

FIBER OPENING AND BLENDING

AUTEFA Solutions leads the way

AUTEFA SOLUTIONS -

Experience, Know-How and Competence in Nonwoven Technology

AUTEFA Solutions leads the way to Fiber Opening and Blending

AUTEFA Solutions offers complete carding lines, starting from bale opening up to finished products.

The composition of a blending line, as well as the type and configuration of each machine, is flexible and can vary according to the fibers to be processed and to the final product to be manufactured. Each line is configured on the customer needs, in order to reach the best efficiency required by the process.

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).



Fiber Opening and Blending Installation Layout





Bale Opener

The Bale Opener is suitable for any kind of fibers, of short and medium length. It is complete with double horizontal conveyor and can be loaded with full bales, of any dimension and weight.

The opening of the bales is done by a spiked PVC apron with internal slats with galvanized steel pins, driven by an inverter. The combing roller and the



Transversal Conveyor with Pre-Opener

The blending plant is composed of a set of Bale Openers, at least of the same number of the components to blend, with Weighing Pans. Each Weighing Pan delivers fiber layers onto a Transversal Conveyor and forms horizontal fibers layers.

The single amount of each component on the conveyor has to be proportional to the percentage of the component itself in the end product.

Transversal Conveyor with Pre-Opener

discharge roller are of large diameter and driven by an independent motor gear box.

TECHNICAL DATA:

Working width: 1600 mm / 2000 mm / 2500 mm
Production: up to 2000 kg/h without Weighing Pan, 300 kg/h to 1000 kg/h with Weighing Pan

A pressing conveyor reduces the volume of the fibers, to avoid an interference with the Weighing Pans. A Pre-Opener blends the fiber layers and pre-opens the fibers.

TECHNICAL DATA:

Working width: from 900 mm to 1200 mmNumber of Bale Openers: up to 6



Blending Box

This Blending Box is able to do the final blending and to provide some storage between the blending line and the card to ensure constanct production. It can be used for re-feeding the side wastes and reclaimed fibers.

The Blending Box is composed of a storage unit, in the rear side, and of an emptying unit on the front side. The storage unit has a conveyor belt to transport the fibers to the stationary emptier. The emptying unit has a heavy duty spiked apron, that removes the fibers from conveyor belt, and delivers them on a transversal conveyor, towards a delivery chute.

FOR THE FILLING SYSTEM, DIFFERENT DEVICES ARE AVAILABLE:

- Stationary cyclones with air recovery systems
- Stationary or movable condensers
- Rotary spreaders

TECHNICAL DATA:

- Working width: 2150 mm / 2650 mm / 3000 mm / 3500 mm / 3900 mm
- Useful Height: 2000 mm / 3500 mm
- Useful Length: from 2000 up to 20000 mm



Blending Box with Fine Opener



Line for low melt fibers

This line is designed to open very well the low melt fibers before weighing process. A good opening of the low melt fibers allows a better mixing of the low melt fibers with the standard fibers with following advantages: The low melt fiber bales are loaded on the Bale Opener feeding directly a Vertical Fine Opener VFO and then conveyed to a Silo SAB with Weighing Pan, where the fibers are pre-weighed.

- It is possible to reduce the amount of expensive low melt fibers in the blend, because a better mixing allows a better thermal bonding. Customers obtain a product with the same characteristics of rigidness but with low amount of low melt fibers.
- Avoiding uneven distribution of fibers in the blend and guarantees an end product without spots of unopened low melt fibers.
- Better running of the cards with the chance to increase the delivery speed, because the fibers are more opened.



Line for low melt fibers

The closing flap stops the "flying fibers" in the bale opener. When the preset amount of fibers is reached, the fibers are delivered onto the Transversal Conveyor.

TECHNICAL DATA:

Working width: Bale Opener 1600 mm, Fine opener VFO 1500 mm, Silo SAB 1600mm/ 2000 mm
Production: from 300 kg/h to 600 kg/h





Fine Opener FTO

The Fine Opener FTO is probably the best fine opener available on the market, it is capable of an intensive opener (up to a degree of 95 %) and is expressly designed for the needs of new fibers and new process of natural, synthetic and artificial fibers, from 0.5 den to 30 den with a length of 25 mm to 90 mm.

The machine has 3 opening cylinders all covered with rigid wires, 2 doffing cylinders (covered with rigid wires) that clear the opening cylinders from the fibers not yet opened and put them back in the feeding area, to allow them to be re-opened again. Finally a delivery cylinder, covered with rigid wires, delivers the fibers to a chute.

IT CAN BE SUPPLIED IN TWO VERSIONS:

- Low: when it is fed from a Bale Opener or a Blending Box
- High: when it is standing alone and it is fed by a silo with pre-opener

TECHNICAL DATA:

- Working width: 1500 mm / 2000 mm / 2500 mm
- Production Capacity: from 500 up to 2000 kg/h



Vertical Fine Opener VFO

The Vertical Fine Opener VFO opens intensively up to a degree of 95 %. The opener is expressly designed for the opening of all kinds of medium and long fibers (Fiber specification from 40 mm to 150 mm, from 1.7 den to 110 den)

The machine has a feeding silo with two adjustable walls and four feeding cylinders, and is the ideal machine for the intensive opening of low melt and delicate fibers, without neps and fusions.

The opening drum is covered with plywood lags with hardened steel pins, which number and shape depends on the type of fibers to be processed.

IT CAN BE SUPPLIED IN TWO VERSIONS:

- Low: when it is fed from a Bale Opener or a Blending Box
- High: when it is standing alone and it is fed by a silo with pre-opener.

TECHNICAL DATA:

- Working width: 1500 mm / 1900 mm / 2500 mm
- Production: 500 kg/h to 2000 kg/h



Carding Willow

This machine is suitable for the opening phase of textile fibers of any kind, especially in presence of long and/or delicate fibers, requiring to avoid any possible damage when being opened. The opener includes two feeding cylinders, one stripper cylinder, three couples of workers/strippers cylinders, a main drum with single bolted pins and a delivery cylinder. The main drum is large-sized, reaching a diameter (teeth included) of 1200 mm. This means that the same opening and carding action (depending on the centrifugal force, given by the square of the speed) may be achieved when running the main drum at a much lower turning speed. Such a reduced speed would decrease the wearing rate, thus implying less maintenance of bearings, pulleys, belts etc. The upper and lower feeding cylinders are made with steel disks. The strippers and workers are manufactured with disks and spacers, fitted on a round shaft with a diameter of 135 mm, in order to keep them always straight. The main drum of this machine is manufactured with steel lags, on which the single teeth are bolted with a self-locking nut. This machine includes a large delivery cylinder, aimed at providing a perfect cleaning of the main drum, avoiding any recycling phenomenon around the drum as well as the nepsmaking.

TECHNICAL DATA:

- Working width: from 1.200 mm to 2.000 mm
- Production: 500 kg/h to 3000 kg/h





The Emulsion Applicator in the pipe allows to apply chemical additives to the fibers. The chemical additive is usually a blend of different oils (oleine, antistatic, etc.) and water, shacked in the emulsion device.

The Emulsion Applicator is composed of a set of 2 nozzles, by which the emulsion (previously prepared in our emulsion device included in the supply) is applied to the fibers.

Edge Trim Opener

According to the type of edge trim and side waste the configuration of the Edge Trim Opener can be modified. The drum can be covered with plywood lags with hardened steel pins or rigid wire, and the number of workers can vary. The machine can be supplied with a feeding conveyor or for direct feeding from the top. In the wider width, it can be used for re-opening of off-quality rolls.

TECHNICAL DATA:

• Working width: 500 mm / 1000 mm / 1500 mm





Weight Management System

Each blending plant is equipped with a Weight Management System, a process control system for the management of each component of the line.

The system, based on a Siemens S7 plc, allows the pre- setting of more than 90 blending prescriptions. By putting the number of the prescription and the total weight of the blending, or the single total weight of each component of the blending, all the components of the line can be set.

The Weight Management System controls the weight of each Weighing Pan, to check if the weight is included in a programmed mistake percentage. If not, the computer gives an alarm signal and will correct it, according to its "correction sequence" for errors. It calculates the average weight of the previous weights and sets the value of the next weighing process. The Weight Management System guarantees a weight deviation less than +/- 1 %.





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