OVERVIEW

MARZOLI
Textile Engineering

GALILEO - C702
CARDING SECTION

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

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

MARZOLI
Textile Engineering

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:

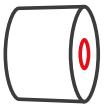
- Advanced spinning solutions through a careful activity of textile engineering. Marzoli assists its customers from the study of the spinning plan, throughout sourcing, erection and commissioning, up to maintenance of the resulting turnkey spinning plant, which can comprise Marzoli but also third-party 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

GALILEO CARD C702

Innovative. Advanced. Modern.

KEY POINTS

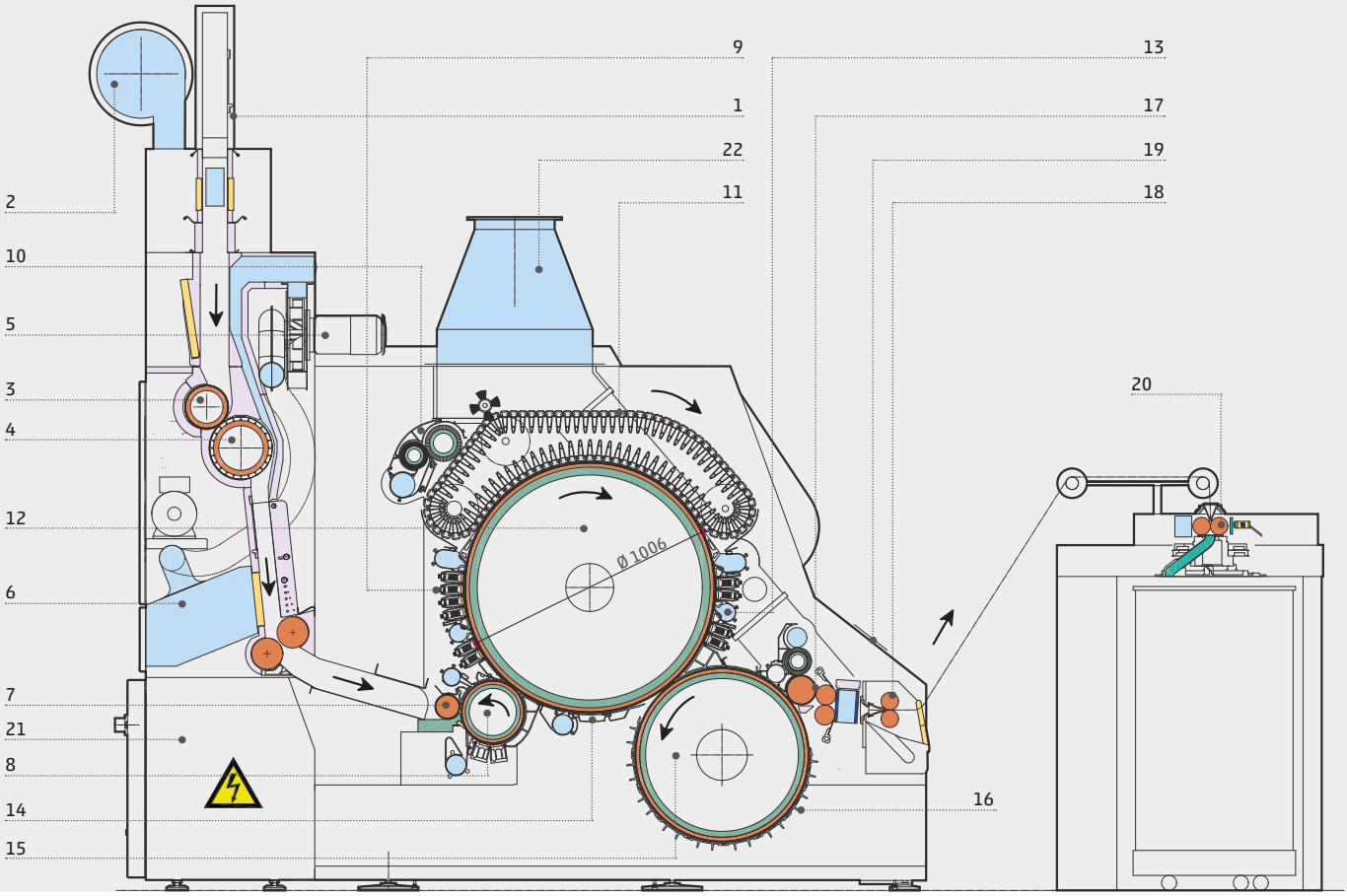
- TOP QUALITY & EXCELLENT CARDING
- HIGH PRODUCTIVITY
- HIGH EFFICIENCY IN ALL DOWNSTREAM PROCESSES
- TECHNICAL & TECHNOLOGICAL EXCELLENCE

Carding has always been and will continue to be one of the most important phases of the spinning process. Only with an effective carding of the fiber the spinner can produce a homogeneous, regular, resistant and clean yarn and therefore ensure efficiency and quality in all downstream operations.

The raw material available on the market today, with continuously increasing prices and always less selected quality, is forcing spinning companies to ask for help from textile machinery manufacturers in order to maintain high quality standards in their end product. The card still remain the fundamental machine to get the best quality out of any fiber.

From the processing of cotton to artificial and synthetic fibers and also to the new and always more complex technical fibers, the Marzoli C702 Card has been designed to fully satisfy the increasingly demanding requirements of the market on greater production and quality.

The Marzoli C702 Card stands for technical and technological excellence and confirms the great effort of Marzoli in research and development.



MACHINE DESCRIPTION - LEGEND

1 Control feed inlet
2 Dust extraction outlet
3 Silo feed roller
4 Opening roller
5 Fan
6 Lower air discharge outlet
7 Card feed roller
8 Licker-in
9 Precarding area
10 Flats cleaning device
11 Revolving flats
12 Main cylinder
13 Postcarding area
14 Under main cylinder covers
15 Doffer
16 Under doffer covers
17 Sliver forming system
18 Calender
19 Control panel
20 Coiler
21 Electric box
22 Suction system

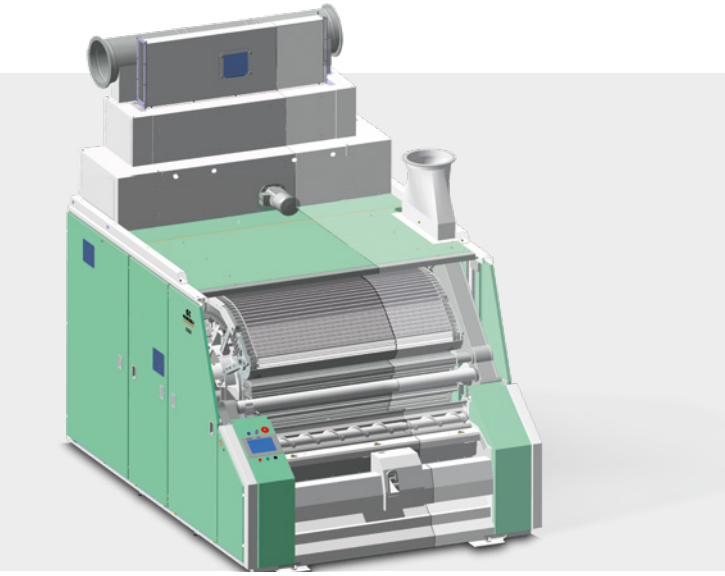
PATENTED GEOMETRY: OUTSTANDING PRODUCTIVITY & QUALITY

KEY POINTS

- LOW FRICTION AND LOW MECHANICAL STRESS
- HIGH ENERGY SAVINGS
- EFFECTIVE EXTRACTION OF IMPURITIES
- HIGH PRODUCTION
- TOP CARDING EFFECTIVENESS

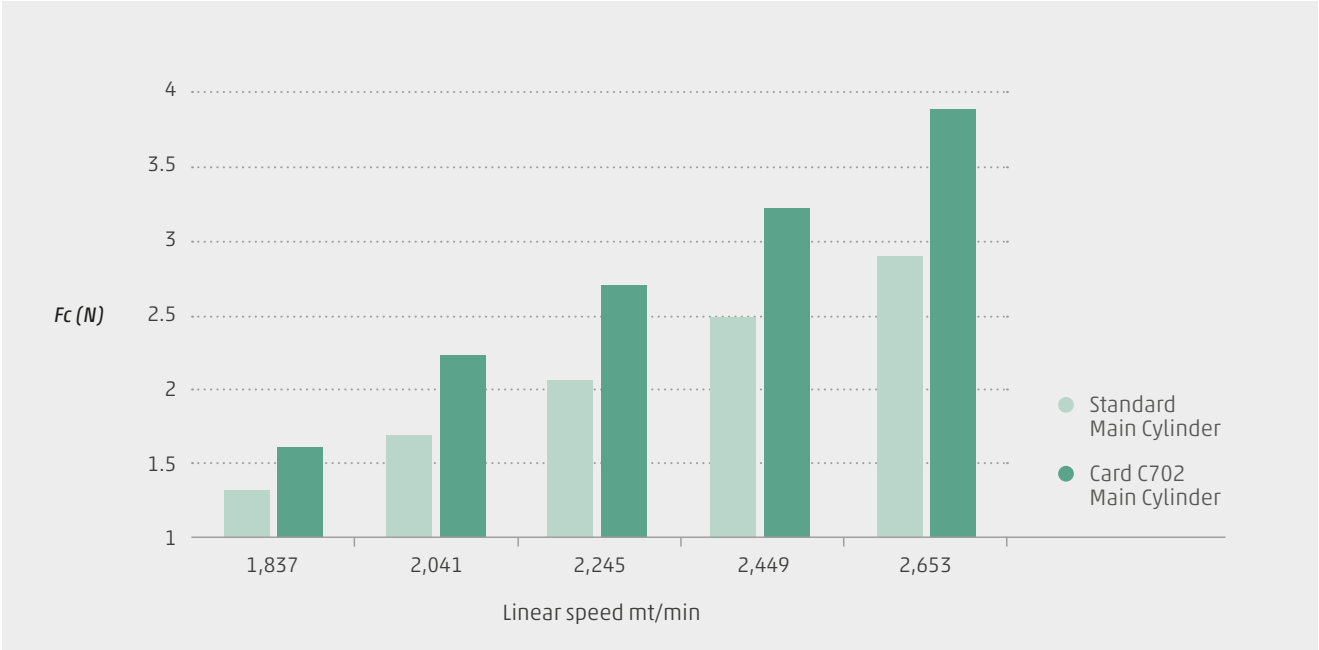
The dimensions of the main cylinder - width and diameter - have important consequences on the machine efficiency, productivity and on its output quality.
The small dimensions reduce the weight of the cylinder, which allow lower friction and minor mechanical stress. Moreover, small diameters, in combination with higher cylinder speed, grant higher centrifugal force, which improves the extraction of impurities. On the other hand, bigger cylinders entail a greater carding surface of the machine. This has three major consequences:

- It improves productivity, because the card can process a bigger amounts of raw material.
- It enhances quality and carding effectiveness because the same amount of raw material is distributed on a bigger carding area.
- It reduces maintenance costs because the flats are less subject to wear, as the same amount of fibers is distributed on a greater carding surface.



Accurate studies and several tests carried out in the R&D department have led Marzoli to identify the cylinder dimensions that perfectly balance all the above-listed advantages. This technology has been incorporated in Marzoli C702.

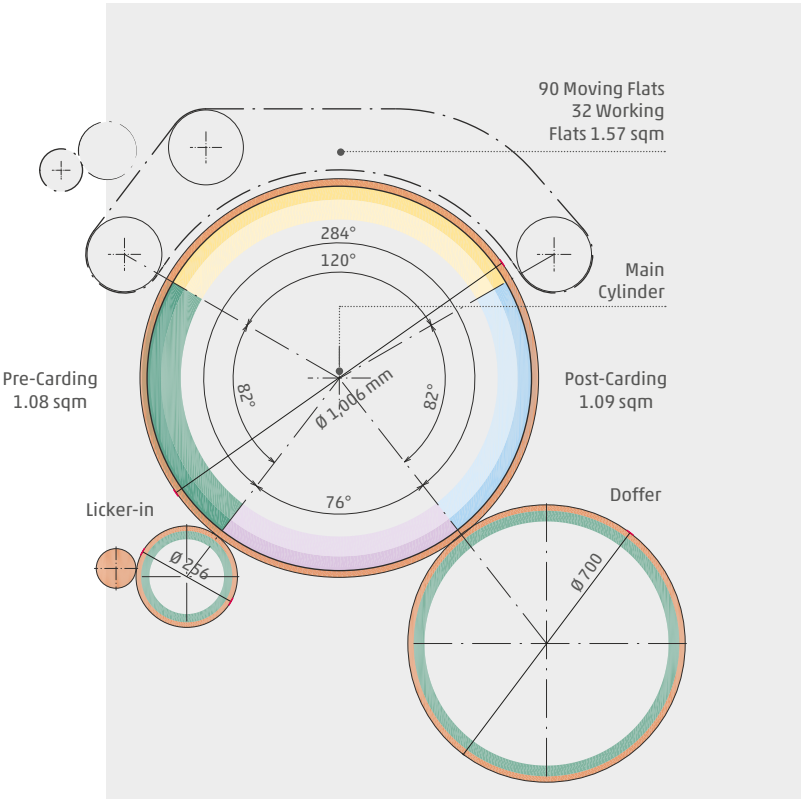
MAIN CYLINDER CENTRIFUGAL FORCE



Big Carding Angle & Carding Surface

In the architecture of the Card C702, the main cylinder has been raised and the licker-in and the doffer have been located underneath the main cylinder in order to reach a 284° carding angle (angle between the center of the licker-in and the center of the doffer). Thanks to this configuration, the working width of 1,500 mm and the diameter of the main cylinder of 1,006 mm, Marzoli C702 Card has a carding surface of 3.74 sqm.

The carding surface is subdivided as follows: pre-carding area 1.08 sqm, moving flats area 1.57 sqm and the post carding area 1.09 sqm.



C702			
PRE CARDING AREA sqm	CARDING AREA sqm	POST CARDING AREA sqm	TOTAL AREA sqm
1.08	1.57	1.09	3.74

Carding densities with different main cylinder geometries

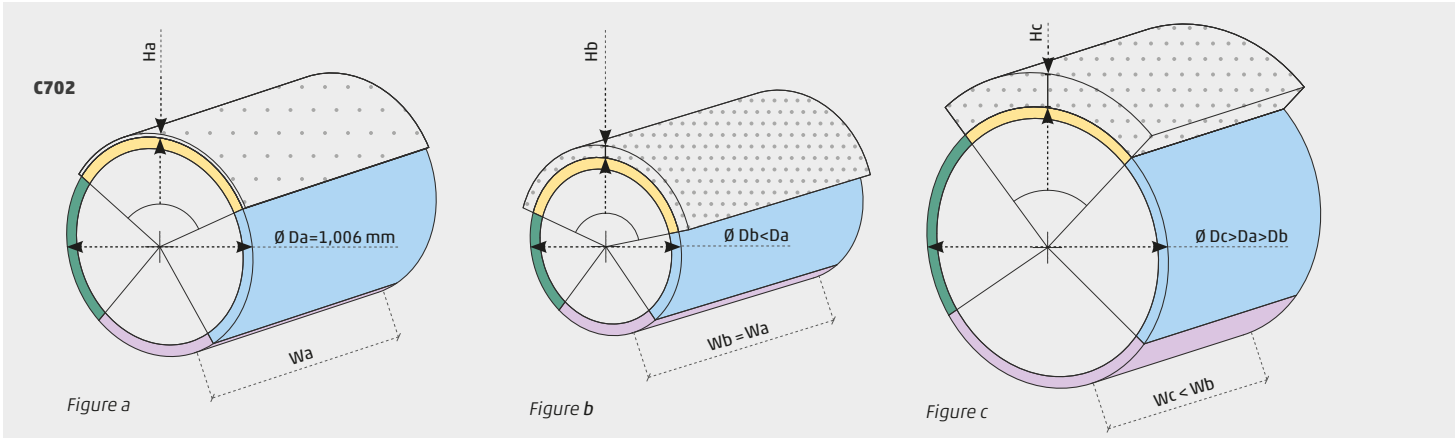


Figure a *Figure b* *Figure c*

Under the same production levels, the geometry of Marzoli C702 Card allows to reduce the density of the processed material in the carding area with mobile flats (See *Figure a*). This entails a thinner layer (Ha) of the carded material with two positive effects:

1. Superior carding performance;
2. Lower mechanical stress on the cloths and the flats.

In fact, with other geometries with smaller diameter and lower working width of the main cylinder (see *Figure b* and *c*), in order to keep the same fibers carding density and achieve the same carding quality of Marzoli C702 Card, it is necessary to increase the rotating speed of the main cylinder.

This entails damaging of the fibers, wear of the mobile flats and the carding cloths and high energy consumption.

TECHNICAL DESCRIPTION - LEGEND

H Web height
W Working width
D Main cylinder diameter

CHUTE FEED & LICKER-IN

KEY POINTS

- IMPROVEMENT OF BATT EVENNESS
- ELIMINATION OF FIBER CURLING
- LOW USTER VALUES FOR COTTON CARDED SLIVER
- SIMPLE MAINTENANCE

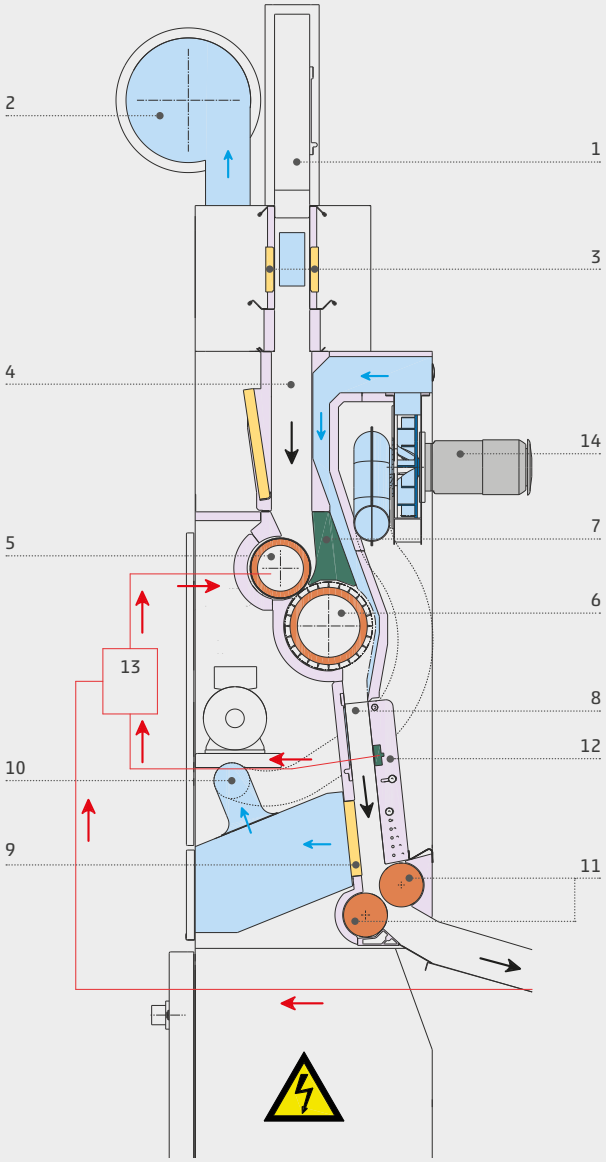
It is well known that the effectiveness of the feed system of a textile machine has remarkable effects on its performances. Therefore, when talking of a card, the main player for sliver quality is the correct feeding.
The fully integrated chute feed of Marzoli C702 Card is conceived to:

- improve the formation and the evenness of the feeding batt;
- guarantee batt homogeneity;
- increase dust removal efficiency;
- improve cotton opening;
- eliminate fiber curling.

The most innovative features of the integrated chute feed are the following:

- all the convoy parts in contact with the fiber are in or smoothed nylon in order to guarantee maximum fluency with all types of fiber. This solution is available only with Marzoli chute feed;
- the pre-chute feed channel has been revised: its modular structure with less elements and a smoother finiture than before lead to avoid any curling of fibers.
- the feed table has a special design that allows to feed the batt with smaller and more open tufts;
- the insertion of the air does not introduce turbolences and fiber curling in the batt formation chamber;
- in the batt formation chamber, thanks to an innovative solution, the air leaks without collecting any workable fiber;
- all the pre-chute feed elements, the batt formation area and the cylinders are easily accessible from the back side of the card for cleaning and maintenance.

These features, along with the autoleveler on the feed roller, improve carding and the regularity of the silver, achieving very low Uster values for cotton carded sliver.



MACHINE DESCRIPTION - LEGEND

1	Control feed inlet	8	Batt formation chamber
2	Dust extraction outlet	9	Perforated steel sheet
3	Pre-chute feed air discharge outlet	10	Lower air discharge outlet
4	Pre-chute feed chamber	11	Feed rollers
5	Feed roller	12	Pressure detection point
6	Opening roller	13	Control unit (pressure switch)
7	Feed table	14	Fan

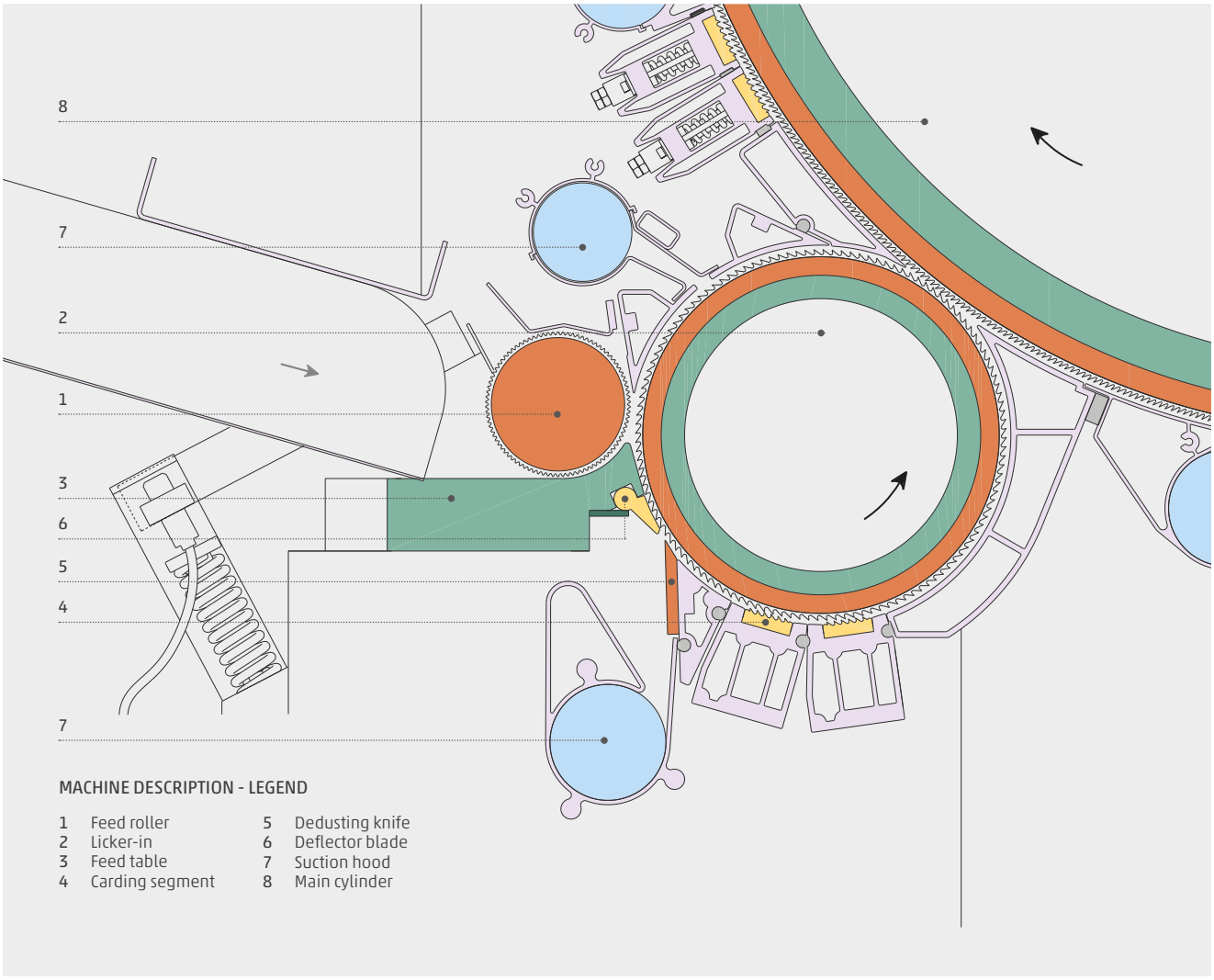
LICKER-IN

Easy elimination of dust & trash

One of the main objectives of a card is to reduce impurities in the sliver. A very important feature of the C702 is the small dimension of the licker-in that must consequently work at high speed.
The result is a greater centrifugal force that, in combination with the revised suction hood, the knife and the carding segments positioned underneath the licker-in, contributes to an easy elimination of dust and trash. The waste percentage adjustment is easily modifiable with the flap positioned in the waste chamber.

Perfect opening & separation of fibers

In order to allow an effective carding of the fiber it is necessary to open the batt and separate the fibers. These activities are carried out through a drafting effect, occurring between the feed roller and the main cylinder, that is not affected by the number and the dimension of the licker-in. In fact, in all spinning machines the draft is always and only the ratio between the delivery speed and the input speed: the intermediate rollers do not affect the draft value.
The draft between the feed roller and the main cylinder of Marzoli C702 Card is very high (800) ensuring the perfect opening of the fiber. This adds onto the high cleaning performance stemming from the licker-in dimension, which does not alter the drafting effect in any way.



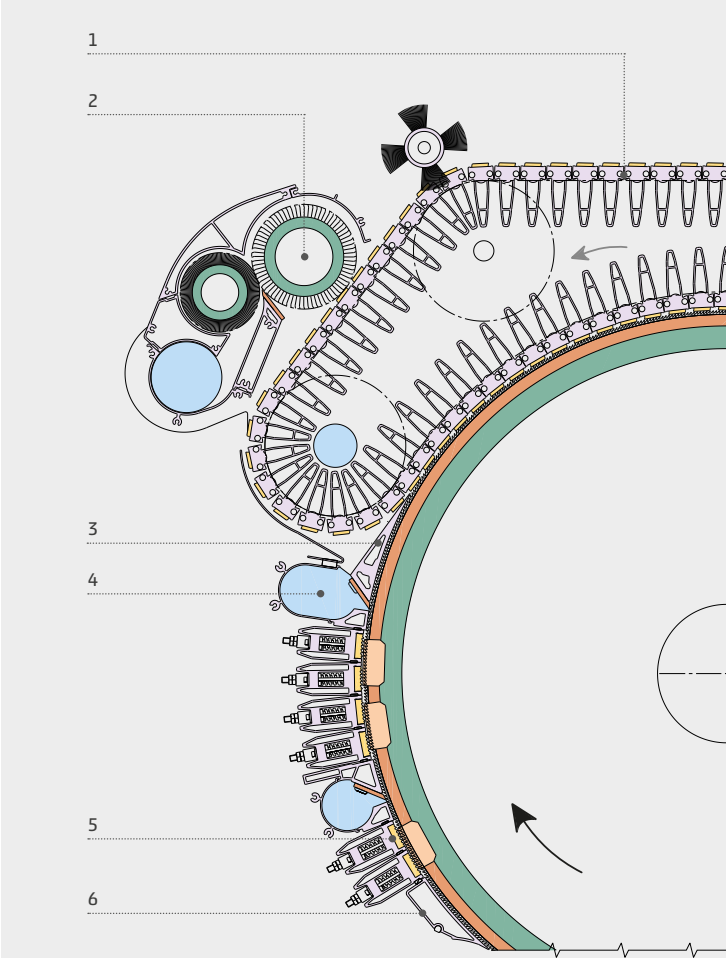
PRE-CARDING, CARDING & POST-CARDING

KEY POINTS

- TOP CARDING EFFECTIVENESS
- PERFECT EXTRACTION OF IMPURITIES
- CONSTANT OUTSTANDING QUALITY LEVELS
- HIGH FLEXIBILITY FOR ALL TYPES OF FIBER
- SPECIAL DESIGN FOR HIGH PRODUCTION & LOWER MAINTENANCE
- HIGHER PRESERVATION OF THE CARD COMPONENTS

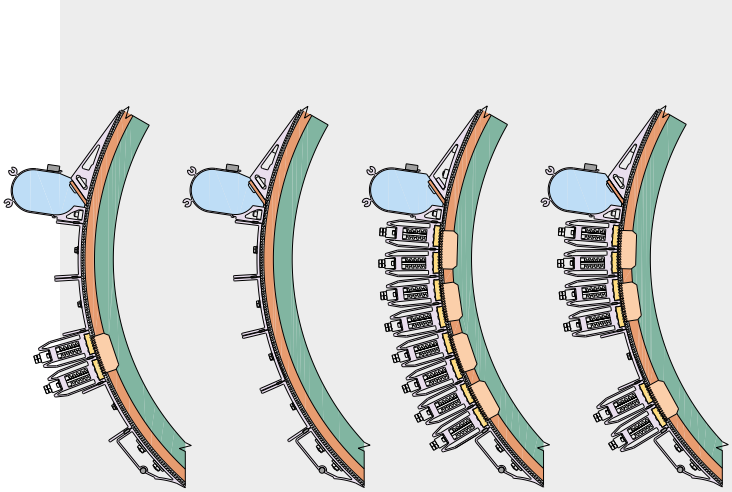
CARDING

At the heart of every card there is the mobile flats area, the carding zone dedicated to the removal of neps, pepper trash and short fibers.
Marzoli Card C702 has a carding zone that has been designed to achieve the highest performances in the extraction of impurities, short fibers and trash fragments even when working at superior production levels: the mobile flats area (1.57 m^2) and the 90 mobile flats, of which 32 always working, permit a 50% increase in production with the same ratio between the number of fibers and the number of points. This guarantees the quality of the sliver and durability of the card clothing.

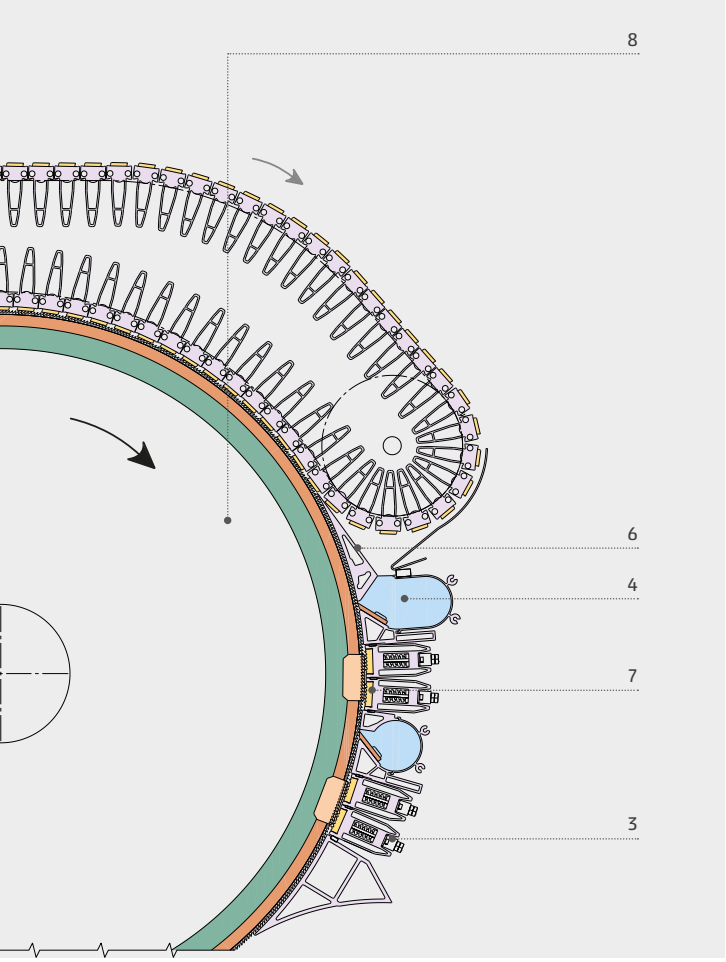


PRE-CARDING

The Card C702 has a pre-carding area of 1.08 sqm, that allows the installation of 6 carding units and 2 fiber control units with relative knives that have the task of removing impurities, dust and short fibers. The pre-carding zone can be flexibly equipped by choosing the number of carding units and knives on the basis of the processed raw material: up to 8 carding units can be applied with one fiber control element and with relative knife.



Pre-Carding

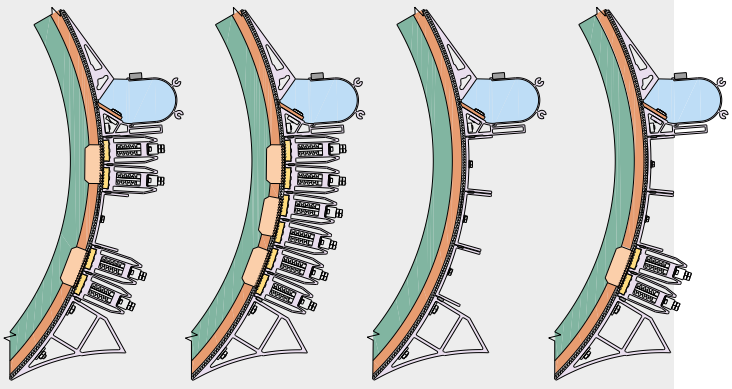


FIXED FLATS AND EASY SETTING

Pre and post carding areas can be equipped with a new frame configuration in which a single special support allows to remove 2 fixed flats at once and even preserving the flats registration. This halvs maintenance time and cost when cleaning the machine and it is a great advantage in case of frequent fiber batch changings.

MACHINE DESCRIPTION - LEGEND

1 Revolving flats
2 Flats cleaning device
3 Inlet cover
4 Dedusting knife with suction hoods
5 Pre-carding segment
6 Outlet cover
7 Post-carding segment
8 Main cylinder



Post-Carding

POST-CARDING

The post carding area of 1.09 sqm allows the installation of 4 carding units and 2 fiber control elements with relative knives (in the standard configuration) whose task is to extract the residual impurities (pepper trash) and particles of dust.

The parallelized and cleaned fibers are delivered to the cloth of the doffer.
Also the post-carding zone can be flexibly equipped with different combinations of carding segments.

DOFFER & WEB DETACHING DEVICE

KEY POINTS

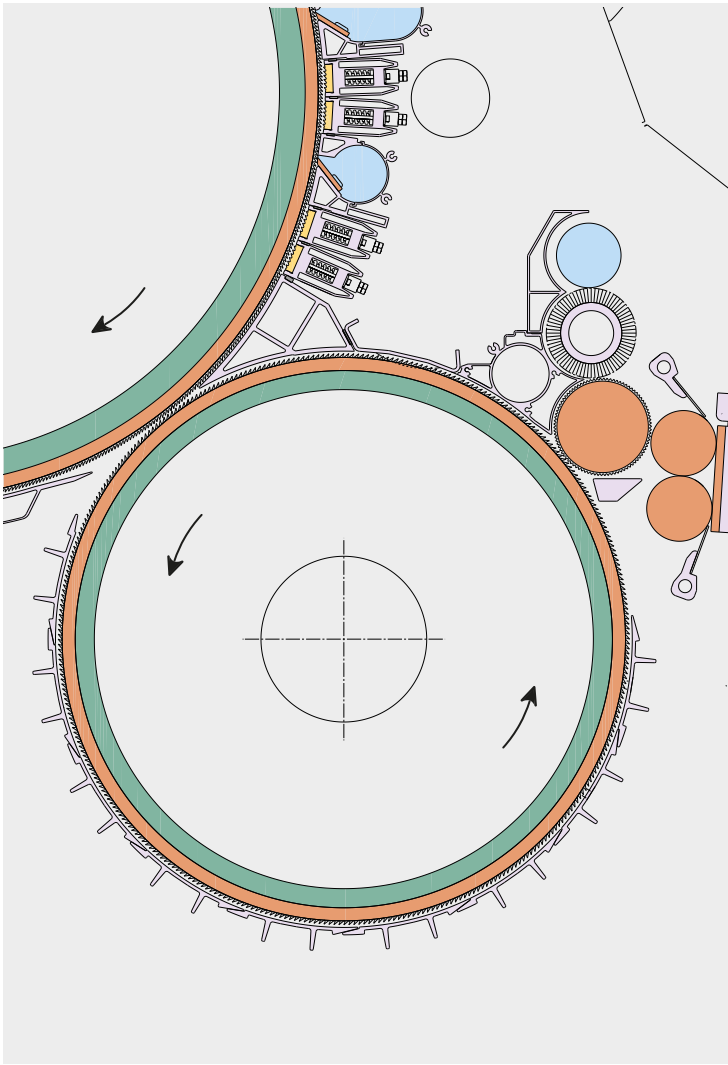
- PERFECT SLIVER CLEANLINESS & UNIFORMITY
- RELIABLE PRODUCTION OF HIGH QUALITY SLIVER
- MINIMUM MECHANICAL DISTANCE BETWEEN MAIN CYLINDER & DOFFER
- LARGE CONTACT ZONE BETWEEN MAIN CYLINDER & DOFFER

DOFFER

The transfer of fibers from the main cylinder to the doffer is important, because it directly affects sliver cleanliness and uniformity. When the two metallic wires are closest to each other, the different speed of the two cylinders creates a carding action and causes the transfer of fibers from the main cylinder to the doffer. However, the doffer only collects the fibers that enter in contact with its metallic wire: if the distance between the main cylinder and the doffer is too large or if the doffer is overloaded with fiber, the transfer and the carding action between the main cylinder and the doffer are inhibited.
Marzoli C702 Card has a design that specifically addresses these problems.
In particular the C702 design has achieved:

- minimum mechanical distance between the main cylinder and doffer for an optimum transfer of fibers;
- large working surface between main cylinder and doffer (contact zone) thanks to the employment of a 700mm diameter doffer, which has always been used on Marzoli cards.

The design and the highly precise construction of the main cylinder and doffer supporting structure are the premises for a stable and reliable production of high quality sliver.



WEB DETACHING DEVICE

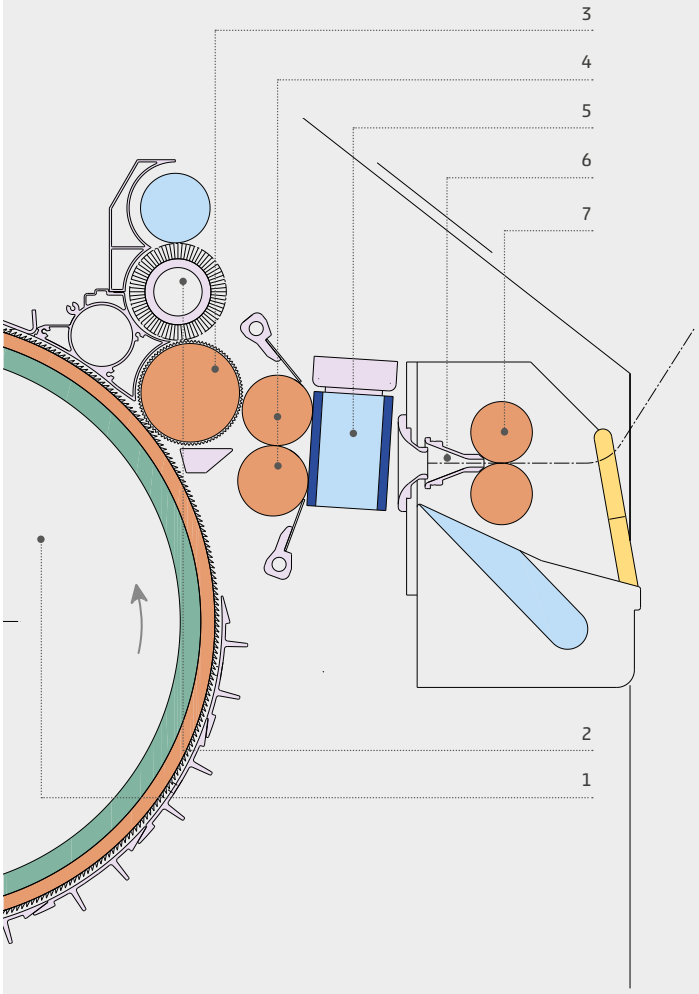
A key success factor for spinners is to boost productivity without compromising on quality. On one hand, productivity allows to reduce the investment cost; on the other hand, higher production levels require higher working speed which can damage sliver quality and uniformity, cause breakages of the sliver and, hence, affect the efficiency and productivity of downstream operations.

The productivity-quality trade off can be substantially improved in some key areas. One of these areas is where the web detaches from the doffer.
Thanks to Marzoli technology, the web detaching device of C702 can work at high production volumes without compromising on quality.

The web delivery area between the doffer and the web detaching device allows for an ideal transfer of fibers. The subsequent sliver formation with transverse movement makes possible to process all known fibers at elevated delivery speeds, which is equivalent to high productivity, without compromising web quality.

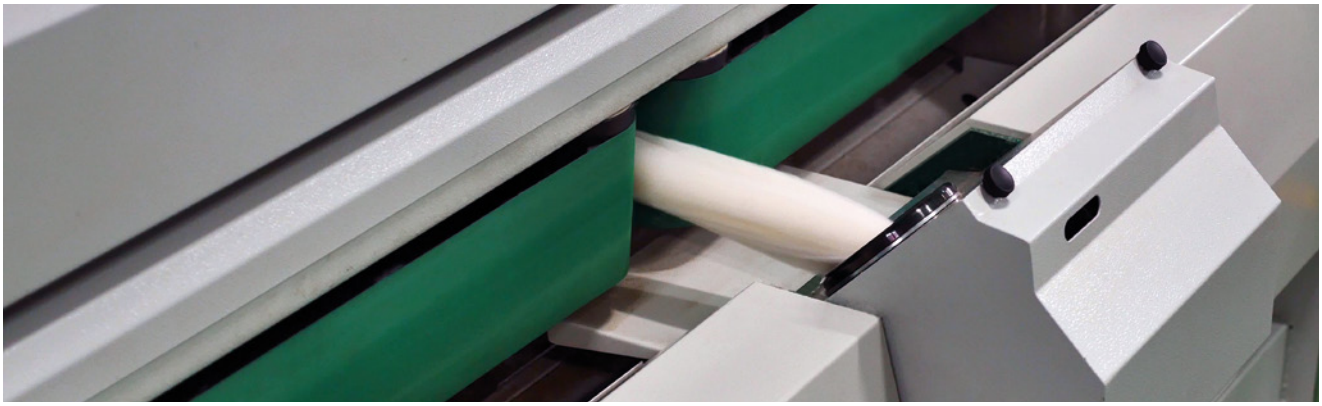
Web extraction calender

The sliver insertion device with extraction calender, with its automatic rollover allows a quick and easy reattachment of the web at minimum running speed and guarantees optimum control at high production speeds.



MACHINE DESCRIPTION - LEGEND

1	Doffer	5	Sliver former
2	Brush roll	6	Funnel
3	Stripper roll	7	Calender
4	Accompanying roll		



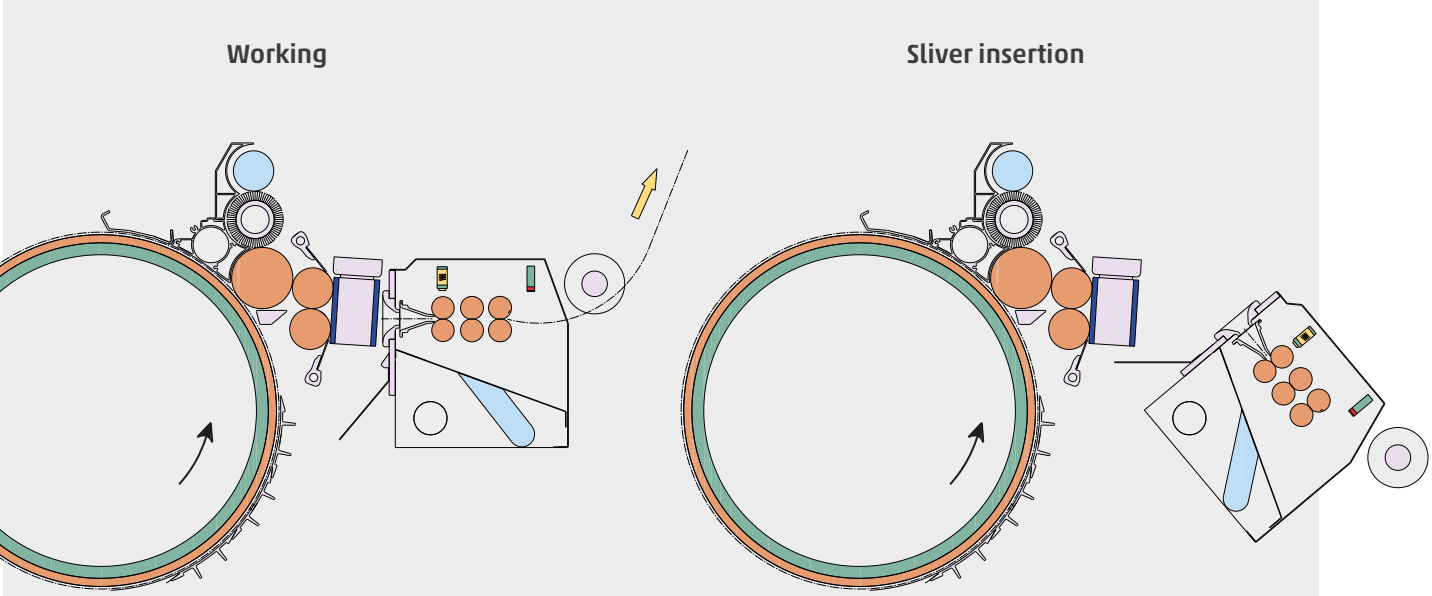
INTEGRATED DRAFTING SYSTEM (OPTIONAL)

KEY POINTS

- SUPERIOR UNIFORMITY OF THE CARD SLIVER
- PERFECT MECHANICAL & ELECTRONIC INTEGRATION
- SHORTENING OF THE ROTOR SPINNING PROCESS

Marzoli Integrated Drafting System is a 3-over-3 drafting unit equipped with auto-leveling technology and represents the ideal option to ensure superior uniformity of the card sliver.
It is perfectly integrated with Marzoli C702, both mechanically and electronically, and there is no increase in the required space if compared to a standard C702.
Marzoli Integrated Drafting System gives the possibility of skipping processing at the finisher draw frame and feed rotor spinning machines directly (the drafting unit can be combined with a coiler for cans with diameters of 18" or 20").

The drafting rollers are driven by independent motors and the drafting parameters are inserted through the control panel of the machine. The pressure on the top rollers is performed pneumatically and for each roller it can be set independently. The overturning of the whole unit grants easy access for piecing.
The design of Marzoli Integrated Drafting System makes it a more economical and easy-to-manage solution than the drafting units installed above the coiler.



TECHNICAL DATA

Integrated Drafting System	
Draft range	from 1,1 to 2,1
Installed Power	1,8 kW
Net weight	50 kg
Rollers diameters	44 - 45 - 45 mm

WEB DELIVERY

Higher quality web for Nonwoven production

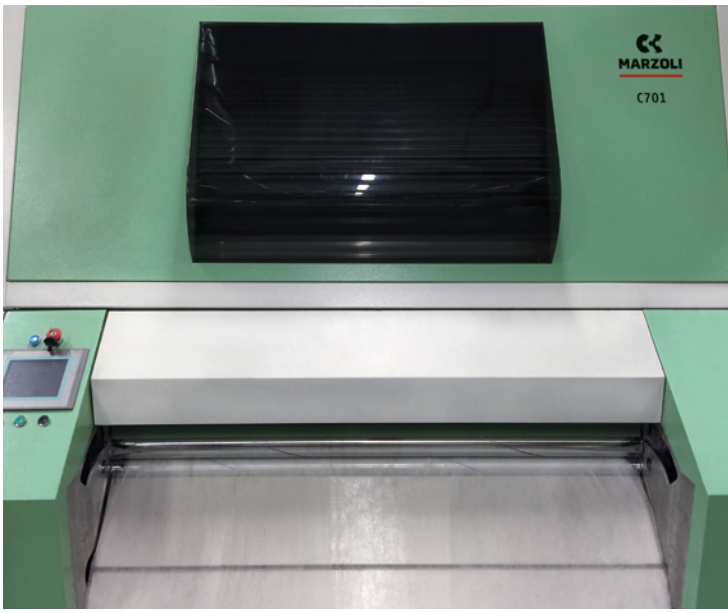
KEY POINTS

- TOP QUALITY WEB
- GREAT EFFICIENCY & LOW ENERGY CONSUMPTION

The non-woven fabric market has been moving towards high quality products (touch sensation, consistency) for years, especially in the personal care sector (make-up remover pads, cotton pads, sanitizing wipes, etc.).
The C702NW card fully satisfies this need by exploiting the carding action of the moving flats that cannot be matched by cylinder or air cards.

C702 is the Marzoli carding machine that achieve different customer's requests.
What gives the opportunity to enlarge the field of application of C702 is the 1,5 m working width of the machine.
Thanks to this feature the optimized distribution of the processed material on the whole carding surface (3,74 m^2) allows superior performance in quality, productivity, efficiency and flexibility.
The flexibility of the machine can be demostrated through several options which lead to different configurations at the output of the card.

The customer can choose different card exits based on the production parameters and on the output format (sliver, web, strips, exc.)



TECHNICAL DATA

C702 with web delivery	
Material	Cotton, synthetic fibers
Production	Up to 220 kg/h (up to 180kg/h for bleached cotton) | Up to 270 Kg/h (with condensing and randomizing cylinders)
Web Weight	Up to 60 gsm (with condensing and randomizing cylinders)

SUCTION, AUTOLEVELER & USER-FRIENDLY INTERFACE

KEY POINTS

- SUCTION SYSTEM DESIGNED FOR HIGH PRODUCTION
- PERFECT CLEANING OF THE MACHINE
- EFFICIENT REMOVAL OF ALL IMPURITIES
- MINIMUM RATIO BETWEEN REQUIRED AIR & PRODUCTION
- LOWER ENERGY CONSUMPTION

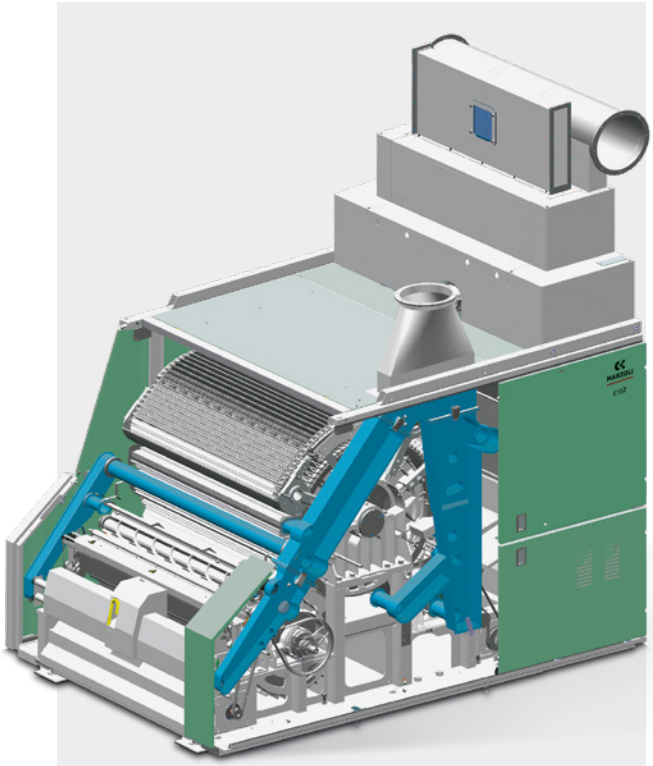
SUCTION

One of the key performances of a card is to keep all the working organs clean, allowing them to always work at their best.
C702 suction system has been designed to guarantee excellent trash removal, while containing the amount and pressure of the air needed and increasing the suction efficiency up to 9% compared with the previous solutions.
This result is the combination of:

- Great precision of suction sectors
- New multi-layer gasket jointing
- Special ducts made of thermoformed plastic, which allow to visually verify the suction effectiveness.

Moreover, the transparency of the suction ducts allows visual feedback of the trash removal effectiveness.

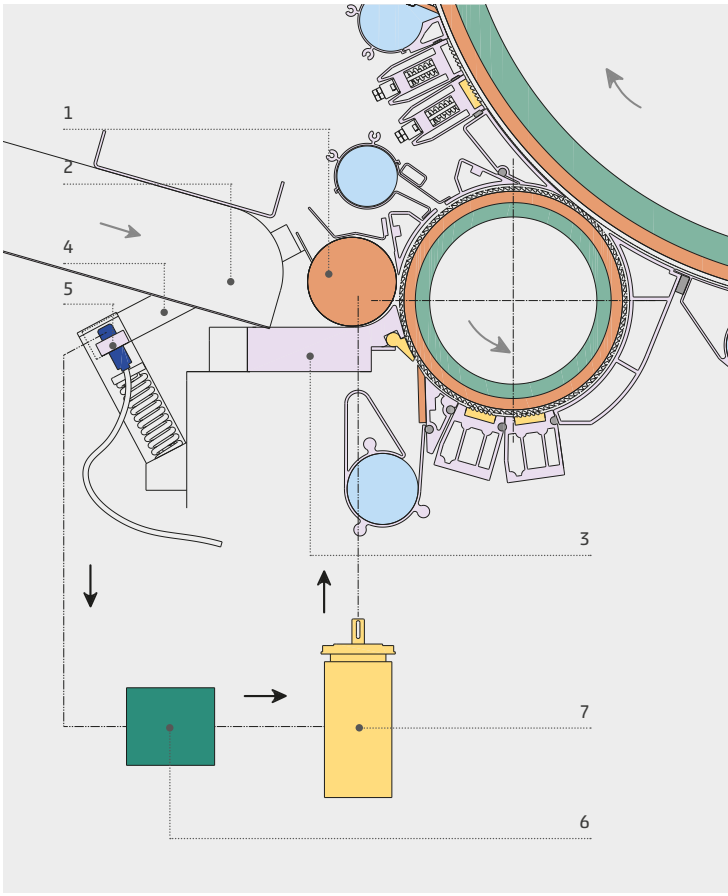
The assembling and disassembling operations are simplified by simple hooks with clips that allow to maintain the correct position of the hole system once maintenance operations have been carried out.



AUTOLEVELERS

In order to control sliver count variations and to provide a great improvement in the evenness of the card sliver, the Card C702 is equipped, as standard, with the medium-short autoleveler (MTA).

The MTA leveler senses the thickness of the feed material and its variation determines a variation of the speed of the feed roller that allows to maintain the same evenness of the web. This system functions over a medium-short term which guarantees perfect leveling of the web with great benefits for yarn quality.



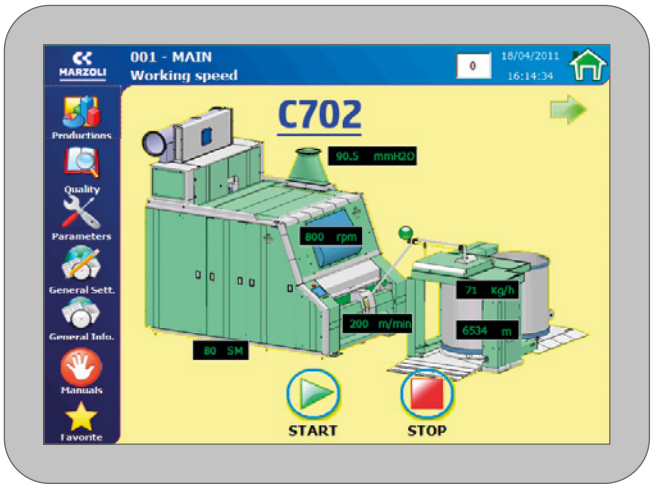
MACHINE DESCRIPTION - LEGEND

1 Feed roller
2 Incoming material
3 Feed table
4 Lever
5 Autoleveler sensor
6 Controller
7 Feed roller drive (brushless motor)

USER-FRIENDLY INTERFACE

The card C702 is managed by a modern PC microprocessor: all the production data and the working parameters are controlled and saved during the production cycle.

The multi-language touch screen is user friendly and permits a simple use with clear diagrams, detailed monitoring pages and step-by-step trouble shooting procedures.



COILER/CAN CHANGER, SLIVER MONITORING AREA AND COVERS

KEY POINTS

- INNOVATIVE DESIGN OF THE COILER
- SIMPLIFIED MECHANICS
- MORE EFFICIENT & PRECISE MOVEMENT OF THE CANS
- CONSTANT CONTROL OF SLIVER EVENNESS
- FULL ACCESSIBILITY OF THE MACHINE
- BETTER & QUICKER MAINTENANCE

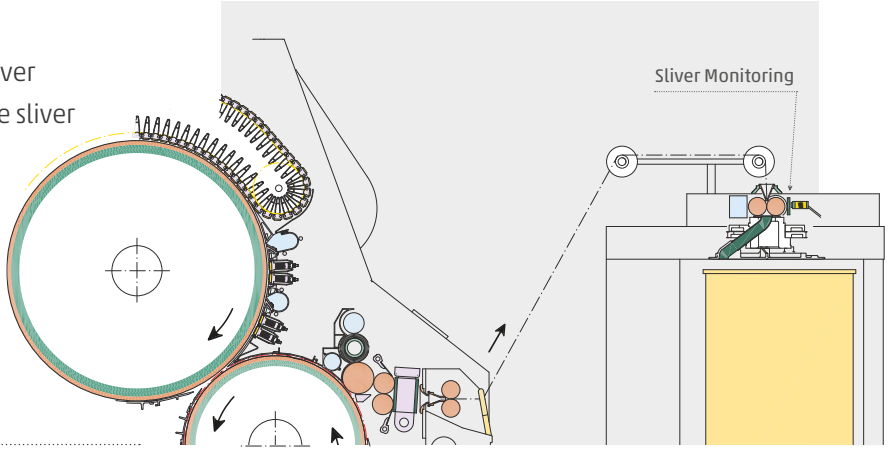
COILER/CAN CHANGER

In order to preserve the maximum width of the Card C702 (structure, body and coiler) similar to the one of the previous model, it was necessary to move the distributor from the side to the front of the machine. This was done to maintain unchanged the number of cards that could be placed side by side given a fixed amount of space available.

The need to redesign the coiler presented the opportunity to introduce concepts such as, for example, the pendulum movement that simplifies the mechanics and makes the movement of cans a lot more efficient. In addition, the centering of the cans has been improved by increasing the can location guides from 2 to 4, guaranteeing more precise and better positioning.

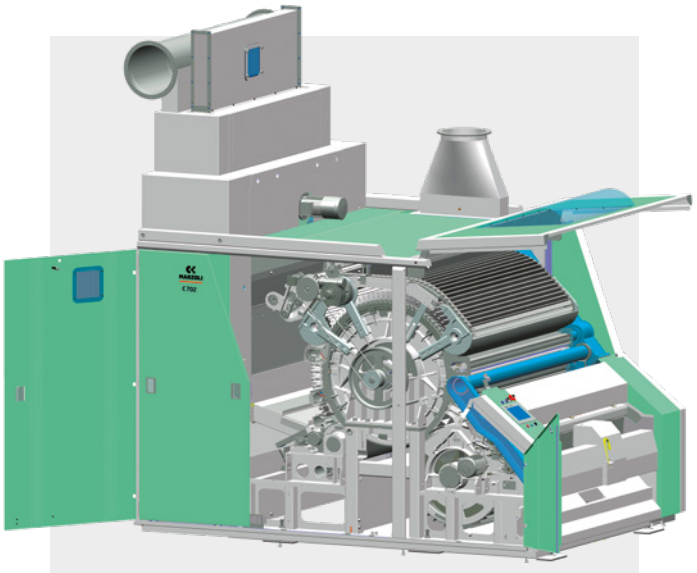
SLIVER MONITORING AREA

A continuous control and monitoring of the sliver is located on the last area of compaction of the sliver to guarantee constant quality control.



COVERS

The design of the external covers of Marzoli C702 Card allows to easily access every part of the card for better and quicker maintenance and cleaning of the machine. The sliding doors of the C702 Card can be easily moved to a "parking" position. As clearly shown in the picture, the parking system allows full access to every part of the machine without any restrictions, with great benefits to mobility and visibility for maintenance personnel. Furthermore the doors are equipped with visors in order to inspect the actual status of the machine.



PRODUCTIONS & BENEFITS

KEY POINTS

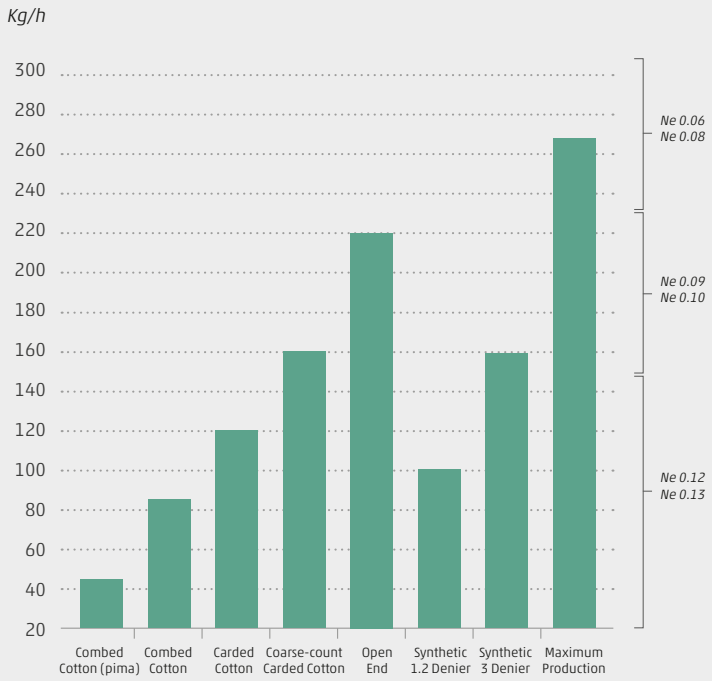
- PRODUCTION UP TO 270 kg/h
- GREAT ENERGY SAVINGS (kW/kg)
- LOWER OPERATING COSTS

ACHIEVABLE PRODUCTION

Production up to 270 kg/h.

These productions are achievable thanks to:

- big carding surface (cylinder width, diameter and carding angle);
- working width of 1,500 mm;
- increased centrifugal force on licker-in and main cylinder;
- containment of inertia;
- reduced weight and mechanical stress.
- contained radial expansions in the main working systems;
- reduced distance setting between carding components (the minimum mechanically achievable);
- wide contact zone between main cylinder and doffer, thanks to the 700 mm doffer.

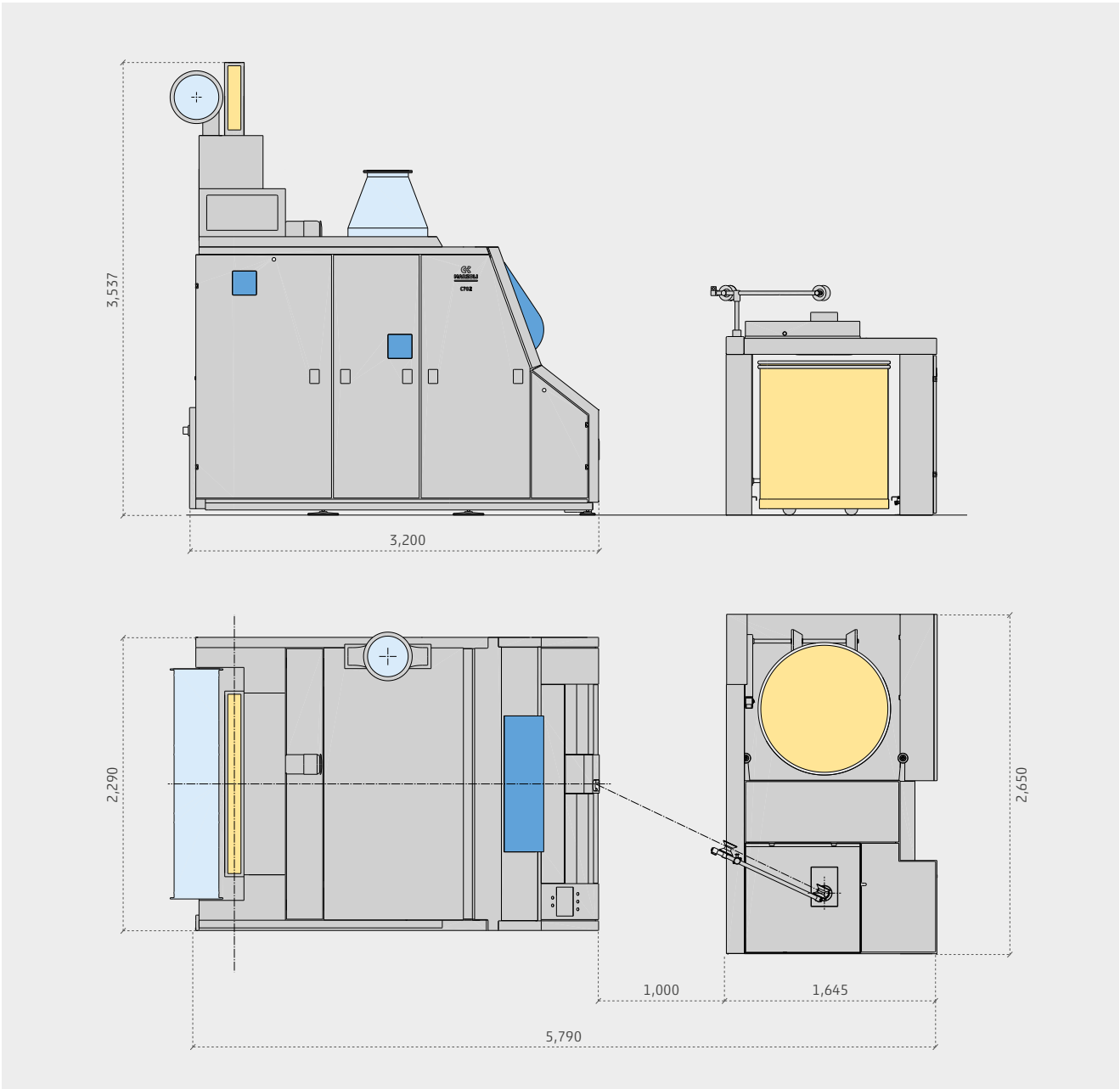


BENEFITS OF THE C702

Thanks to the higher productivity, Marzoli C702 allows the customer to reach the same production level with a lower number of machines, with obvious and remarkable benefits:

- lower investment costs;
- less space requirements and lower building costs;
- lower costs for suction and related filtration;
- lower maintenance costs thanks to longer metallic wires life;
- greatly reduced energy consumption: reductions of kW/Kg of sliver up to 30%;
- less personnel required thanks to the reduced number of machines and to the improved efficiency.

TECHNICAL DATA



C702	
Processed fibers	Cotton, man-made fibers and wool with staple length up to 65 mm (2" ½)
Production	Up to 270 Kg/h
Installed power	26 kW (with MTA autoleveler)
Delivered sliver count	Ktex 3-40
Suction type	continuos

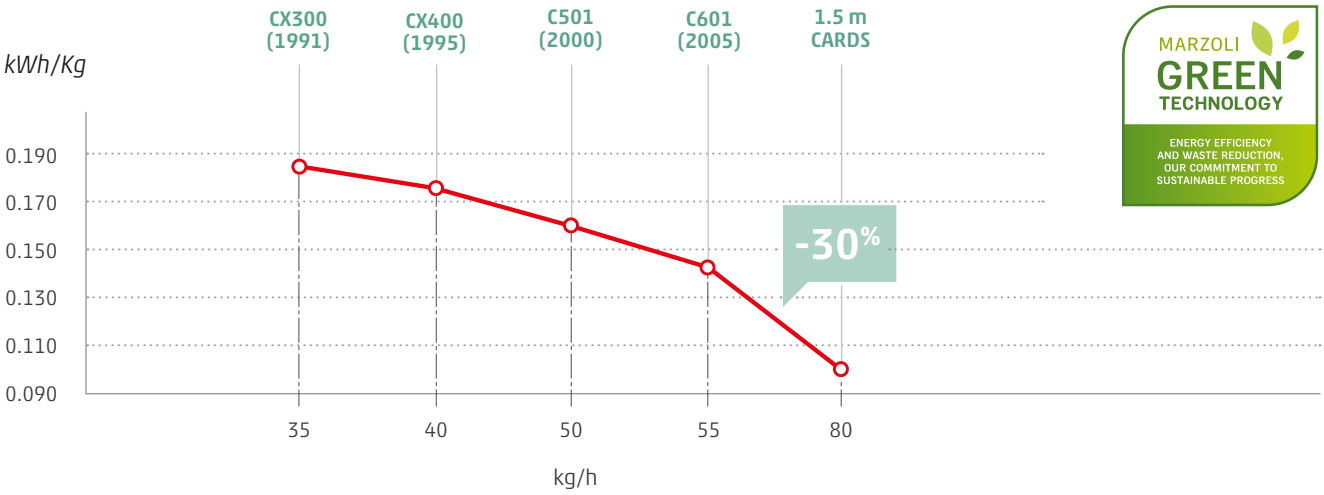
Compressed air	
Free air consumption	1,000 Nl/h
Pressure	8 bar

POWER CONSUMPTION: MARZOLI C702 CARD

The equipment manufactured by Marzoli is conceived, designed, developed and built with the goal of offering affordable quality and excellent performance within the production process, so that the final product will have a competitive advantage that is created starting with the earliest stages of production. Marzoli cares about energy consumption saving and its R&D office aims at reducing the environmental impact of its products and lines.

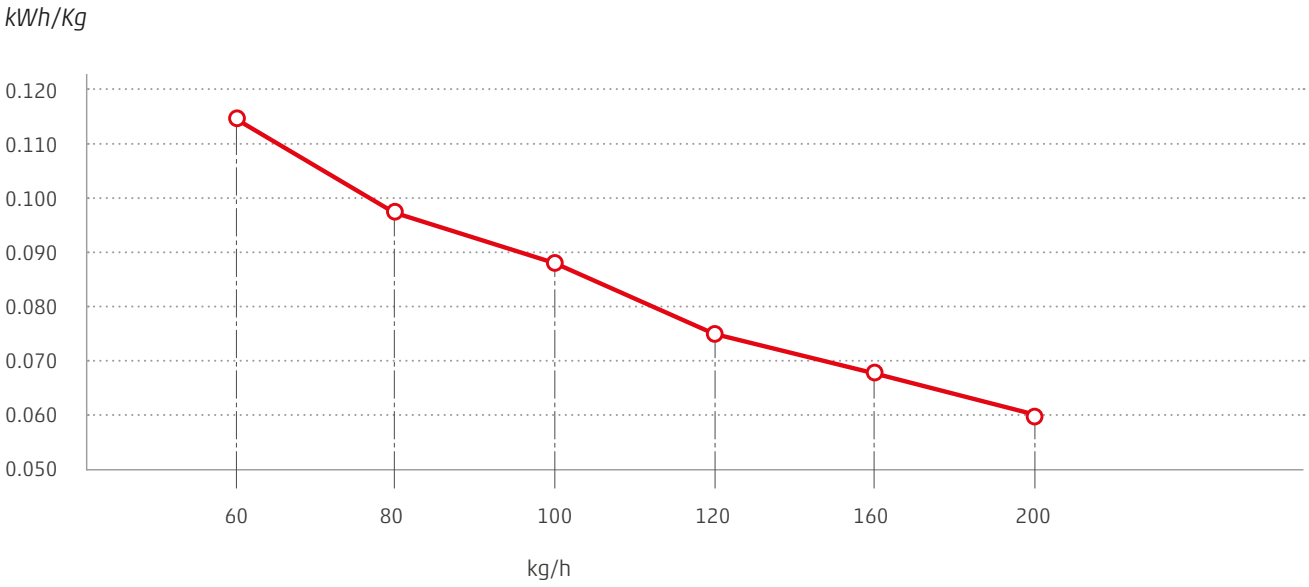
REDUCTION IN POWER CONSUMPTION LAST 30 YEARS

1,5 m working width cards



MARZOLI GREEN TECHNOLOGY
ENERGY EFFICIENCY AND WASTE REDUCTION, OUR COMMITMENT TO SUSTAINABLE PROGRESS

C702 POWER CONSUMPTION



SOFTWARE PLATFORMS

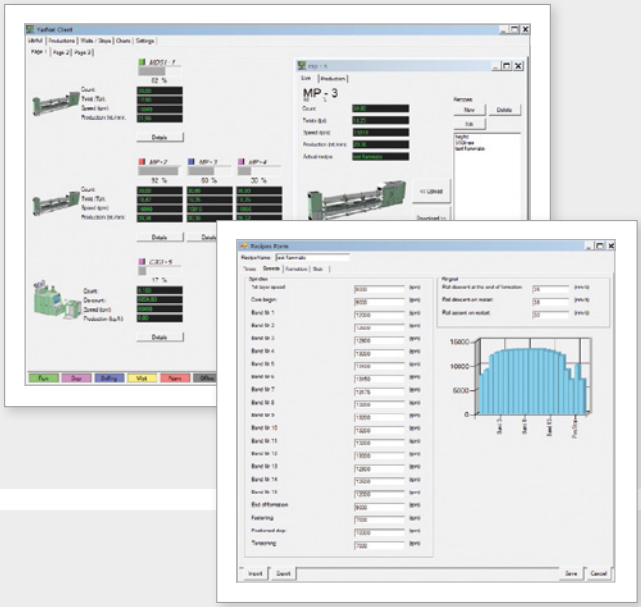
KEY POINTS

- 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

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).

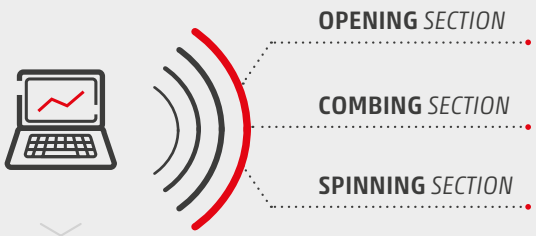
YARNET
Marzoli Production Management



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.

MRM Marzoli Remote Maintenance
IoT Platform by Microsoft®



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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