FIBER OPENING AND BLENDING

AUTENFA Solutions leads the way
AUTEFA Solutions leads the way

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.

AUTEFA Solutions Nonwoven Technology

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AUTEFA Solutions is part of China Hi-Tech Group Corporation (CHTC). China Hi-Tech Group Corporation is the world biggest successful textile machinery supplier.
AUTEFA Solutions leads the way to Fiber Opening and Blending

AUTEFA Solutions offers complete carding lines, starting from bale opening up to finished products. All process steps base on approved and economics technologies which are integrated in turnkey solutions.

The composition of a blending line, as well as the type and configuration of each machine, is flexible and can vary according the fibers to be processed and the final product to be manufactured. Each line is configured on customer needs to reach the best efficiency required by the process.
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 the fibers 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, so that a small portion of fibers, contains, time by time, all the components of the end product, and in the right percentage.

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

TECHNICAL DATA:
- Working width: from 900 mm to 1200 mm
- Number of Bale Openers: up to 6

Bale Opener CED

The Bale Opener CED 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 apron in PVC with internal slats with galvanized steel pins and driven by an inverter. The combing roller and the discharge roller are of large diameter and driven by an independent motor gear boxes.

The Bale Opener CED can be equipped with a Weighing Pan with electronic load cells for dosing the fibers. The pan is supported by two electronic load cells to measure the weight of the material. In this configuration, the machine is equipped with a closing flap, to stop the “flying fibers” after the pre-set weight has been reached. In addition the speed of the spiked apron is controlled by an inverter. This allows a better control of the weight.

The supporting frame of the Weighing Pan is independent from the Bale Opener.

TECHNICAL DATA:
- Working width: 1650 mm / 2000 mm / 2500 mm
- Production: up to 2000 kg/h without Weighing Pan
- From 300 kg/h up to 1000 kg/h with Weighing Pan
Blending Box

This Blending Box has two scopes: first of all, it is able to do the final blending and second, it is able to provide some storage between the blending line and the card. So that any small problems on the blending does not affect the running of the following machines and vice versa. It can be used for re-feeding the side wastes and the reclaimed off quality products.

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 movable floor that collects and carries the fibers against the stationary emptier. The emptying unit has an heavy duty spiked apron, that removes the fibers from movable floor, 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 – 2650 – 3000 – 3500 – 3900 mm
- Useful Height: 2000 mm / 3500 mm
- Useful Length: from 2000 up to 20000 mm

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:

- 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 so end product with spot of unopened low melt.
- Better running of the cards with the chance to increase the delivery speed, because the fibers are more opened.

The low melt fiber bales are loaded on the Bale Opener CED/1650 feeding directly a Vertical Fine Opener VFO and then conveyed to a Silo SAB with Weighing Pan, where the fibers are pre-weighted.

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.
Vertical Fine Opener VFO

WORKING WIDTH: 1500 – 1900 – 2500 mm
PRODUCTION CAPACITY: FROM 500 UP TO 2000 kg/h

The Vertical Fine Opener VFO opens intensive 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 from 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.

Fine Opener FTO

WORKING WIDTH: 1500 – 2000 – 2500 mm
PRODUCTION CAPACITY: FROM 500 UP TO 2000 kg/h

The Fine Openers 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 from 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, deliver 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
Emulsion Applicator

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

WORKING WIDTH: 500 – 1000 – 1500 mm

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.

Weight Management System

Each blending plant is equipped with a Weight Management System, a process control system for the management of the each component of the line. The system, based on a Siemens S7 plc, allows the pre-setting of more than 90 blending prescriptions and just putting the number of the prescription and the total weight of the blending, or the single total weight of each component of the blending, can set all the components of the line.

The Weight Management System calculates all the right weight of each pan to get the pre-set percentages. 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 its “correction sequence” for errors. That is, it will calculate the average weight of the previous weights and will set the value of the next one in such a way to balance (increasing or decreasing the value) to the right amount. The Weight Management System guarantees a weight deviation less than +/- 1 %.