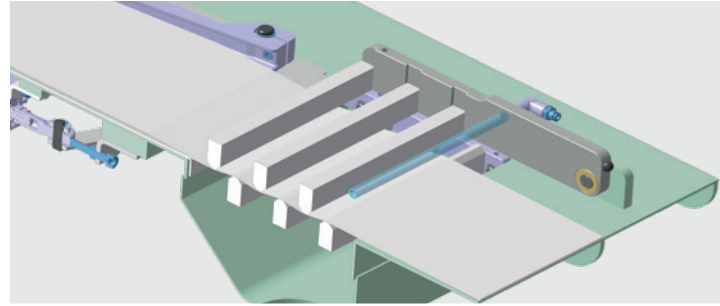
These special guides are driven by pneumatic cylinders that reduce the lap width shortly before the end of the formation process.

The narrowed ending part of the lap allows for a better detachment during the changeover on the lap winder and an easier search and preparation of the batt for the lap piecing on the comb.



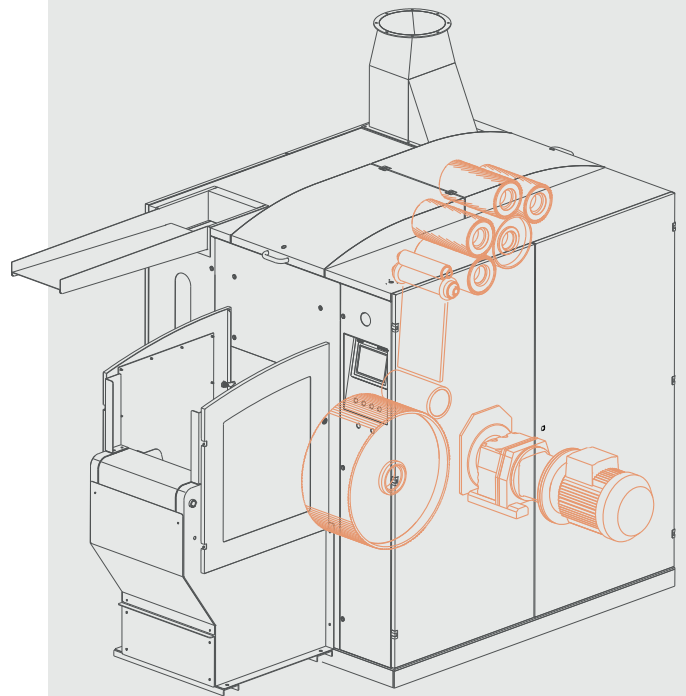
HAIRLESS DEVICE

The multiple layers of cotton go through the stacked chrome bars, which have the purpose of smoothing the external fibers and compressing the layers.



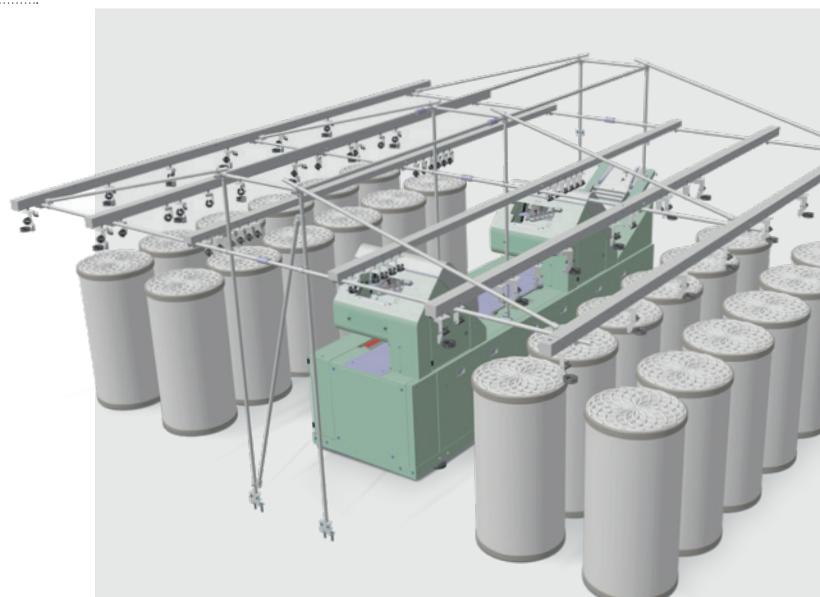
LAP FORMATION

Four points of calender pressure are needed to obtain a compact and uniform batt ready to be wound on the spools. This calender system also facilitates the insertion at the beginning of the process or after an interruption of the flow. A couple of rollers and a slide facilitate the transfer of the batt to the lap formation system made of a sliding lap formation disk with adjustable pressure and a large compressing calender. A special smaller compacting calender helps to avoid expansion of the layers at high speed and enables the production of laps that, when unwound on the comber, are free of turned fibers. This laps formation system facilitates a quick loading of empty spools and unloading of full laps, improving the performance of the machine.



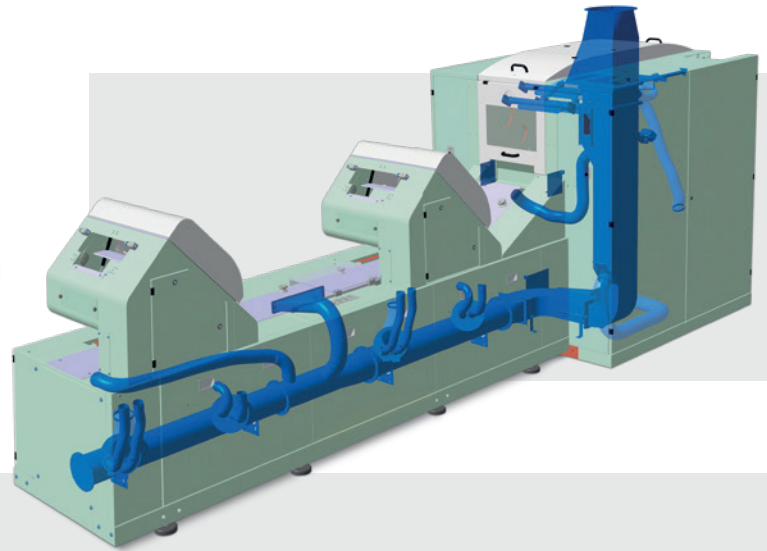
CREEL

On each can entering the creel, there is a sensor that detects sliver presence and stops the machine in case of breakages or when the sliver runs out before the tail enters completely in the drafting group. This makes it easy to join the new sliver and to restart the machine in a short time. A system of sliver guides at the entrance of the drafting system makes it possible to maintain evenly spaced slivers for optimum overlapping of layers after the drafting units.

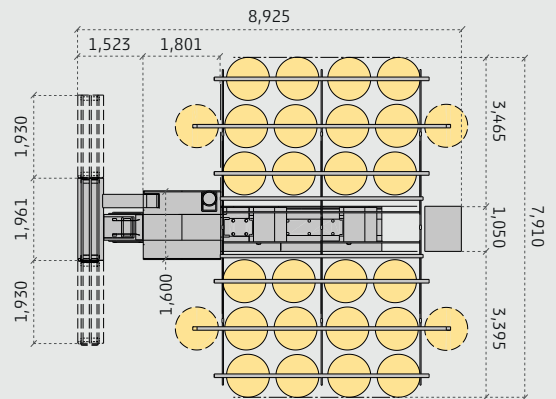
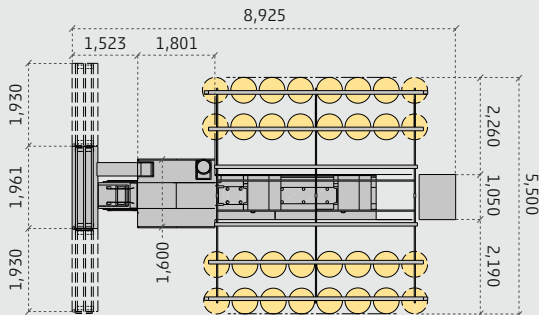
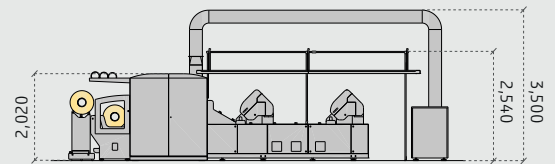
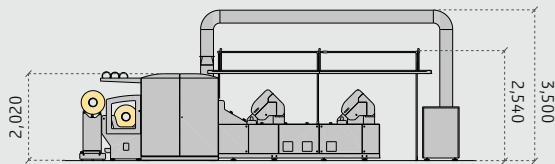


■ SUCTION SYSTEM

All the various points of cotton processing, from the entrance of the slivers in the drafting rollers to the formation and doffing of the full laps, are kept clean with an efficient suction system directly connected to a central suction system, or to a self cleaning filter box available as an option.



■ TECHNICAL DATA



Lap winder LW3	
Lap weight	Up to 28 kg
Lap width	300 mm
Lap diameter	max 600 mm
Delivery speed	variable - up to 190 m/min average
Drafting System	3 over 3 Pneumatic load
Feed cans	24" x 48" 40" x 48"
Total installed power	18 kW - without filter box 20.5 kW - with filter box (optional)
Production	Up to 620 Kg/h
Application	Cotton 1 1/16" - 2"
Sliver count range	3.3 - 6 ktex (0,18 - 0,10 Ne)
Doublings	24, 28, 32 (cans dia. 24") 24, 28 (cans dia. 40")
Total draft	1.4 - 2.3 Fold
Delivery lap weight	Up to 80 ktex (Up to 80 g/m)
Power Consumption	0.022 kW/kg

SOFTWARE PLATFORMS

END2END PRODUCTION MANAGEMENT PLATFORM: YARNET

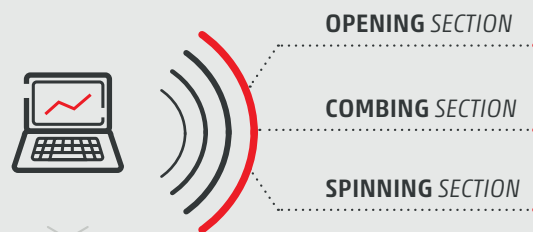
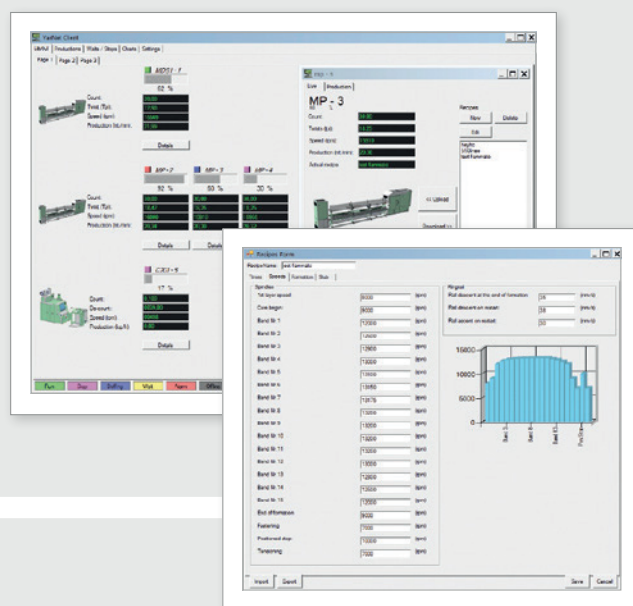
YarNet is Marzoli production management software. It enables the monitoring of production levels, efficiency rates and downtime for both individual machines and the entire spinning mill. Comparisons between machines on selected periods of time are made very simple so that improvement opportunities can be easily identified. YarNet enables the operator to edit production recipes, downloading and uploading them between any machine and their computer. He can also export them in Excel format to share with colleagues as necessary. YarNet gathers and analyses data about production and energy consumption, giving a visual representation of the tradeoffs (kW/kg).

MRM

MRM is Marzoli software to continuously monitor the operating conditions of textile machines. It can identify developing malfunctions before a fault occurs and highlight improvement opportunities on efficiency rates and energy consumption levels. Data about temperature, power consumption, speed and vibration are collected from PLCs (programmable logic controllers) and sensors installed on each machine. The software verifies the monitored parameters are within the nominal operating ranges; it can even adjust for room temperature variations to ensure continuous optimisation. If any parameter is out of tolerance, an automatic email alert is sent to the customer. The customer can also access the dedicated online portal to see information for predictive maintenance and of the overall efficiency of the plant. Through dedicated modules (Optimisation Tools) it is possible to optimise the performance of every machine, in particular on energy consumption and levels of efficiency. If required, Marzoli's customer service team can access the data to diagnose actual and developing problems and recommend appropriate actions.

KEY POINTS

- EASY & FAST CONTROL OF EVERY STAGE OF THE SPINNING PROCESS
- IMPROVED SPEED OF RESPONSE IN PRODUCTION OPERATIONS
- EASY MANAGEMENT OF PRODUCTION RECIPES
- SUPERIOR, EASIER AND FASTER MAINTENANCE



BENEFITS

- Higher productivity
- No machines unplanned downtimes
- Prevention from major machine failures
- Longer plant lifespan
- Higher efficiency
- Complete reliability
- Trouble free spinning experience
- Better maintenance planning



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