



CARDING TECHNOLOGY

AUTEFA Solutions leads the way



AUTEFA SOLUTIONS –

Experience, Know-How and Competence
in Nonwoven Technology

AUTEFA Solutions leads the way in carding technology

The card is the key machine in the drylaid process for manufacturing a quality web. AUTEFA Solutions offers different carding models, purposely designed for specific applications.

MAIN CUSTOMER BENEFITS

- Improved web evenness
- Improved web quality
- Optimized productivity
- Minimized maintenance

AUTEFA Solutions leads the way

As a system supplier, AUTEFA Solutions represents companies with a long tradition and a history of years of successful participation in the market. Combining the experience of the companies AUTEFA, Fehrer, FOR and Strahm the company stands for high quality, durability and performance made in Europe.

AUTEFA Solutions creates innovative technological concepts for nonwoven products by utilizing the skills and practical experience of its employees. The customers benefit from the dynamic flexibility and specialist know-how of AUTEFA Solutions key technology sites in Germany, Austria, Italy and Switzerland.



STRAHM

FIBER PREPARATION	fiber opening and blending			
WEB FORMING	carding	aerodynamic web forming airlay	airlaid	crosslapping
WEB BONDING	needling	chemical bonding	thermobonding	hydro- entanglement
WEB FINISHING	drying	impregnating/ coating	embossing/ perforating	scattering
WEB HANDLING	winding	cutting	stacking	festooning



AUTEFA Solutions is part of China Hi-Tech Group Corporation (CHTC).



AUTEFA Solutions Card Web Master FUTURA

Card Web Master FUTURA

The heritage of a long history of proven quality and reliability, re-designed to meet the criteria of the modern nonwoven industry. A brand new, world-class generation of cards.

The Web Master FUTURA Card combines the proven quality of the well-established Web Master cards with relevant developments, focusing on functional aspects and maintenance. This premium machine has been specially developed and designed for high production speeds, tailored to the worldwide requirements of nonwoven lines. A unique construction enables an easy accessibility to all the parts of the card: this feature guarantees considerably reduced cleaning and maintenance periods, together with a much higher efficiency. The Web Master FUTURA, with double intermediate doffers, stands out for the best quality of the web, high production, gentle fiber treatment. It's the best solution to achieve a high carding and blending effect.

ADVANTAGES

- Highest quality of carded webs
- Evenness in weight distribution, high blending effect
- Increased, elevated production rate
- Easy cleaning of the machine
- Easy access to all the parts of the machine
- Reduced time for maintenance and re-wiring

APPLICATIONS

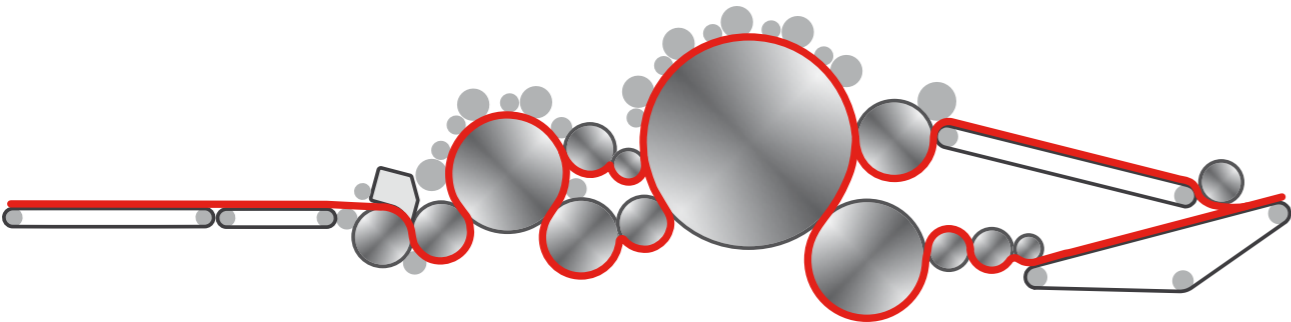
- Man-made fibers
- Natural fibers and blends with natural fibers, like cotton, flax, hemp, jute and so on
- Reclaimed fibers from various sources
- Glass fibers, aramid fibers
- Crosslapped and direct web products

SPECIAL FEATURES

- All the sections of the card Web Master FUTURA are supported by high-precision linear guides, in order to allow easy and smooth opening and closing, section by section
- The new side frame and the supporting system for workers/strippers ensure a uniform web quality over the whole working width, thanks to ZEROFLEX®, a patented antideflection system for workers and strippers. It also includes two lifetime-lubricated bearings on each side of the roller
- New reinforced overhead feeding plate for optimized fiber guiding and control
- Improved accessibility for inspection and cleaning, thanks to the easy opening of the bottom covers, or grids
- 5 worker/stripper pairs on the second main cylinder improve the product quality and the carding effect
- Less dust and fiber accumulation, thanks to an advanced suction concept
- Integrated fans for dust and edge trim suction
- Bigger and stronger lick-in
- Intermediate double doffer, which implies a reduced delivery speed and, consequently, the advantage of less mechanical stress on the fibers
- Independent motors for all the tambours. This feature allows an independent setup of the speed of each tambour, to achieve the finest tuning of the card



Card Web Master FUTURA



Card Web Master FUTURA

Card Web Master WM 2+2

High web quality with high throughput.

The Webmaster WM 2+2 Card is designed for high production rates and top-quality nonwoven materials. The Web Master Card with Double Intermediate Doffer stands out for the best quality of the web, high production and gentle fiber treatment, as well as for its relevant carding and blending effect.

A special system (designed for the first time and patented by FOR), based on two doffers between the two main tambours, guarantees an optimal doffing of the first tambour. It also allows the division of the fiber flow, providing improved blending and fiber distribution on the second tambour. Moreover, the use of two doffers in card intermediate section enhances the carding power, with the effect of about two additional worker rollers, if compared to a traditional card.

The standard configuration of the WM 2+2 Card includes a double doffer delivery section, whose doffers are equipped with a randomizer. This device is quickly convertible into a system with taker-off roller, thus allowing the production of randomized webs, as well as of highly oriented webs on the same machine, according to the material specifications. By using the One Web System, this card can produce a single web, suitable for light weight materials.

ADVANTAGES

- High quality fiber parallelization
- Evenness in weight distribution
- Advanced blending effect
- High production rate

APPLICATIONS

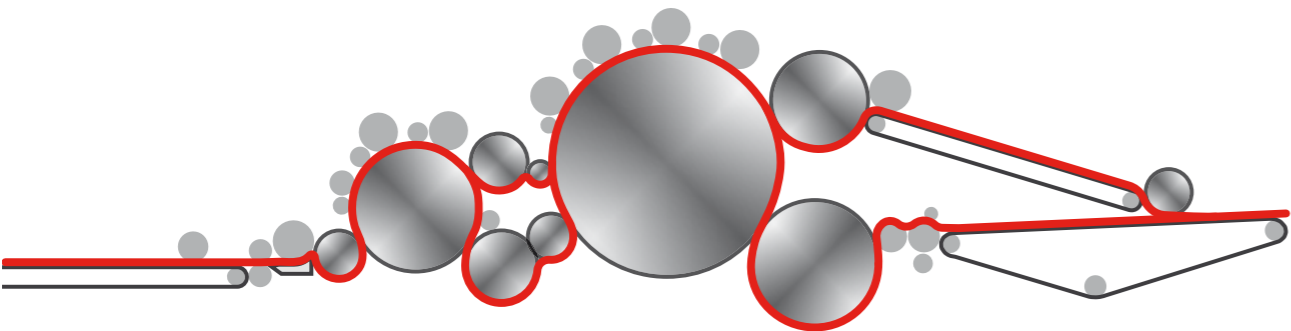
- Multipurpose production
- Crosslapped products
- Direct web products

SPECIAL FEATURES

- Outstanding web quality, together with an elevated production rate
- High blending effect
- Main cylinder Ø 1.500 mm
- Elevated carding effect, due to the high amount of carding points
- Gentle action, thanks to its doffers
- Throughput increase at the same web quality or even better, due to the intermediate double doffer



Card Web Master WM 2+2



Card Web Master WM 2+2

Card Double Doffer DD

High flexibility and long-term reliability.

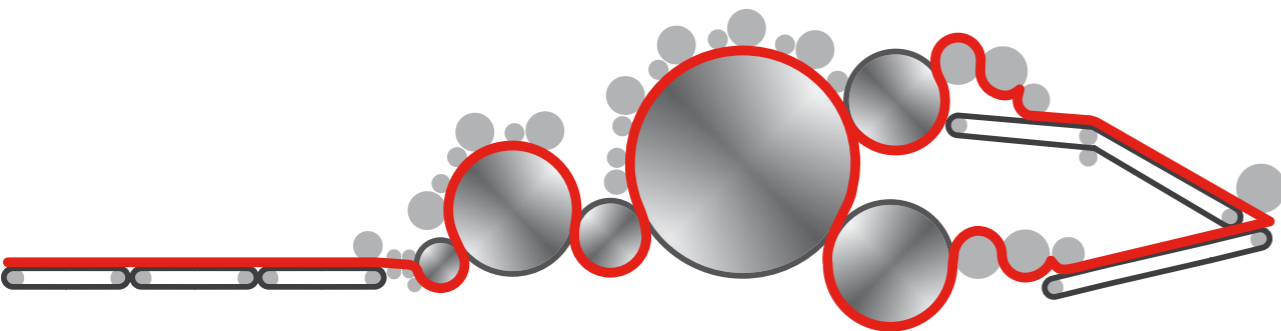
The Double Doffer is a typical card composed by a first main cylinder, by a transfer roller and a second main cylinder. It can be fed by different feeding groups, i.e. feeding rollers, overhead feed plates or bottom plates. It has been purposely designed and built to guarantee constant performances and long-term duration to the customer. Moreover, this highly reliable card may be supplied with different delivery groups, like two parallel webs, parallel and condensed webs or two condensed webs, as well.

ADVANTAGES

- Simplicity and strong reliability
- Best quality of the final product
- Main cylinder Ø 1.500 mm
- Elevated carding effect
- Elevated amount of carding points

APPLICATIONS

- ADL Lines
- Multipurpose low speed production lines
- Crosslapped products
- Special fibers
- High-flexibility on processing different kinds of material
- Reclaimed fibers

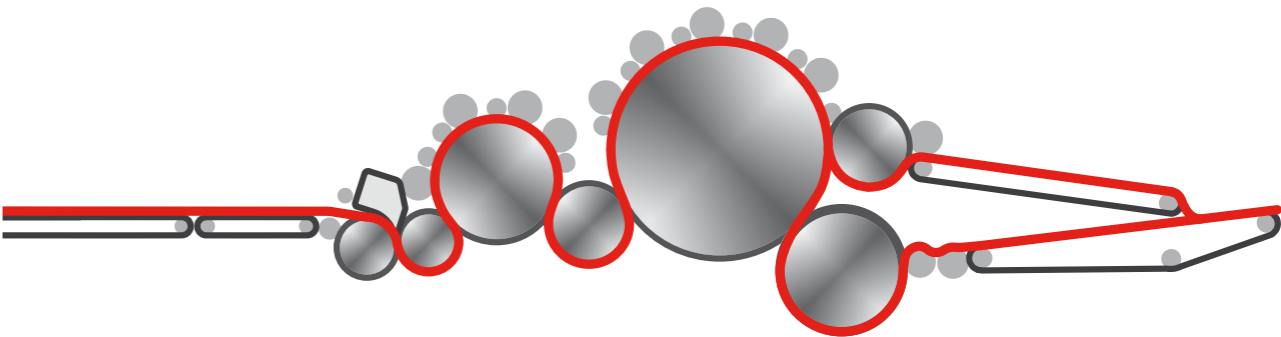


Card Double Doffer DD

Double Doffer FUTURA

High flexibility and long-term reliability - also available in the new, advanced FUTURA model.

The Double Doffer FUTURA stands out in terms of speed and quality, while a particular attention has been given to user-friendly maintenance, thanks to the new Easy Opening system. Special grids are mounted under the card, to allow a quick opening, together with an integrated dust suction system. The card includes 4 workers and 4 strippers in the breast section, together with a transfer roll. Its carding section is fitted with 1 tambour, 5 workers, 6 strippers, 2 doffers and 2 taker-off rollers. The card is equipped with the “Zeroflex” system, aimed at reducing/eliminating the bending of workers and strippers.



Card Double Doffer FUTURA



Card Double Doffer FUTURA

Injection Card

A highly innovative aerodynamic principle, ensuring gentle fiber treatment.

In the Injection Card, the traditional mechanical carding principle, using workers and strippers, has been replaced by an aerodynamic concept. In this highly innovative design, the fibers are injected against the following worker roller by the stream of air produced by the rotation of the main cylinder, and taken off the worker rollers by an aerodynamic effect generated by specifically shaped devices. This avoids considerable mechanical stress on the fibers, if compared to the traditional carding systems with stripper rollers: the carding action takes place at the tangent point of two convex surfaces and it is very smooth. Moreover, the fiber path is completely on the inside of the card, thus reducing the negative effects caused by centrifugal forces. Combined with the patented EVO-2 and EVO-3 take-off systems, the Injection Card achieves very high production speeds with an excellent uniformity, even when working with fine fibers.

ADVANTAGES

- High speed applications, especially for spunlace
- Very high production rate
- Reduced fiber recycle, so less neps
- Easy machine cleaning
- Easy access to all the parts of the machine
- Reduced time for maintenance and rewiring

APPLICATIONS

- Direct web products
- Crosslapped products
- Fine fibers products

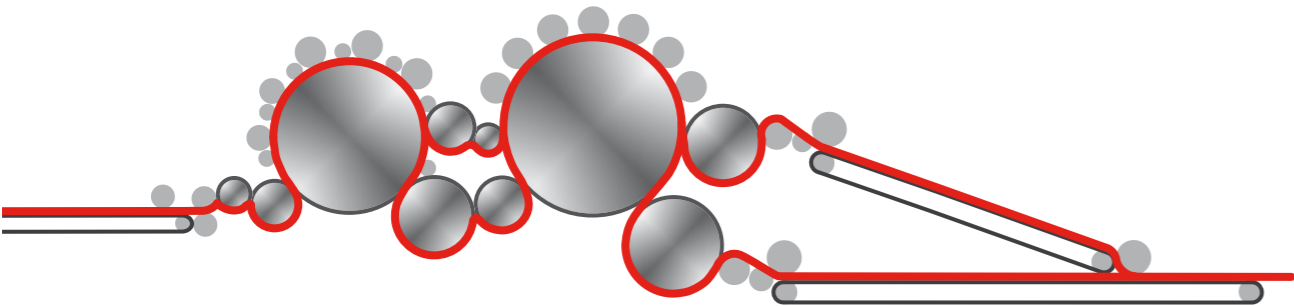
SPECIAL FEATURES

- Tambour Ø 1.500 (Injection) or 1.270 mm (Injection CL)
- High speed tambour
- Independent motors for all the tambours. This feature allows an independent setup of the speed of each tambour, to achieve the finest tuning of the card
- High number of carding points, ensuring a gentle action on the fibers
- New side doors and covers, with improved opening angle. These innovations guarantee an easier access to the card inner components
- Transfer rolls with larger diameters. The double intermediate transfer rolls are larger, thus providing an improved fiber transfer from the doffers to the tambour
- New drives and V belts only (no more chains). The new drives and chains replacement for workers and strippers with V belts greatly improve the card efficiency, by reducing maintenance downtimes



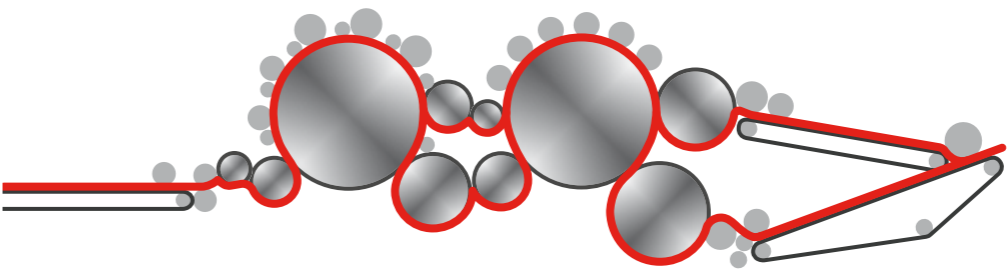
Injection Card

The Injection Card second tambour has a diameter of 1.500 mm, as well as 7 workers. This, since this card has been designed to work on direct, high-speed lines, thus providing a particularly elevated throughput.



Injection Card

The tambour of the Injection CL card has a smaller diameter (1.270 mm), with 6 workers. AUTEFA Solutions high speed Webforming sub-system, consisting of Injection card CL and Crosslapper CL4006 SL supports customers to keep or extend their leadership in the highly competitive Spunlace market.



Injection CL Card

Card Layermaster

Top web quality at reduced production rates.

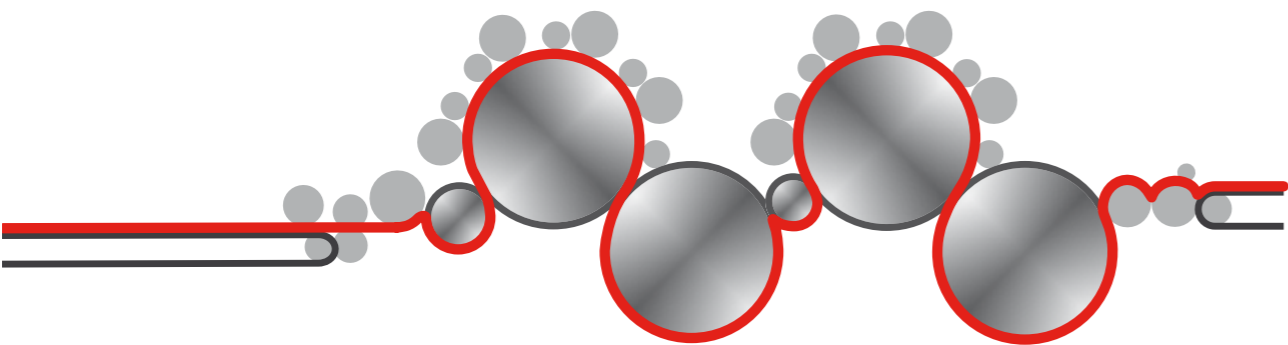
The Layermaster Card is a very reliable machine, deriving from proven and highly appreciated technologies, producing a very good quality web to be laid on the top of the fabric. It is therefore highly appreciated for ADL lines. This card is based on a tambour of small diameter, together with a single doffer. This reliable machine is normally used as a second card in lines with crosslapper, providing a very good quality web to be laid on the top of the fabric; it is therefore highly recommended for ADL lines. This card is equipped with just one doffer, not being designed to reach a high throughput: due to the Layermaster specific focus on high-quality, large tambours are not needed. Instead, this design ensures the fulfillment of all the correct passages inside the card, in order to provide a top-quality web. This card includes a bottom plate at the infeed group; moreover, it may work with different kinds of delivery groups.

ADVANTAGES

- Best quality of the web
- Increased production
- Maximum flexibility: the Layermaster Card can work with most kind of fibers
- Easy cleaning of the machine
- Easy access to all the parts of the machine
- Reduced time for maintenance and re-wiring
- Modular layout

APPLICATIONS

- Considerably suitable for top sheet, ADL and back sheet
- Medium to high production volumes
- Mainly used today as second cards for top-quality web
- Multipurpose production lines at reduced rates, also working with special fibers (i.e. carbon fibers, PTFE fibers, basalt, etc)



Card Layermaster



Card Layermaster

Master Felt

High number of carding points for top quality felts.

The production of paperfelt nonwovens requires specific features special with regard to nonwovens cards. The Masterfelt Cards ensure high blending, high web quality and high web regularity. AUTEFA Solution concepts are based on the successful Masterfelt breaker card and Masterfelt finisher card. The particular design guarantees a very high web quality at the end, together with an absolute reliability, thanks to the extreme sturdiness of both its structure and material (cast iron). This card is equipped with a dust suction system, giving the possibility to process the fibers on a light internal vacuum with the aim to keep the machine clean on the sides. The small dimension of its tambours allows an easy and user-friendly maintenance. This proven design includes a tambour with a small diameter and a single doffer for both cards. The intermediate transfer is carried out by a high-precision AUTEFA Solutions Crosslapper Topliner.

ADVANTAGES

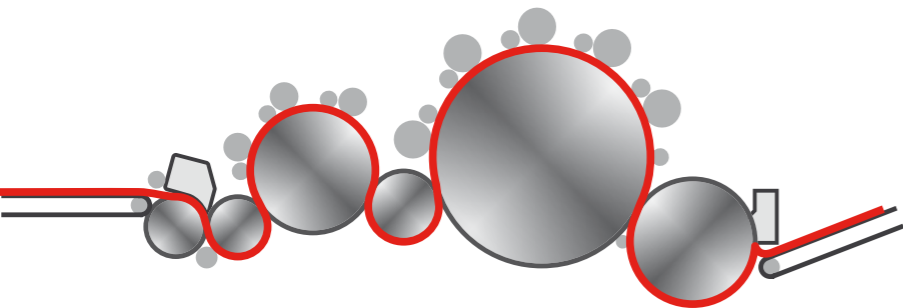
- High blending
- High web quality
- High web regularity
- Increased production
- Easy cleaning of the machine
- Easy access to all the parts of the machine
- Reduced time for maintenance and re-wiring
- Long-period reliability
- Very strong structure, built in cast iron

APPLICATIONS

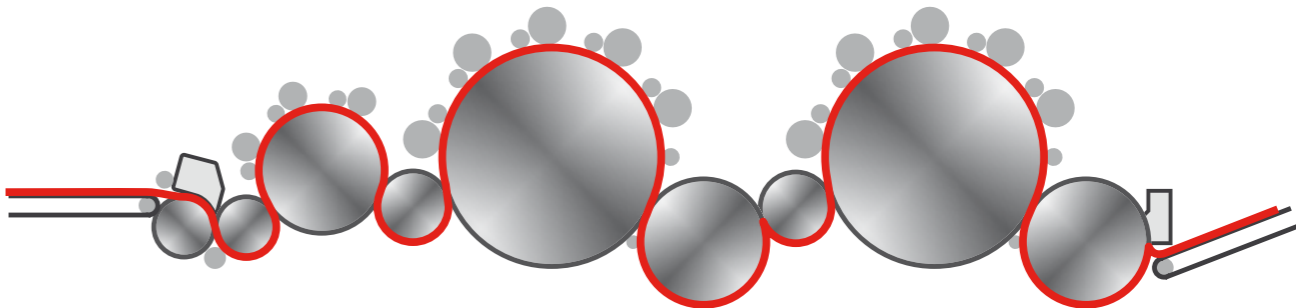
- Papermaker felts
- Crosslapped products



Master Felt Card



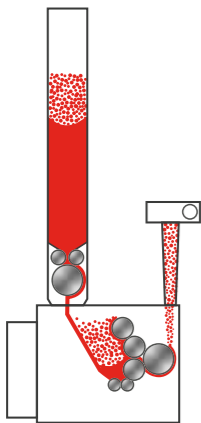
Master Felt breaker Card



Master Felt finisher Card

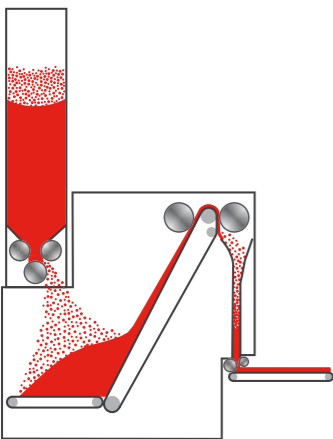
Card Feeding

For optimal opening of the fibers, AUTEFA Solutions offers various systems, all providing excellent uniformity in the feeding process at high production rates.



Fine-Opener FTO

For an optional opening of the fibers, AUTEFA Solutions offers the Fine-Opener FTO in two different configurations: a stand-alone version with an integrated storage tower to feed the opening module, and a second version, integrated to the delivery of the blending box. Both systems offer an excellent and uniform fine opening of the fiber. The proper opening degree can be easily adjusted by changing the settings of rollers. This machine can be delivered in different working widths.



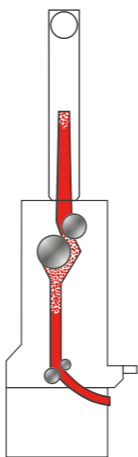
Hopper Feeder HF

The volumetric Hopper Feeder is appreciated by the customers for its flexibility in processing different types of fibers. The Hopper Feeder is especially used for natural fibers, as well as for applications in the airlay field. It is equipped with a vibrating wall, in order to obtain the best evenness in the mattress density, and with a magnetic device for the immediate detection of eventual metallic bodies in the fiber flow. It is available in different working widths.



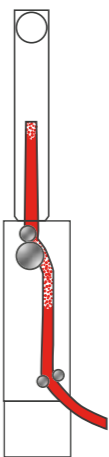
Filling Cage FCU

All chute feeders feeding the AUTEFA Solutions cards are fed by the Filling Cage Unit FCU. It is the last storage tower before the card, including in its bottom area a final fine opening group composed by two feeding rollers and by a beater roller. The speed of the feeding rollers is proportionally modulated, in accordance with the pressure variation signal from the chute feeder. This machine can be delivered in different working widths.



Volumetric Control Chute Feeder CF

The Chute Feeder (CF) is a machine designed for the direct feeding of the card. It works under pressure control, allowing a direct proportional connection with the Filling Cage FCU. It is equipped with a series of variable-speed pressure fans to obtain the needed compaction of soft fibers and the best evenness in terms of density, all across the working width of the machine. It is utilized and appreciated for medium/long fibers.



Volumetric Control Chute Feeder CFS

The Chute Feeder (CFS) is a machine directly feeding the card. It works under pressure control, allowing a direct proportional connection with the Filling Cage FCU. It is equipped with a series of variable-speed pressure fans to obtain the needed compaction of soft fibers and the best evenness in terms of density all across the working width of the machine. It is recommended for short fibers.

Card Regulation

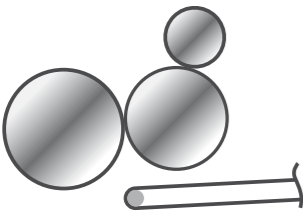
Feeding systems of the card can be combined with an inline control of the weight of the fiber matt or alternatively by controlling the fiber density with the “Servolap” system (x-ray). The settings of the feeding system are automatically optimised based on the information provided by the inline control system.



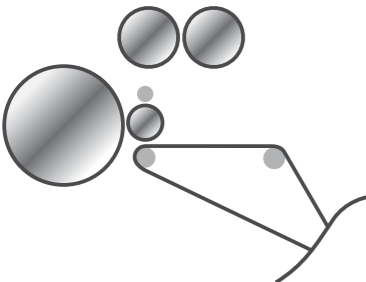
Card Regulation

Fiber Orientation

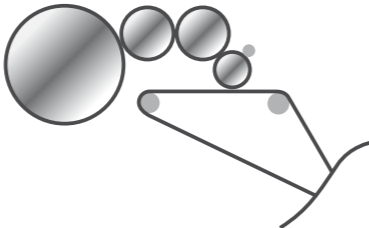
AUTEFA Solutions offers a wide variety of different delivery sections according to the requirements of the web and fibers to be used. The patented EVO-2 and EVO-3 condensing system using a web control roller, enables the achievement of high line speeds without the need of a suction system under the belts.



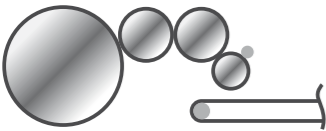
Delivery section for parallel web



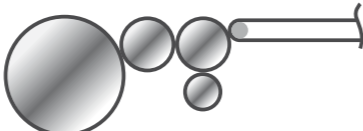
Quick change system for parallel web



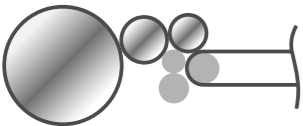
Quick change system for condensed web



Condensing system for long fibers



Condensing system



Condensing system EVO-2



Condensing system EVO-3

Nonwovens Competence Center Linz

The AUTEFA Solutions Nonwovens Competence Center offers multiple web forming and bonding technologies on industrial scale to cover all our customer’s requirements for application oriented product optimization.

- Evaluation of fibers, fiber blends, wires and needles
- Process developments for special applications
- Recommendations for machine and line
- Performance and quality optimization
- Provision of samples for customers
- Individual training programs

All trials are documented by detailed reports of our quality control team. We guarantee the confidentiality of all activities and results.

- Fiber Preparation Plant feeding three lines
- Carding Line with Crosslapper and Needlelooms for mechanical bonding
- Aerodynamic Web Forming Line (Airlay) with Needleloom and/or Thermobonding Oven
- High Speed Carding Line with High-Speed Spunlace line





AUTEFA Solutions Italy s.p.a.
Str. Campagnè, 16 • 13900 Biella • Italy
T: +39 015 8484 111 • F: +39 015 8491 880
www.autefa.com • italy@autefa.com