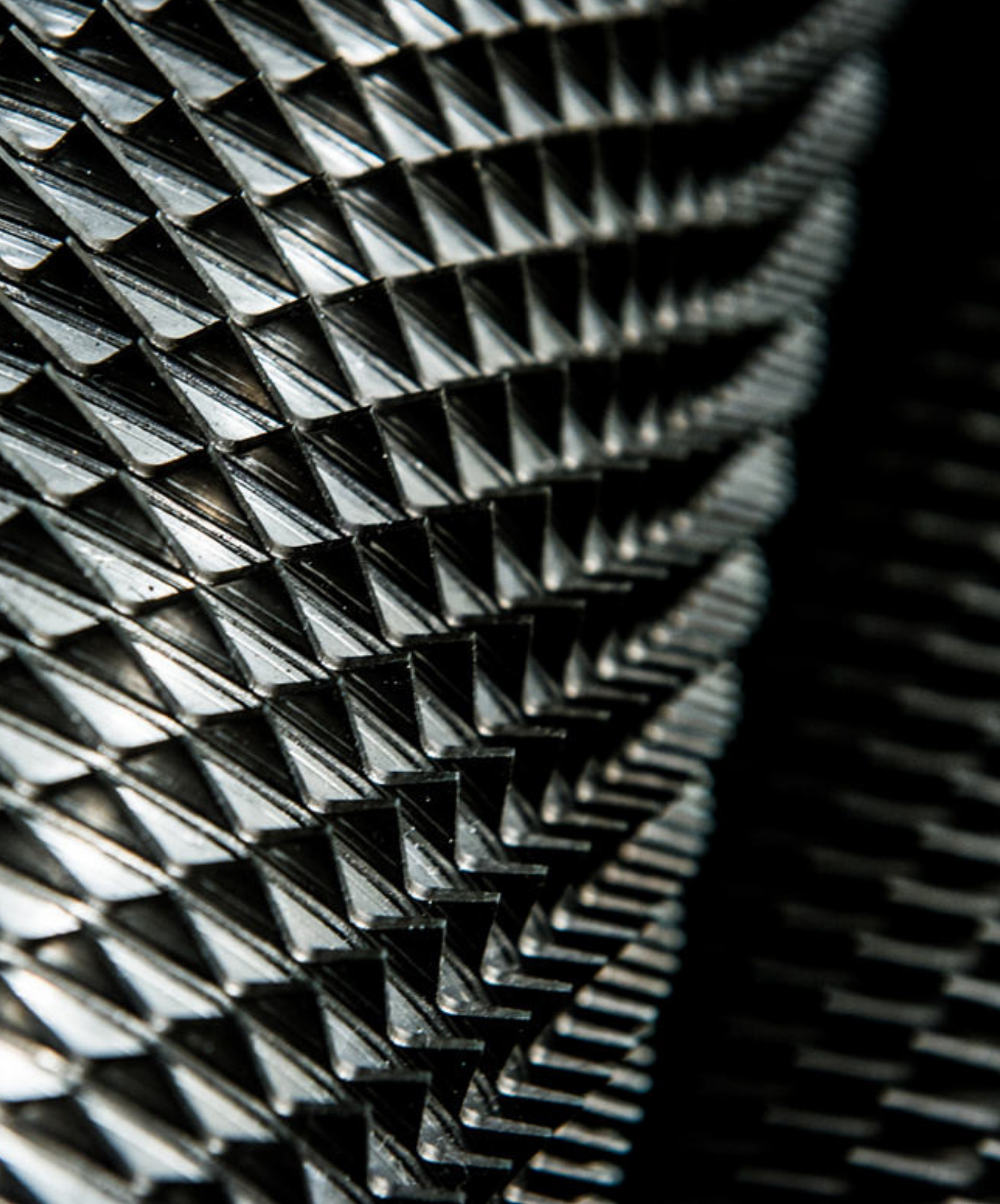




BONINO1913,
carding machines

 **HDB**
Houget • Duesberg • Bosson

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Opening & Blending

For many years the Bonino range has included a selection of fibre preparatory machines, suitable for the preparation of virgin, natural, synthetic, and recycled fibres for different sectors, including woollen, medical, hygiene and nonwovens.

Bale openers

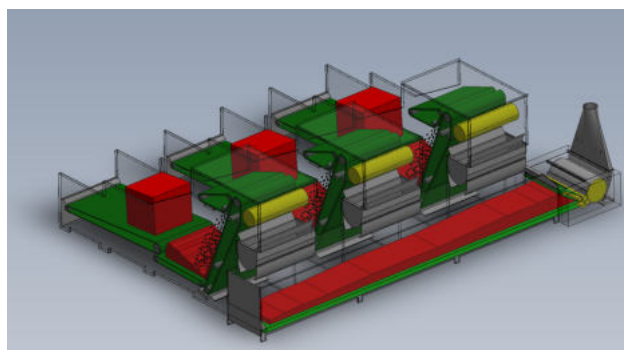
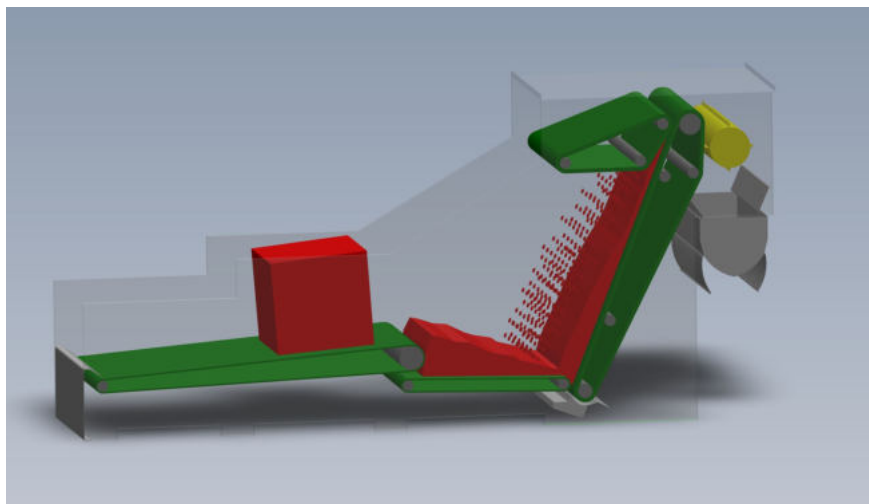
Bale openers are available in working widths from 1200 to 3500 mm. These machines can be supplied as single machines or as part of a line and can be equipped with an electronic weighing system, volumetric compacting system or a combination of gravimetric/volumetric. Depending on the fibre being processed, the machine can be equipped with either levelling and discharging belts, or rollers to regulate the material at the input and output side of the spiked belt.

- A special system avoids fibres accumulating on the belts.

Bale tippers are available for the feeding of bales to the horizontal in-feed belt.

Special conveyors have been developed to transport fibres from the bale openers to the next machine in line. This provides greater precision when high accuracy is required during fibre dosing.

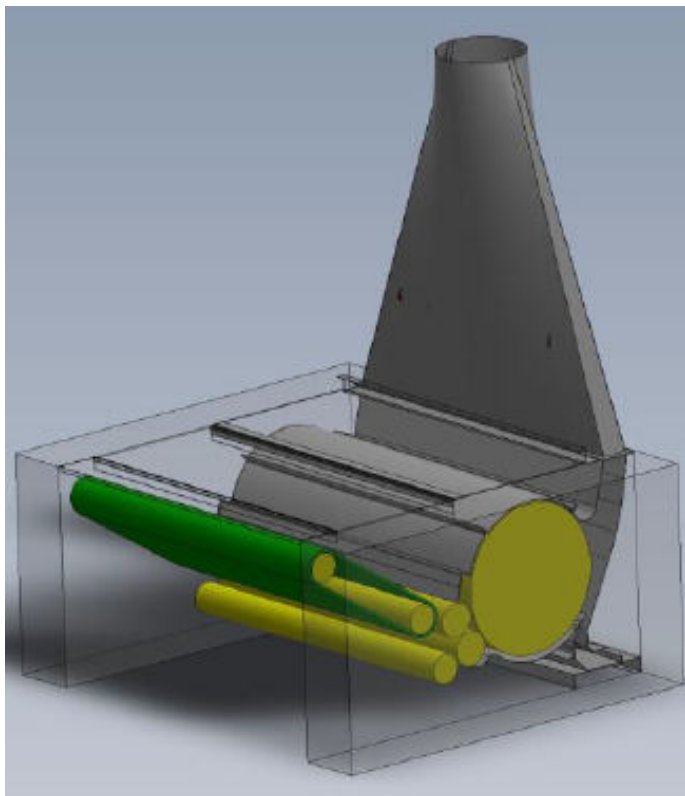
WORKING WIDTH	1200 to 3500 mm
FIBRE PROCESSED	All
PRECISION	1%



Opener OFH

OFH opener is designed to provide an efficient initial fibre opening whilst preserving fibre length and avoiding fibre rolls. It is generally installed after the bale opener as the first coarse opening point.

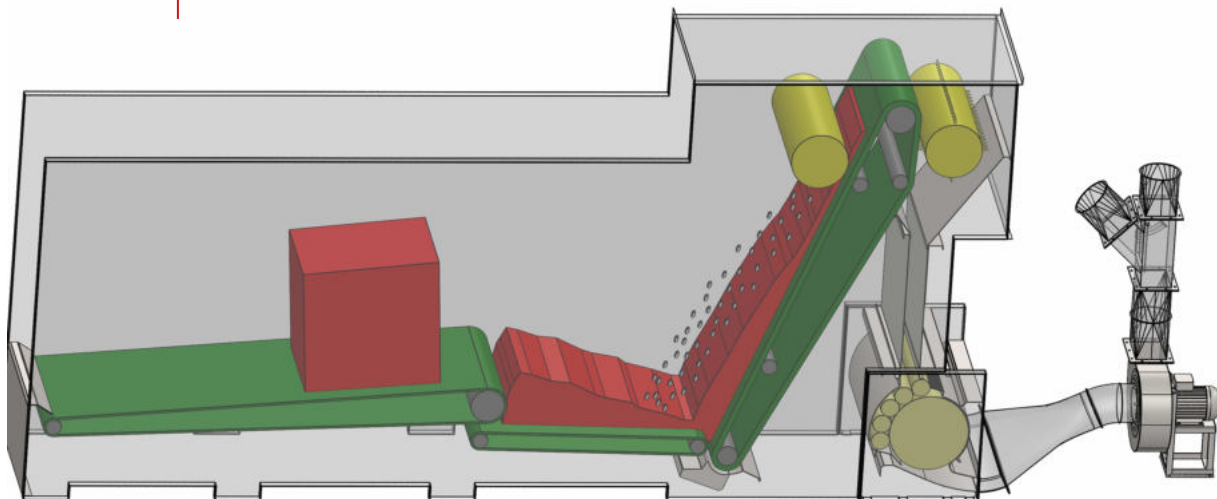
WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	All



Vertical opener OFH

A special opener for low melt fibre and for first opening of particularly entangled or packed fibres.

WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	Low melt-All

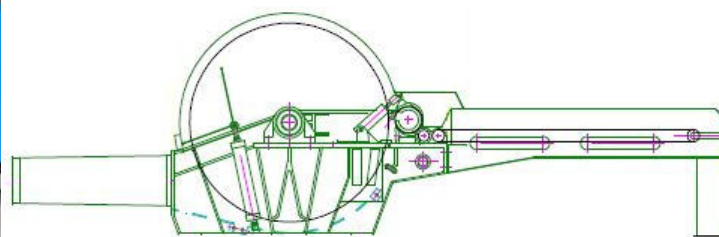


Opener 135

Opener 135 is an extremely robust machine whose design originates from the concept of rag tearing. Consequently, it is suitable to open wastes including soft or hard fibres like jute, hems and kenaf. Depending on the material to be processed and quality to be achieved, the main 1350 mm dia cylinder can be equipped with lags or saw tooth wire.



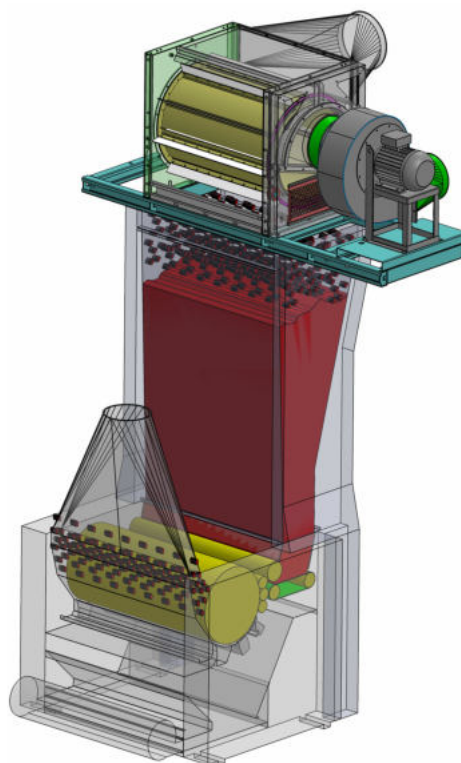
WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	Any



Opener 50

Opener 50 is a very versatile fine-opener suitable for processing all types of fibres. It can be equipped with wooden lags or with saw tooth wire and can be connected to a suction system to remove impurities. Alternatively, when processing clean fibres, it can be equipped with a completely closed under-grid.

WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	All fibres
ADVANTAGE	Cleaning



Opener FTO

The opener type FTO is a blending opener, which represents the ideal solution for fine opening of fibre in the nonwoven field.

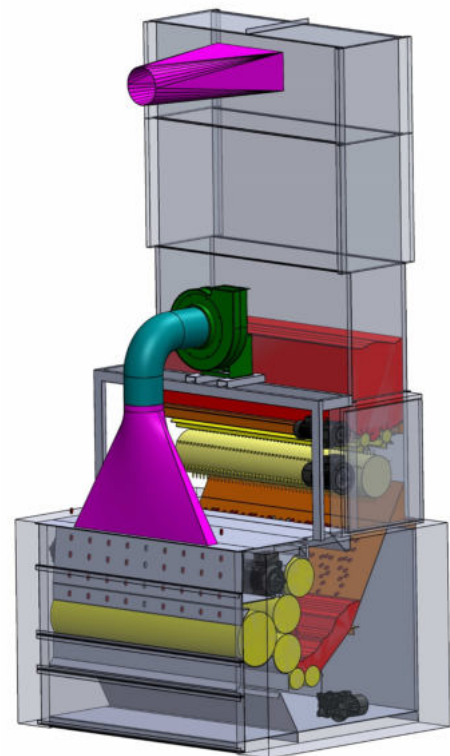
This machine provides a gradual fibre opening as it continuously recycles the fibre until the desired result is achieved.

Consequently, the machine provides very intimate blending.

WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	Synthetics
PRODUCTIVITY	600 Kg/h/m



Machine opening for easy cleaning and maintenance.

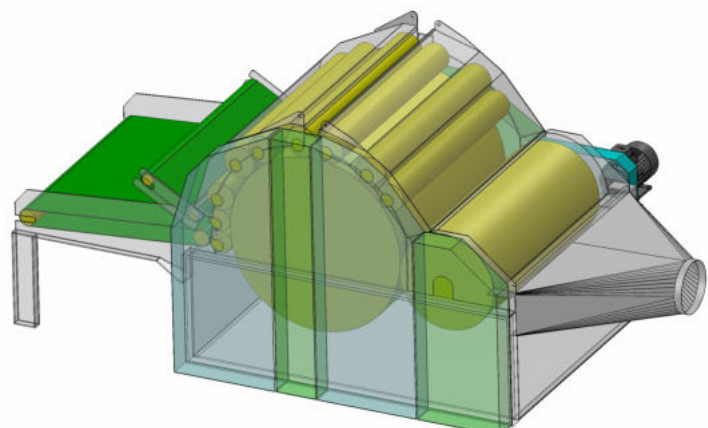


Carding willow

Carding willow represents the best system to open staple wool fibre providing efficient opening and blending without damaging fibre length.

The main cylinder teeth are screwed to the cylinder itself whilst worker teeth are made of steel discs, which fit on the rollers and can be easily replaced.

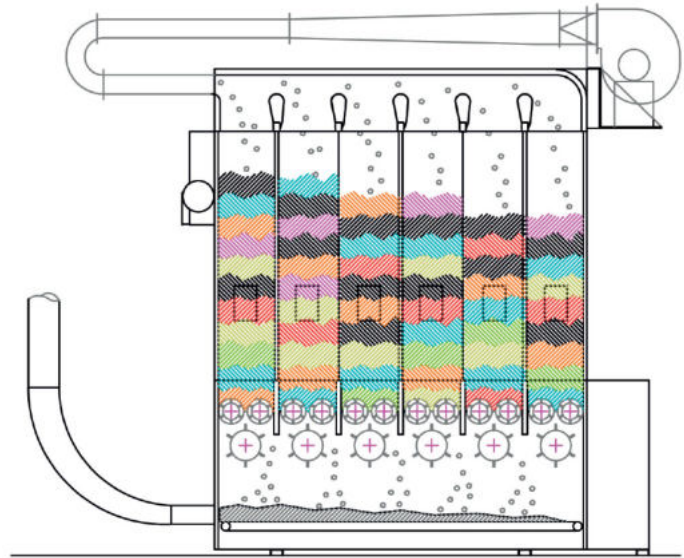
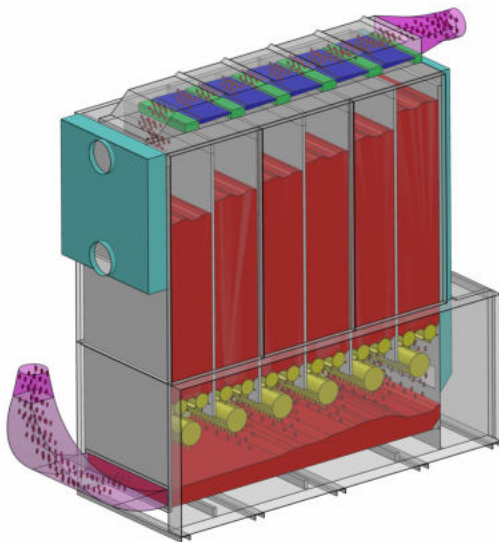
WORKING WIDTH	Up to 2000 mm
FIBRE PROCESSED	Any



Multi-chamber blender

The multi-chamber blender was originally designed for use in the cotton sector but it is now also applied to nonwoven processes.

With its 4 - 6 or 8 chambers, it provides continuous mixing of components and colours whilst taking up very little floor space in comparison to traditional blending bins.



Blending bins

There are several different models of blending bins: for example, some are more suitable to blend fibres and some more suitable to blend cut rags.

Appropriate machines can therefore be applied in spinning, nonwovens, woollen or recycling. Depending on the application, some models are used as buffers and incorporate a stationary emptier, whilst others have mobile emptying systems.

A special model for cashmere is available.



Feeders

Bonino produces different types of carding machine feeders accordingly to the fibre to be processed.

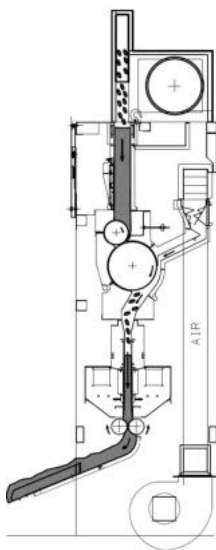
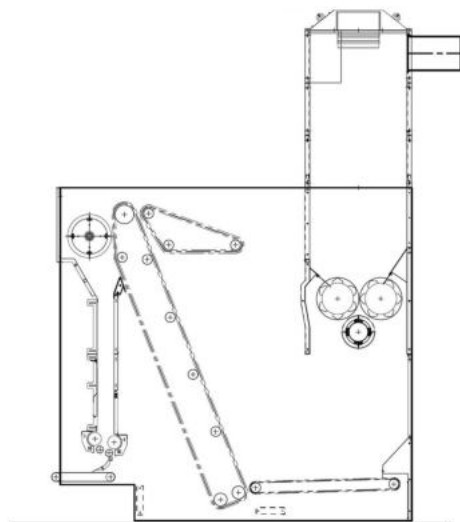
Hopper feeder

It can be fed with a silo tower or a condenser and/or a cyclone and it offers a wide hopper for the fibre stockage before the compacting chamber.

In case online recycling of edges is required an additional condenser can be added.

The hopper feeder is equipped with strong vibrating chamber and compacting walls to prepare the mat of fibres.

WORKING WIDTH	Up to 4500 mm
DTEX	All
FIBRE LENGHT	Up to 220 mm



BCM

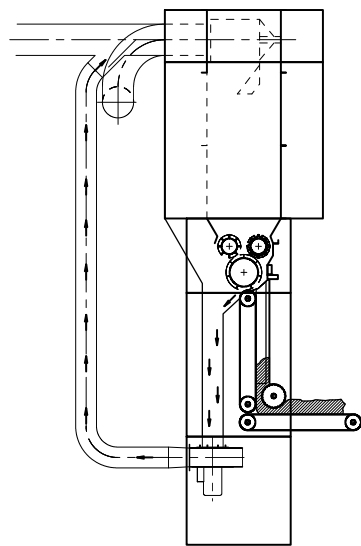
Compacts material with a pressure system, providing excellent regularity in card feeding. A version with a vibrating compacting wall is available.

WORKING WIDTH	Up to 4000 mm
DTEX	Up to 70 Dtex
FIBRE LENGHT	Up to 90 mm
PRECISION	Less 1%

ALF

Very high material compacting chamber and second compacting chamber with air system that, together with the vertical belt, presses and prepares the fibre mat.

WORKING WIDTH	Up to 4000 mm
PRODUCTION	500 kg/mt





Rolle

The coding re...

The Bonino MOTION CONTROL SYSTEM is applied to all the machines in order to give fluidity to the process, to reduce electrical consumption and to minimise stress on the machines.

- Machines can be completely separated into 5 sections for easy access
- Different geometries are available depending on the product
- Different inlet and delivery systems available
- Sliding doors for easy opening

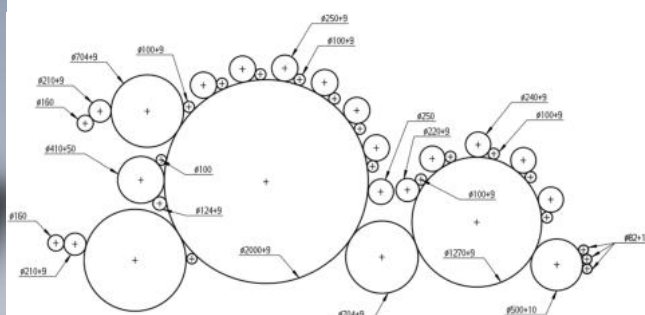
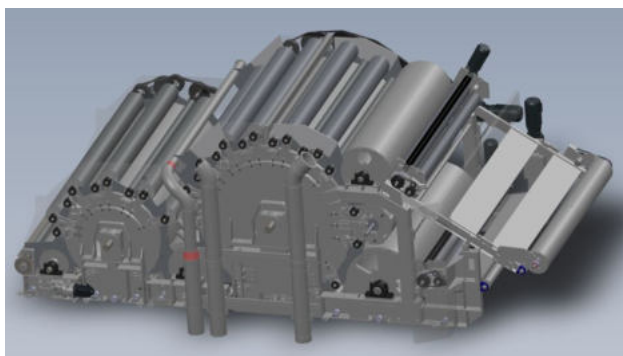
**Calendered
Hydroentangled
Air-through bonded**

The BCNT card has a large carding surface engineered to process a wide range of fibres including shoddy, soft wastes and hard fibres. BCNT also avoids material waste and gives great production capacities.

Openable undercasings and ability to separate the machine into five parts for easy cleaning and maintenance.

The main drum is 2000 mm dia. in order to increase the carding surface.

WORKING WIDTH	Up to 4200 mm
DTEX	0,7 to 200
FIBRE LENGHT	30-120 mm
WEIGHT	Up to 120 gsm



HP

The High Performance HP card is the answer to the most recurring demand of the nonwoven market.

Suitable to process a wide range of fibres with excellent quality results.

It can be equipped with different inlets depending on the fibre to be processed.

Main drum 1500 mm and two delivery doffers of 550 mm dia.

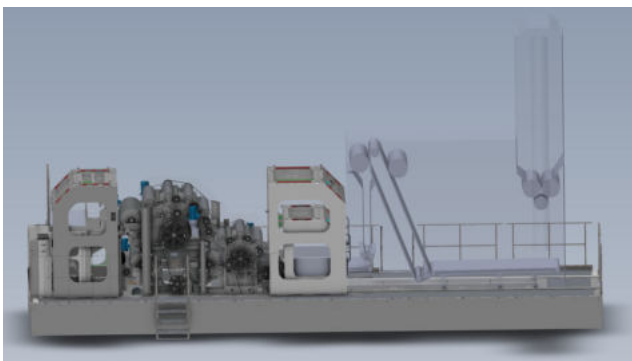
Randomizers and condensers are available for the final web configuration.

Openable undercasings and possibility to separate the machine into five parts for easy cleaning and maintenance.

The machine incorporates a managed airflow system to completely control air currents.

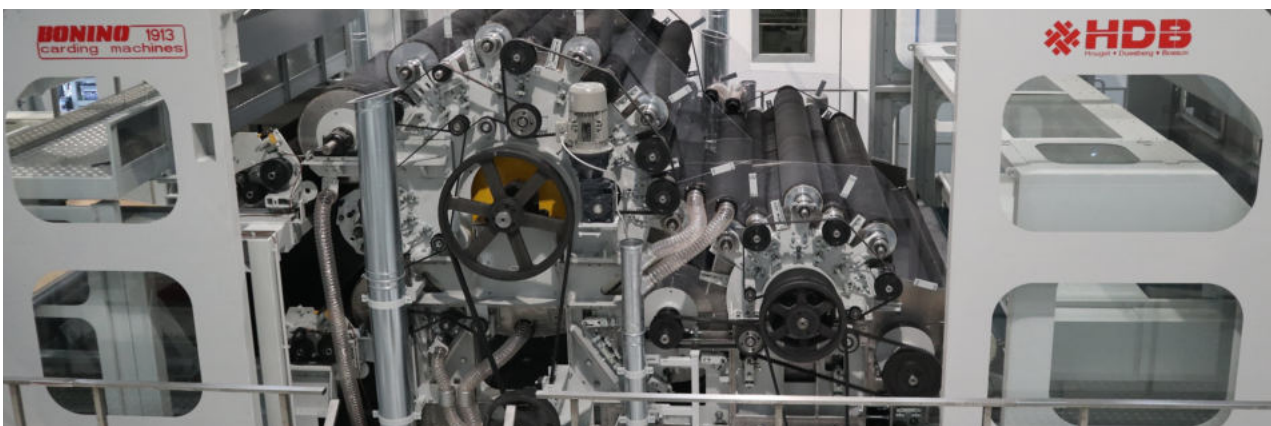
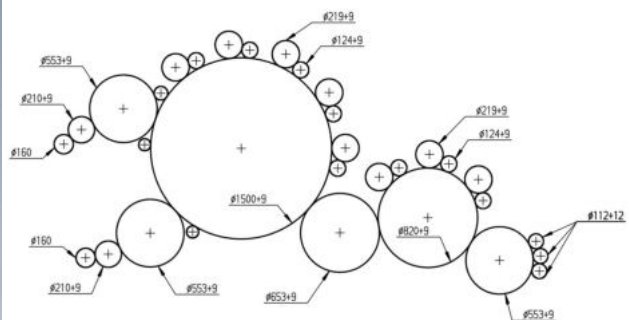
Brushless motorization with independent controls for inlet, breast, workers, doffers, randomizers and condensers.

Main motor AC with inverter.



WORKING WIDTH	Up to 4200 mm
DTEX	0,7 to 200
FIBRE LENGHT	30-120 mm
WEIGHT	6-120 gsm

Nonwoven carding machine suitable to process from **micro fibres** to **mineral fibres**.



Booster

The booster card provides higher production capacities and improved blending thanks to a larger breast cylinder, progressive carding action and efficient web transfer from breast to main swift.

Large diameter breast (diam. 1270 mm) with double detachment system (one doffer and one transporter empty totally the breast cylinder) to give efficient transfer to the carding cylinder which keeps as the HP a diameter of 1500 mm.

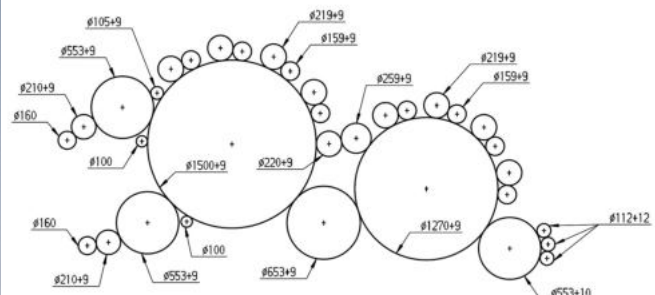
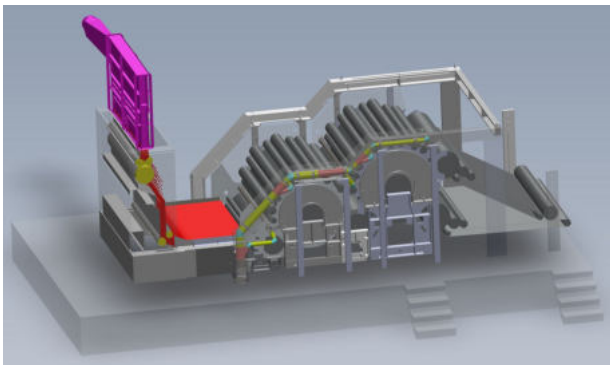
Openable undercasings and the ability to separate the machine into five parts for easy cleaning and maintenance.

All the machines have a sleeve system on worker, stripper, doffer and transporter cylinders.

All drums have a ventilation system to avoid fibre accumulation between the cylinder and the side frame.

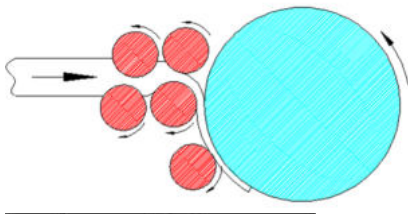
WORKING WIDTH	Up to 4200 mm
DTEX	0,7 to 200
FIBRE LENGHT	30-120 mm
WEIGHT	6-120 gsm

Booster is the nonwoven carding machine for **synthetic** and **man-made fibres**.

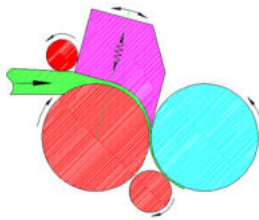


» Inlets

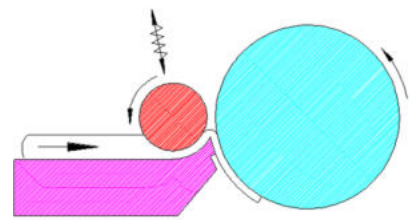
All cards can be equipped with 3 different types of inlets:



MULTIROLL FEEDING



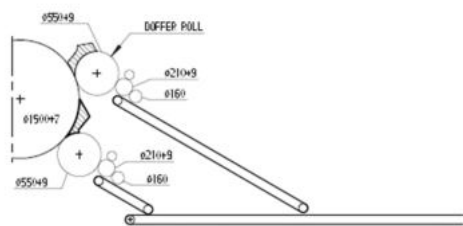
OVERHEAD DISH



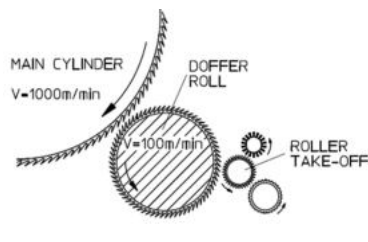
FEED DISH

Delivery systems »

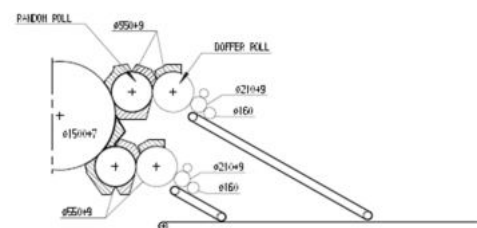
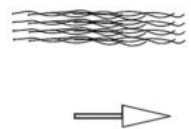
All cards can be equipped with 4 different types of delivery systems:



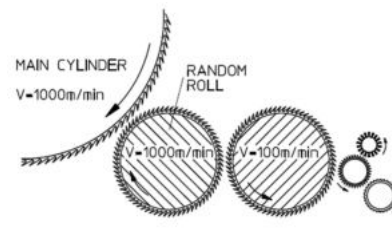
PARALLEL WEB



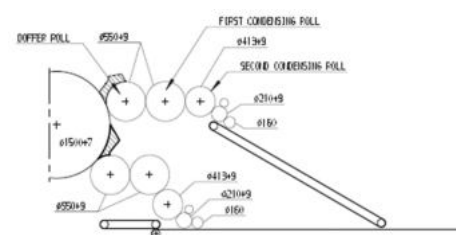
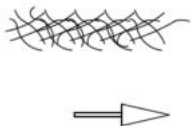
PARALLEL WEB



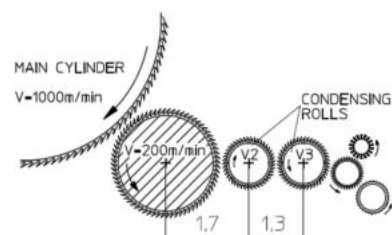
RANDOMIZED WEB



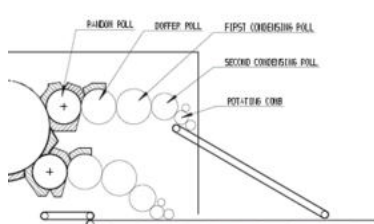
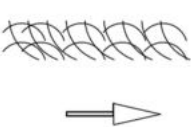
RANDOMIZED WEB



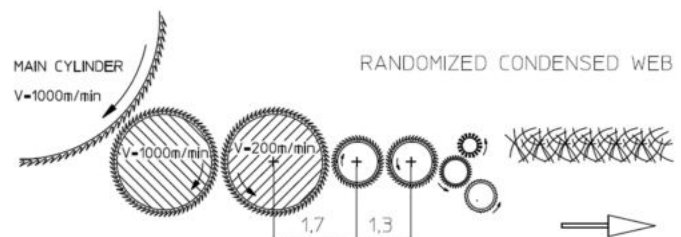
CONDENSED WEB



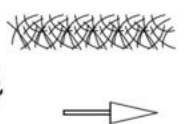
CONDENSED WEB



RANDOMIZED AND CONDENSED WEB



RANDOMIZED CONDENSED WEB



Hydra Card

The HYDRA CARD is the latest generation of the Bonino cotton card used for decades in processing of cotton wastes.

Due to the application it is used for, it can be:

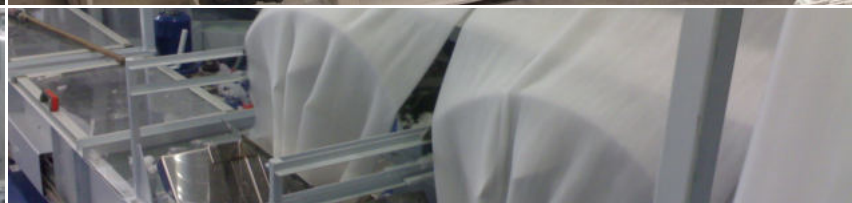
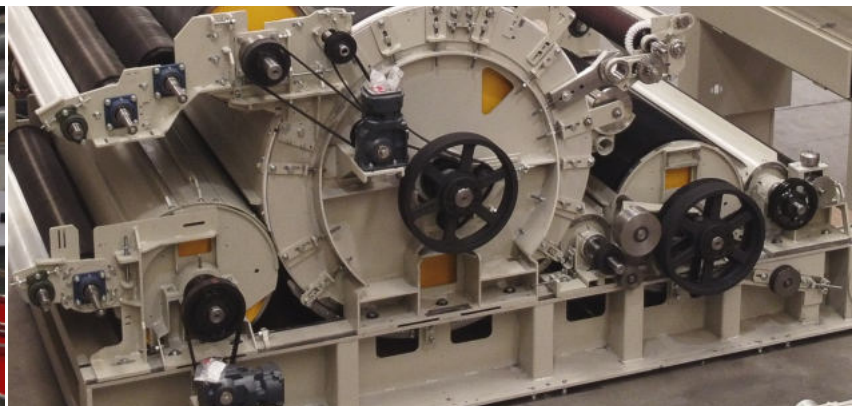
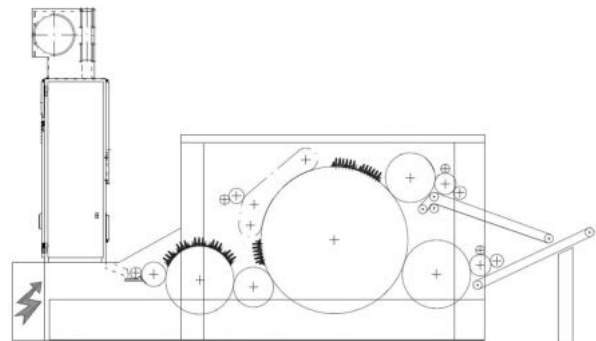
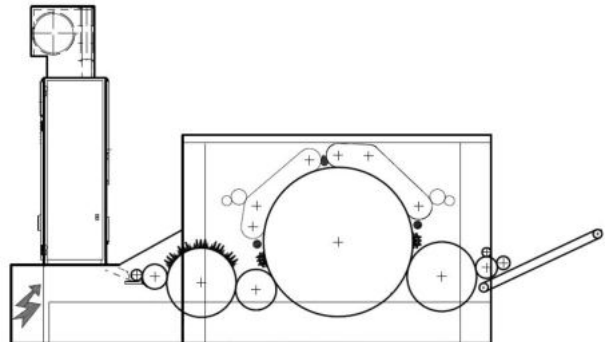
- With one or two doffers
- Working width 1000 mm or 1500 mm

WORKING WIDTH	1000 to 1500 mm
FIBRE PROCESSED	Cotton/viscose/natural
ADVANTAGE	Breast cylinder
PROD. CAPACITY	Up to 180 kg/h (depend on fibre)

- Designed for medical products
- Suitable to process very short fibres
- Suitable to reach heavy output uploads and high speed
- Stationary or rotating flats

All models have a special pre-carding section (breast cylinder dia. 700 mm suitable to pre-open and card the fibres before feeding to card cylinder).

All models have a main cylinder dia 1500 mm allowing a high number of carding points.



Hydra Card: applications

The Hydra card can be applied in all processes of cotton staple fibres where short, reclaimed or dirty fibres are involved.

In particular:

- HYGIENE: zig zag cotton, cotton rolls, cotton pads, qtips etc
- TAMPONS: either digital or applicator with tea bag type
- SPUNLACED COTTON

When used to process bleached cotton for production of cotton wool, it is generally provided in WW1500 mm with two doffers.

In this case each card can reach up to 90 gr/linear meter of band and a combination of cards can give accurate and appropriate weights for many different applications.

A combination of double doffer cards, plied webs and lapped single web can be used in the production of cotton pads.

As an alternative, cotton pads can be produced in a three-layer configuration using 2 hydra cards and 1 Turbocard.



The Bonino Tampon line can provide production of Digital tampons and/or applicator tampons.

A Hydra card applied to this field can process either cotton, viscose, or blends of the two fibres.

For some end uses double doffer cards are provided to produce ribbons with 60/70 gr/m.

When cotton is involved in spunlace, the use of the Hydra card can provide improved quality material, reduction of neps and optimum capacity.



Cross lapper

The Bonino MOTION CONTROL SYSTEM manages the electronic control of the motors and drives of the cross lapper and between the carding machine and cross lapper in order to minimise stress on the structure and reduce electrical consumption.

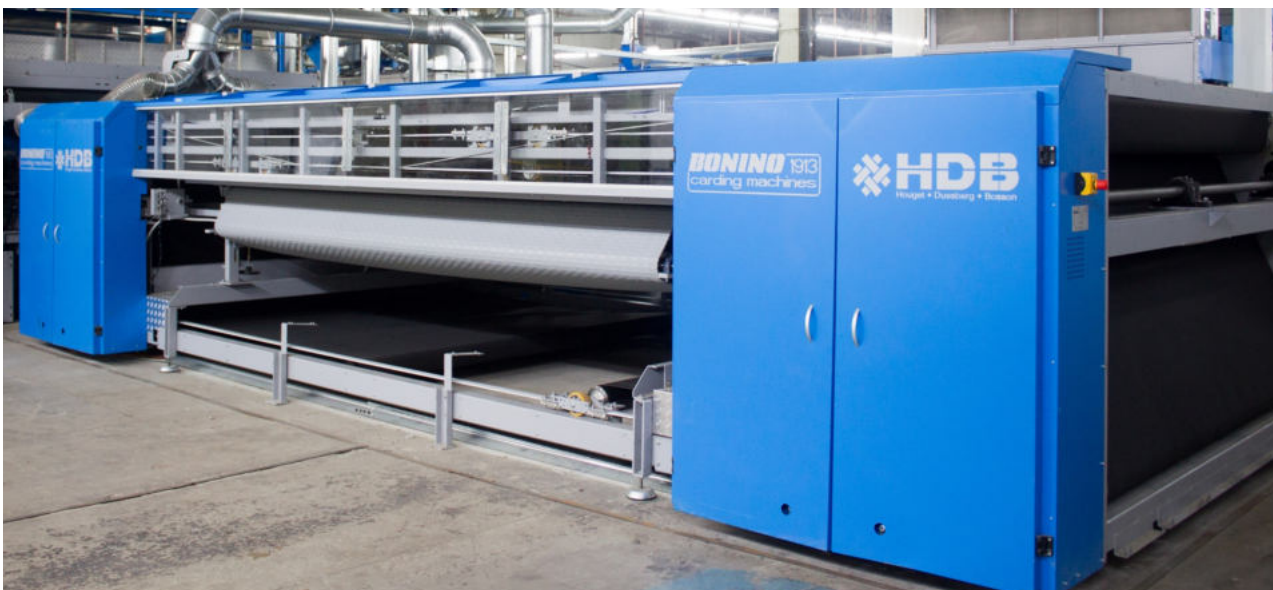
All processing parameters are adjustable during production. To set up a new web profile it is possible to display it in a trial mode and, when confirmed, the machine automatically regulates it.

The layering of the web is monitored and adjusted according to the outlet lattice speed. The thickness of the layered fibre mat can be controlled independently from the carded web.

The distance between the carriage and the outlet belt is electronically set-up while the machine is in operation.

MODEL	FL36	XXL
WORKING WIDTH	Up to 7000 mm	
SPEED	Up to 90 mt/min	Up to 140 mt/min
CARBON CYLINDRES	✗	✓
DOUBLE MOTORIZATION	✗	✓
PROFILE CONTROL	✓	✓
DELIVERY BELT SPEED CONTROL	✓	✓
WEB COMPENSATION	✓	✓
AUTOMATIC TENSIONING/ CENTERING SYSTEM	✓	✓

- Web Profile control
- Motion control working with Electrical Axis & Electronic Cams
- Delivery belt speed adjustable
- Web hold by belts during the whole layering process



Web Drafter

Useful to increase the productivity of a production line.

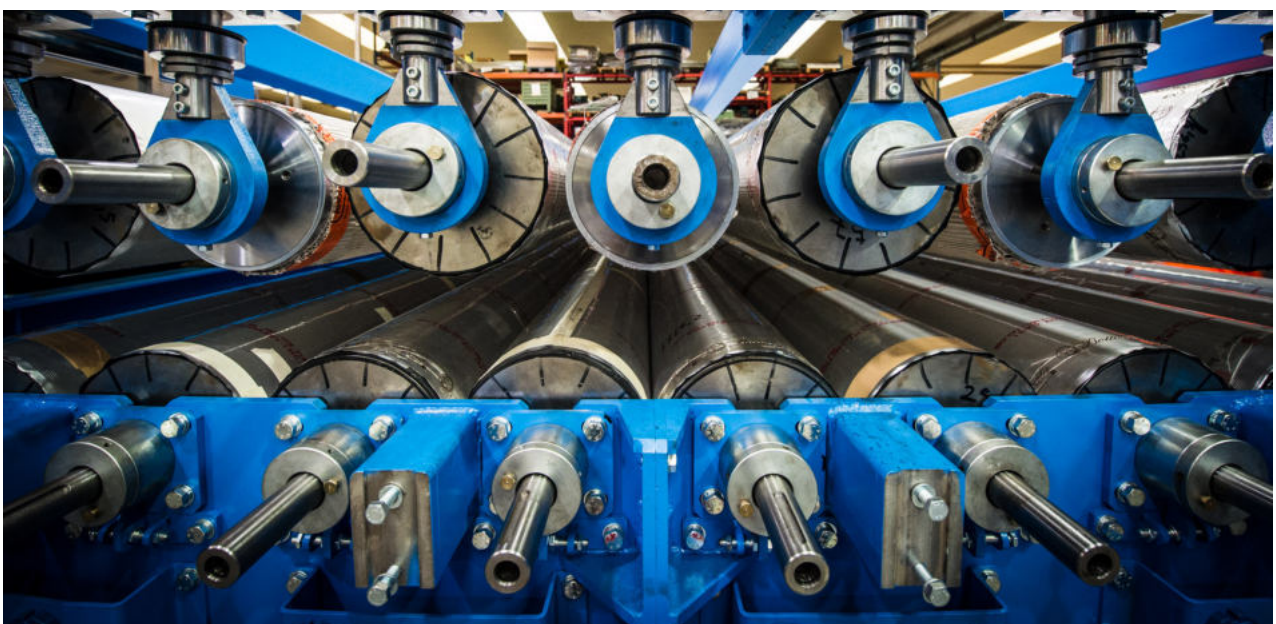
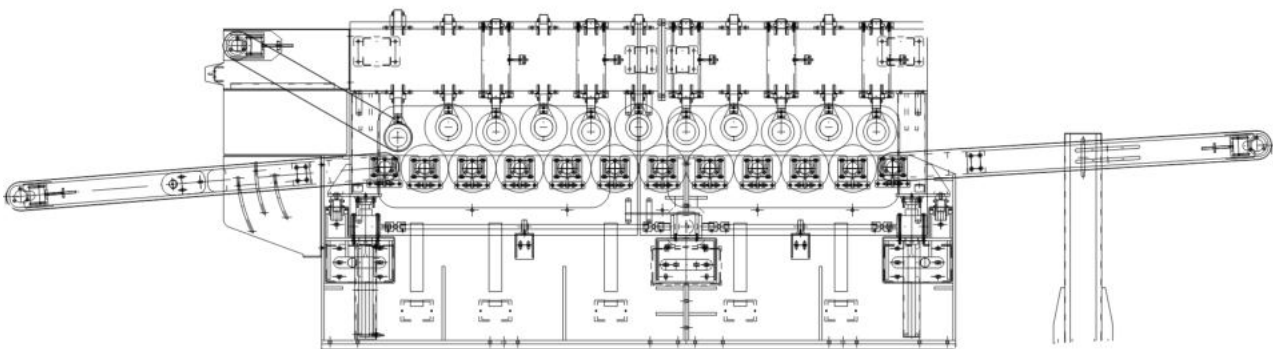
The drafter (5 or 7 group design) acts on the web structure, improving web strength in the machine working direction.

In addition to balancing the MD:CD strength ratio, a drafted web provides benefits in subsequent processes, including increased usable finished width.

The machine works with drafting groups of three cylinders and each group has independent drives. It is suitable for processing webs up to 1000 gms.

WORKING WIDTH	Up to 7000 mm
SPEED	Up to 45 mt/min
DRAFT RATIO	Up to 4

- Take-off belt adjustable to the following machine
- Top rolls direct drive
- From 1 to 7 drafting groups
- Bypass by lifting the top rolls



Turbocard

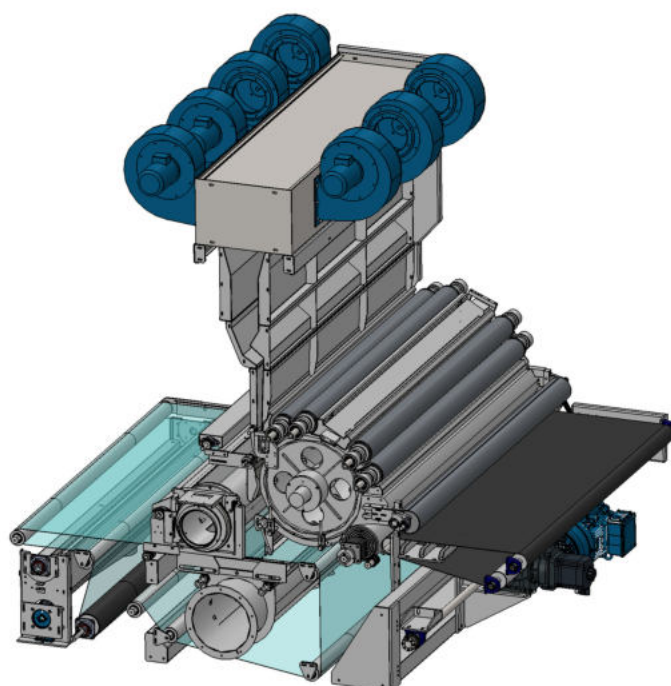
The Bonino Turbocard is suitable for short fibre or recycled fibres to form a 3D structured web. The aerodynamic web formation offers many advantages when compared to traditional nonwoven production by means of card and cross lapper.

The way fibres condense on the sieve belt/drum and the three-dimensional distribution within the web, can be adjusted by utilising the detaching flap at the fibre outlet.

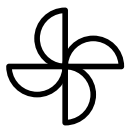
- Flexibility to use any kind of fibre and any Dtex on the same machine
- Less space required compared to card and cross lapper
- Possibility to use wastes and very short fibres
- Smaller capital investment
- Better MC:DC ratio

WORKING WIDTH	Up to 3500 mm
PROD. CAPACITY	Up to 500 Kg/h/m (depending on fibre)
FIBRE LENGHT	All
WEIGHT	Up to 4500 gsm

- Acoustic/thermal insulation panel
- Automotive
- Wadding
- Hygiene/medical



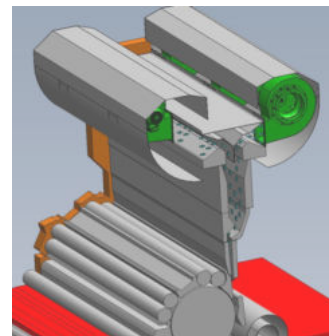
Focus on: Turbocard



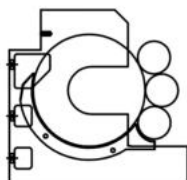
MULTICHAMBER CROSS CONTROL

Air flow adjustment is made with 3 to 12 motor fans.

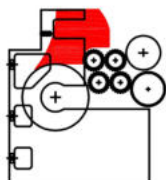
This allows the control of air flow every 50 cm. Fibre cross distribution can then be set by adjusting the air flow of each area to achieve the perfect cross distribution to a tolerance of +/- 1%.



INTERCHANGEABLE INLET/FEEDING SYSTEM



MULTIROLL FEEDING

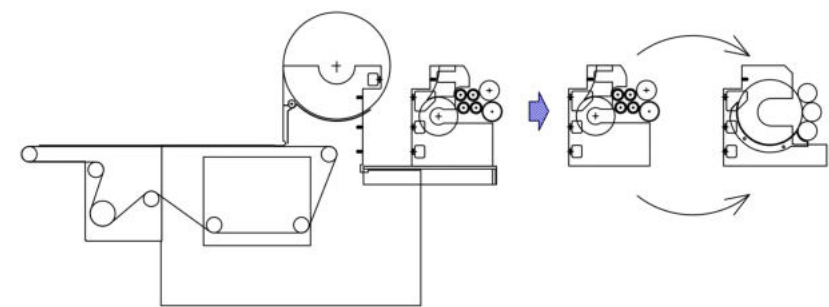


FEED DISH

The machine can be equipped with 2 different material feeding systems.

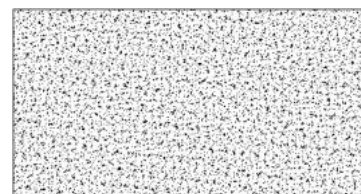
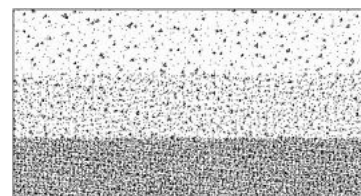
In this way the user can adjust the feeding system according to the material to be processed.

- **MULTIROLL FEEDING** When delicate fibres and extra uniform webs are required.
- **FEED DISH** In the case of hard fibres or when an additional hard opening of the fibres is required.



HOMOGENEITY CONTROL SYSTEM

Turbulence control to avoid fibre sedimentation. This operation allows greater mixing of the different components, ensuring improved homogeneity and uniformity of material mix.



Grecale Airlay

The Grecale Airlay provides a 3D structured web similar to the Turbocard but with the possibility of reaching high density and thickness.

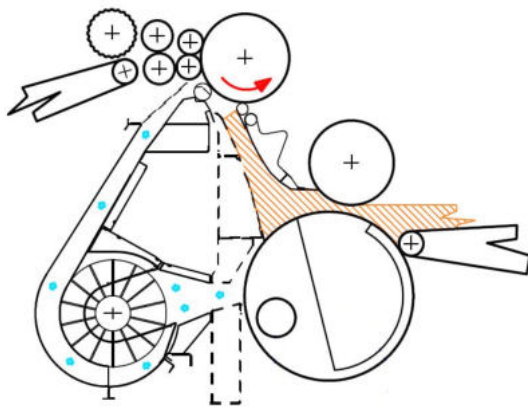
The Bonino Grecale Airlay can be separated into sections for easy access for cleaning and maintenance.

- **Flexibility** to use any kind of fibre and any Dtex on the same machine
- **Less space** required compared to card and cross lapper
- Ability to use **wastes** and **very short fibres**
- **Sealed** to avoid leakage of powder and resins

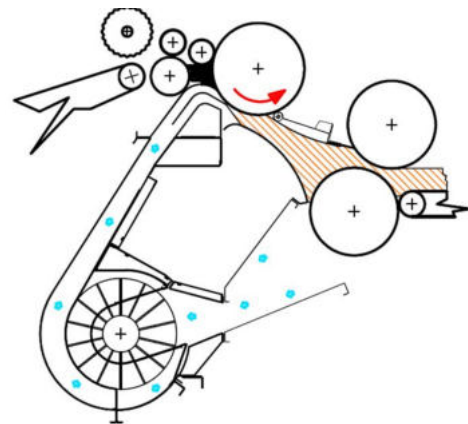
WORKING WIDTH	Up to 3500 mm
PROD. CAPACITY	Up to 500 Kg/h/m (depending on fibre)
FIBRE LENGHT	All
WEIGHT	300-7000 gsm
FIBRE DTEX	All

Bonino produces 2 different kind of airlays depending on the product required.

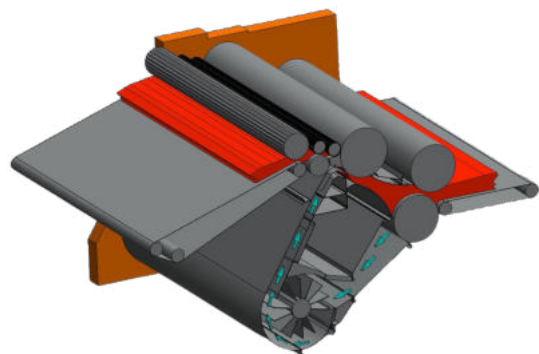
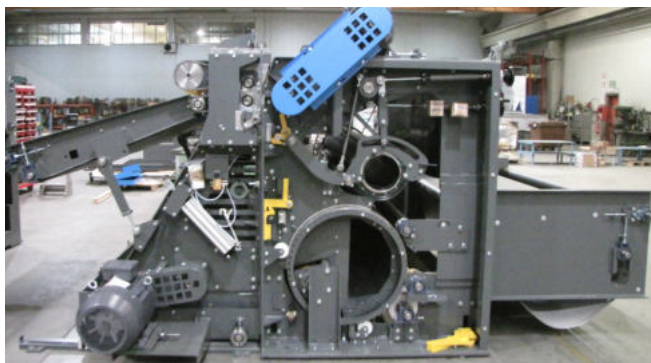
- Acoustic/thermal insulation panel
- Automotive
- Wadding



MODEL DG



MODEL DP



Recycling

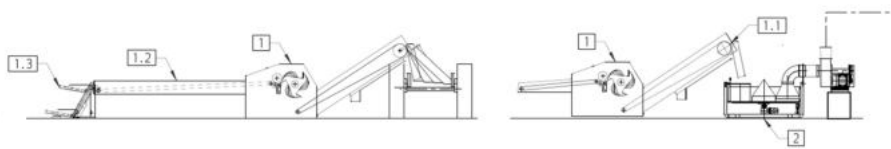
Rotary cutter

Thanks to the rotary cutters special structure, it is possible to reach high production speeds. The cutting length can be adjusted and the feeding of the raw material can be made by means of an automatic balelifter.

ROTARY CUTTERS

WORKING WIDTH	800 to 1800 mm
PROD. CAPACITY	Up to 1200 kg/h
FIBRES	All

1	ROTARY CUTTER
1.1	PERMANENT ROTARY MAGNET
1.2	LATTICE
1.3	BALE LIFTER
2	OILING BASKET
3	VOLUMETRIC FEEDER
4	RAG TEARING MACHINE



Rag tearing machine

The new design of the rag tearing machine provides significant innovations which improve the performance of the machine.

Thanks to the new drive system of the SF 2000 it is also possible to optimise energy consumption in order to reduce the overall power installed.

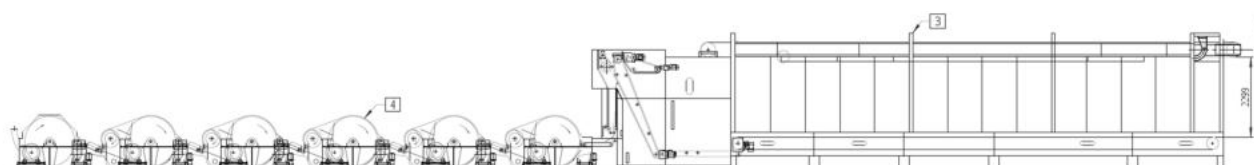
This machine also works on the principle by which, especially at high working width, the application of a feeder into each tearing drum allows a more even feed of material. This improves the working conditions of the drum giving quality results, that are far superior to traditional machines with drums in a line.

This also creates a reduction in the potential number of blockages, thereby reducing machine maintenance.

The dropped material is recovered and recycled into the roller from which it has dropped, rather than being returned to the start of the line.

RAG TEARING

WORKING WIDTH	500 to 2000 mm
PROD. CAPACITY	Up to 1200 kg/h
FIBRES	All

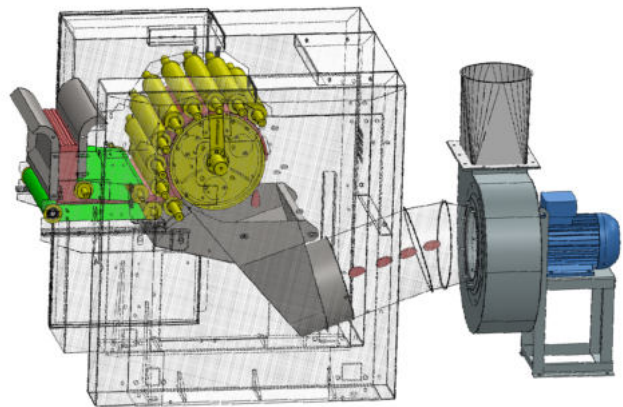
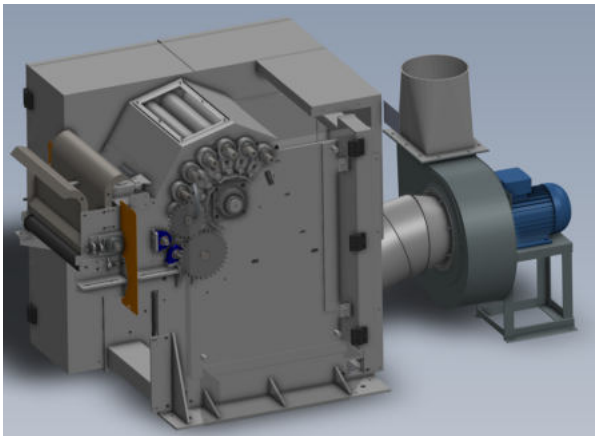


ETO opener

The ETO opener has been designed to open edges on nonwoven production lines. It can be equipped with stationary flats or workers and it is available in working widths from 500 to 1000 mm.

- Designed to open edges on nonwoven production lines during production also often used off-line to open hard wastes
- Equipped with sets of workers/strippers
- Working widths: from 500 to 1000 mm

WORKING WIDTH	500 - 1000 mm
FIBRE PROCESSED	Any



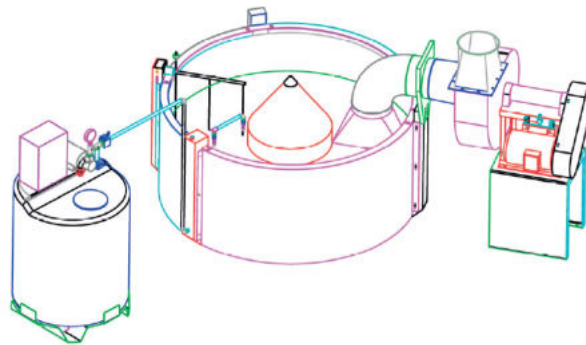
Accessories



Oiling device

In order to add water, emulsion or antistatic to fibres, two systems can be offered: a system with a rotating basket or a system that sprays the fibres whilst they are passing through pipes. In both cases these systems are supplied complete with devices to prepare emulsion and a holding tank.

- Rotating basket or system that sprays the fibres whilst they are passing through pipes
- Both supplied with device to prepare emulsion and a holding tank



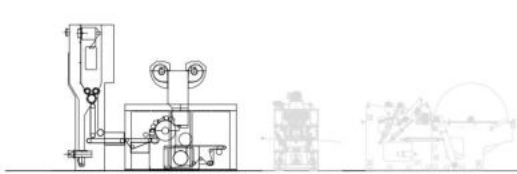
((•)) Metal detector

Installed directly on the delivery pipe, it is an important equipment for safety during production. This system can detect metal material automatically, and eliminate them thanks to computer technology and an electromagnetic induction device.

The metal detector can detect metal trash including iron, wire, screws, washers, steel, etc.

When metal is detected in passing fibre, the system sends a signal to a microcontroller which triggers an actuator to eject the foreign object from the fibre flow.

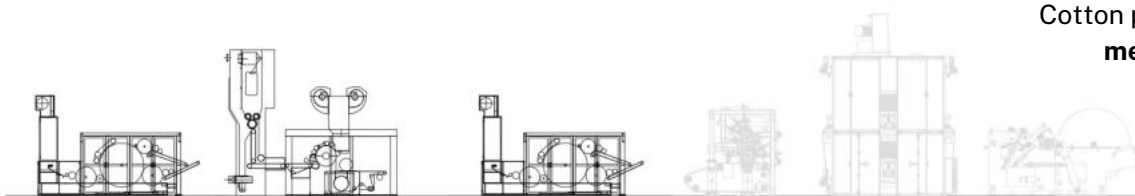
Complete lines



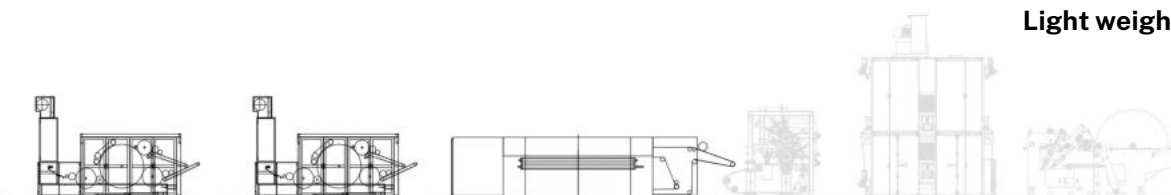
Middle and heavy weight
Airway needle punched for glass fibre
and synthetic fibre



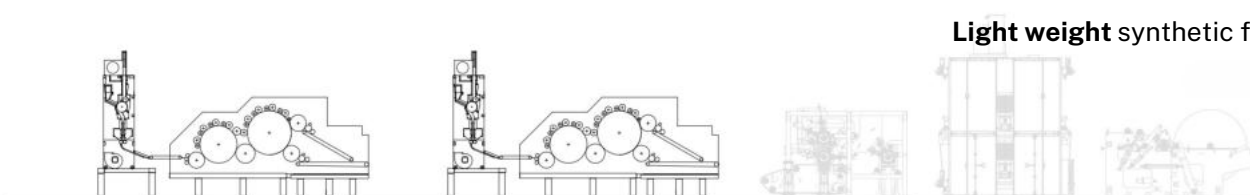
Heavy and super heavy weight
Airway thermal bonded for any type
of fibre



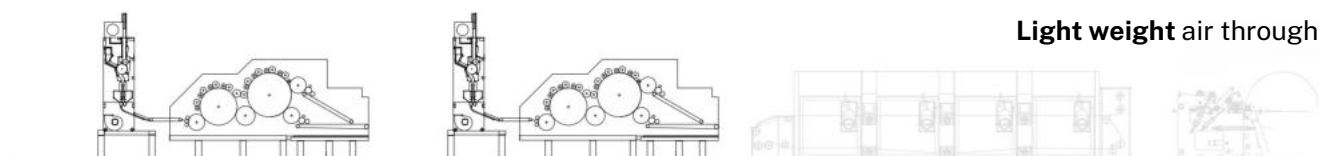
Cotton pads and natural fibres
medium weight spunlace



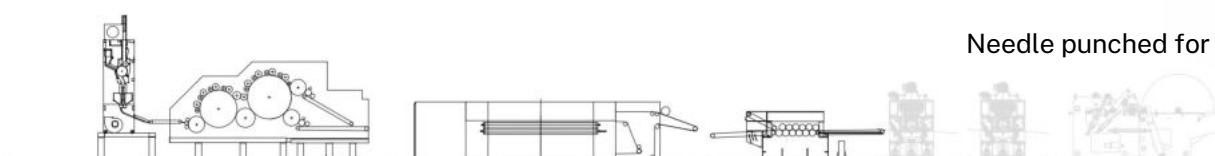
Light weight cotton and natural
fibres spunlace



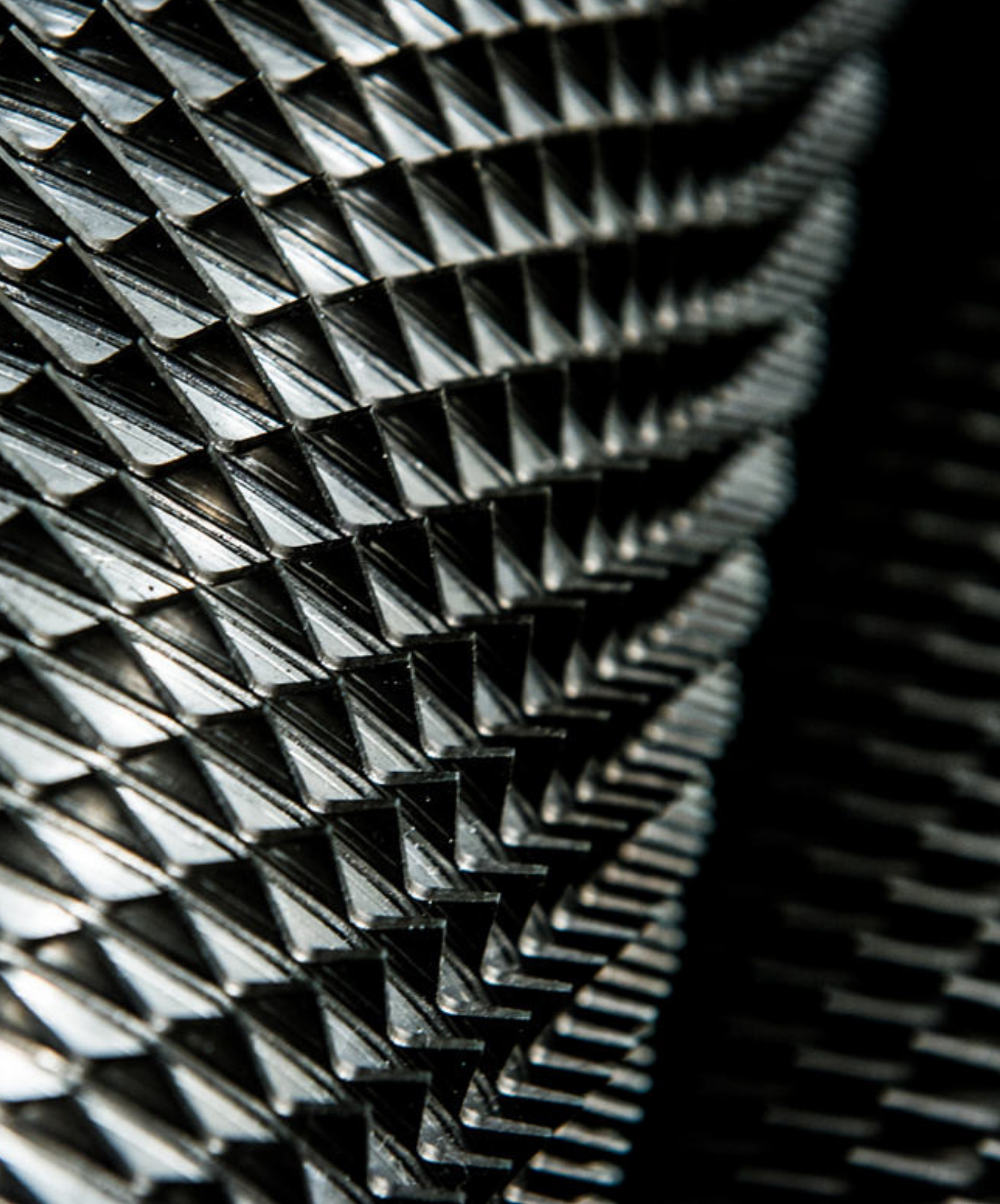
Light weight synthetic fibre spunlace



Light weight air through bonded
for ADL



Needle punched for synthetic fibres



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