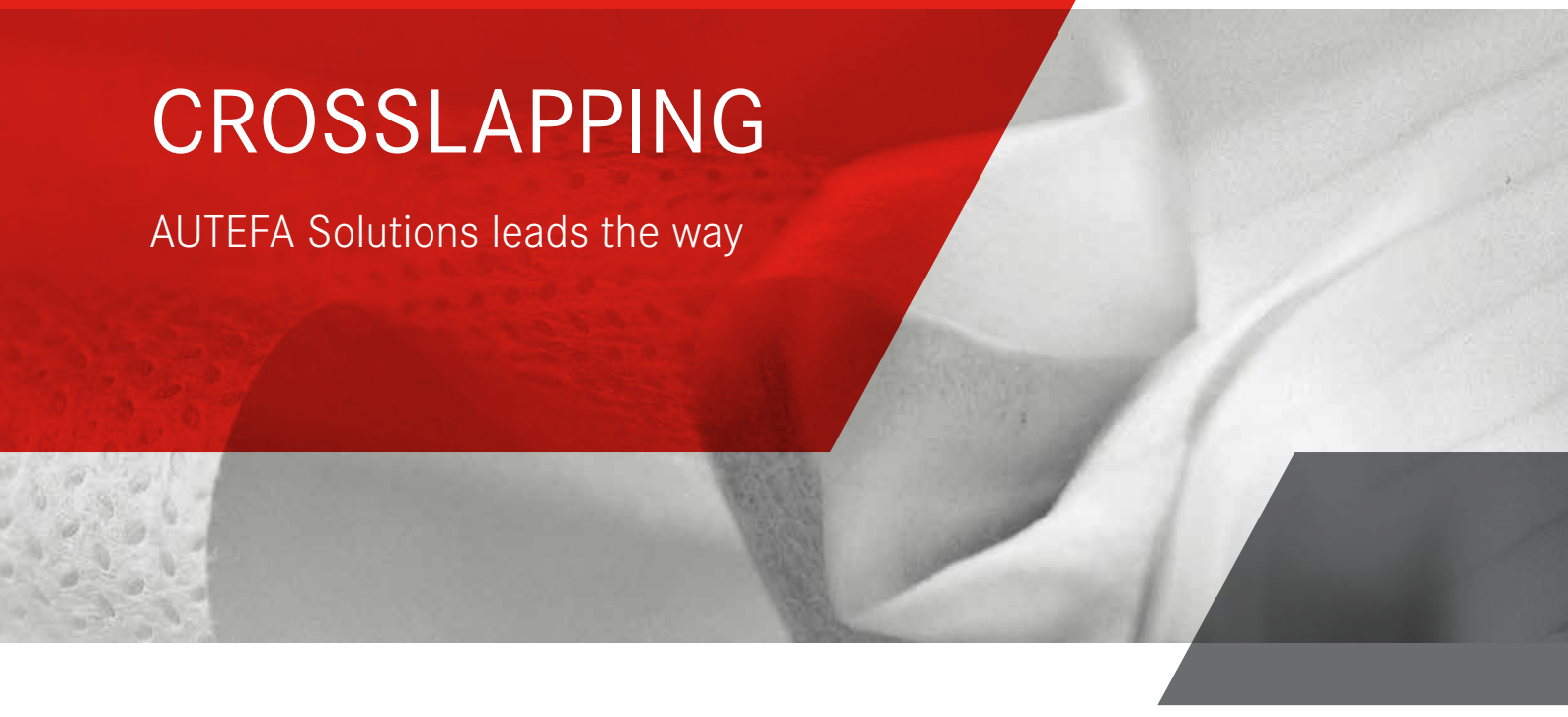
CROSSLAPPING

AUTEFA Solutions leads the way



AUTEFA SOLUTIONS –

Experience, Know-How and Competence
in Nonwoven Technology

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

OPENING/BLENDING	FIBER OPENING AND BLENDING		
WEB FORMING	CARDING	CROSSLAPPING	AERODYNAMIC WEB FORMING
WEB BONDING	NEEDLING	CHEMICAL BONDING	THERMOBONDING
WEB FINISHING	DRYING	IMPREGNATING	
WINDING/CUTTING	WINDING	CUTTING	STACKING

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 Crosslapping

Crosslappers must take up the carded web coming from the carding machine with constant speed and gently bring it to the delivery belt. The carded web passage in the layering belt system is of considerable importance. When running high lapping speeds, additional system components, such as internal web accumulators in the crosslapper, ensure a weight-neutral and straight-edged carded web deposit in the reversing unit of the layering carriage. In connection with the crosslappers of the Topliner-series WebMax ensures a maximum of weight accuracy in the final product.

THE DYNAMIC LINK OF MECHANICAL ENGINEERING AND MOTIVE POWER ENGINEERING

Crosslappers take up the carded web from a carding machine and lay it crosswise onto a delivery belt. Due to this function the crosslapper needs to convert the monotonous movement of the carded web to an oscillating movement – the carded web laydown.

Belt and carriage systems are required for carded web transport inside the lapper. They need to quickly and accurately perform translatory and rotary movements. Fast changes of revolutions with the carriage change-overs require lightweight construction for reduction of the moving masses. High acceleration values require the corresponding friction strength between drive roller and layering belt. Wear-free and maintenance-free load transmission elements ensure exact position and steady position changes for the carriage movements. Highly dynamical servo drives in connection with complex machine controls finally ensure the required synchronous interaction of all movements to reach an optimal carded web result at the end of the process.

By developing new technologies AUTEFA Solutions has set high standards – numerous patents confirm these innovations. AUTEFA Solutions has followed the path of continuous development of crosslapper technology through leading edge ideas and solutions developed in cooperation with market leading manufacturers of system components.

In addition to the requested performance AUTEFA Solutions crosslappers offer especially high operational safety with low maintenance requirement and therefore a high installation utilization ratio with best product quality to the customer.

THE CARDED WEB MANUFACTURER CAN CHOOSE FROM THE FOLLOWING LAPPER MODELS DEPENDING ON THE REQUIRED PERFORMANCE:

MODEL	LAYERING SPEED*
CROSSLINER CL 2002	60 m/min
ECOLINER CL 3000	80 m/min
TOPLINER CL 4000	100 m/min
TOPLINER CL 4002	130 m/min
TOPLINER CL 4004	160 m/min
TOPLINER CL 4006	200 m/min

*The fiber technological maximum speeds depend on certain influencing factors such as room humidity, room temperature, fiber quality etc.

All lapper models can be delivered for card web working widths of 2.0–4.0 m and layering widths up to 9 m.

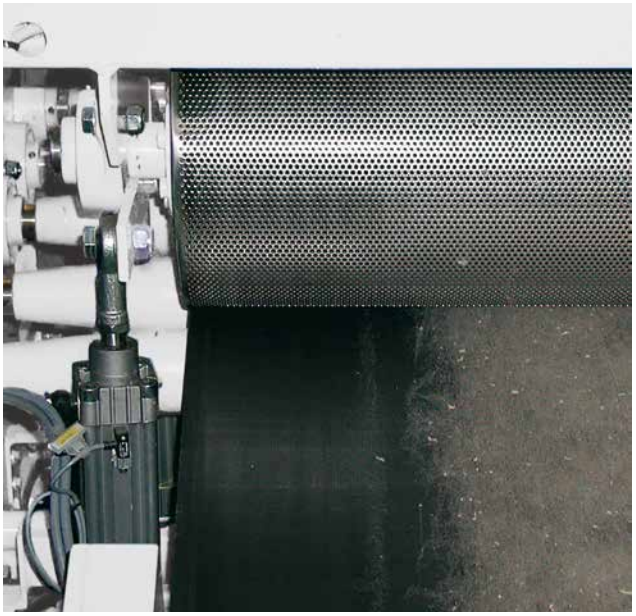
Profile controlled by WebMax –

The Key to Product Quality

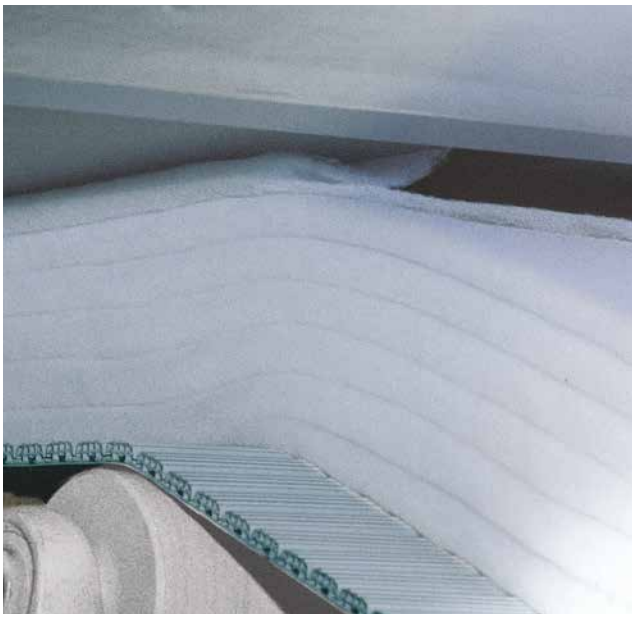
Weight accuracy in the bonded lapped web is the most requested quality feature for a modern nonwoven installation. For bonding of lapped web of any type, drafts and speed accelerations in the lapped web are necessary. Even with draft-free bonding systems, the lapped web is often being drafted in order to reach the desired bonding ratio (MD/CD) for the requested nominal weight in the final product. These drafts, however, cause a reduction in product width, the socalled material shrinkage. It is larger in the edge areas than in the center area and therefore causes an unevenness of the cross-section and the familiar heavy edges (smile profile).

With WebMax AUTEFA Solutions is presenting a system, which – together with the crosslapper of the Topliner-series – produces a counter weight profile to the smile profile on the layering belt of the crosslapper during carded web production. With this system the carded web weight is already being altered at the crosslapper infeed and via the layering carriage control, the carded web is deposited on the layering belt in a way that the lapped web weight is controllably lighter in the edge areas compared to the center areas. This concave weight profile therefore compensates the weight changes due to material shrinkage and leads to the highest possible weight evenness in the final product. With the improvement of the lapped web profile WebMax also leads to a proportional reduction of raw material consumption.

A special advantage of this system is that it relates exclusively to the crosslapper. The WebMax does not require any separate space, and can be retrofitted with a lapper of the Topliner-series. WebMax can be delivered for card web working widths of 2.0–3.5 m.

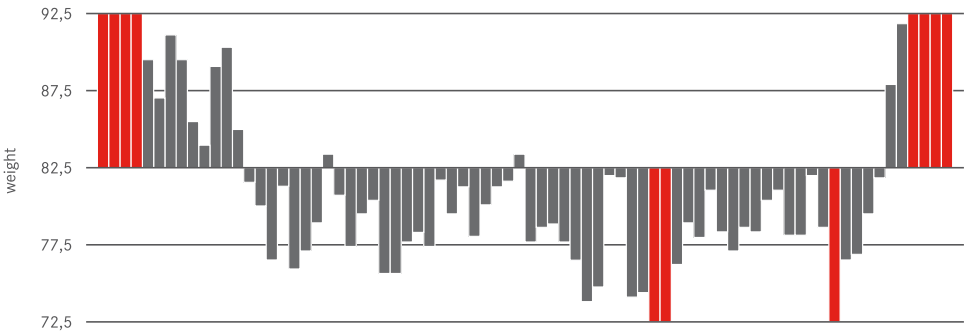


Web Infeed WebMax: The carded web weight varied depending on the layering width. The correct setting is effected either manually or fully automatically.

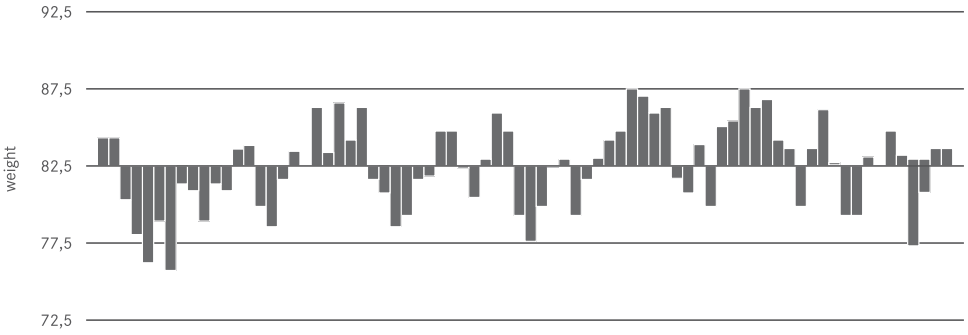


Carded Web Lapping: The precise cooperation between web infeed and web lapping ensured exact position profiling of the carded web with a straightedged layering pattern.

Profile without WebMax:
The classic weight distribution in an needled lapped web shows the typical higher weights in the edge areas.



Profile with WebMax:
The concave weight profile on the delivery belt will be compensated again by the following bonding process.



Topliner CL 4000 PF –

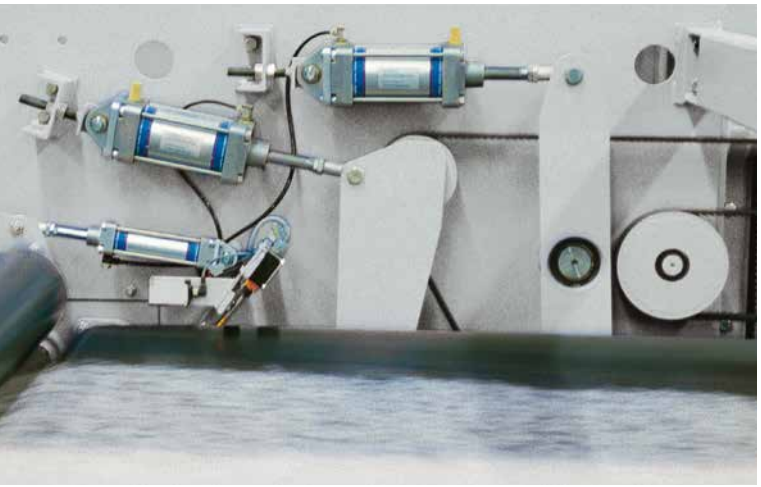
The Crosslapper for the Paper Felt Industry

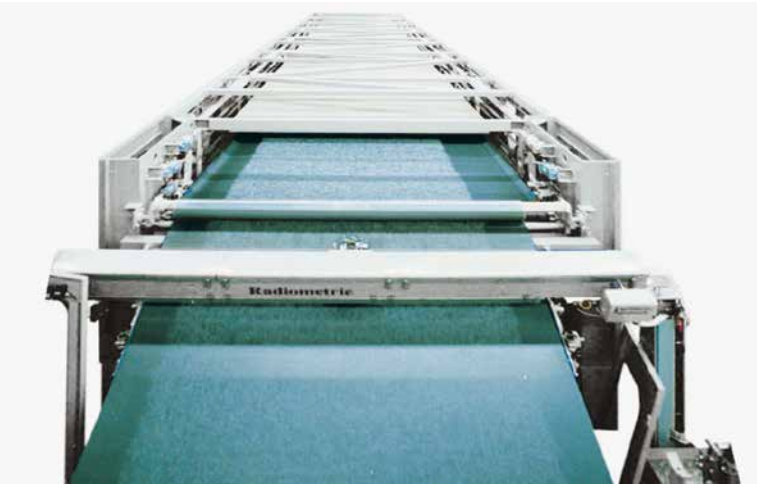
Needling felts for paper machines were and are subject to especially high quality requirements. In the past, best product results required relatively low production speeds during lapped web production.

With the Topliner CL 4000 PF AUTEFA Solutions introduced a finish-lapper to the paper felt manufacturers in the market, which is able to double the production performance. This is possible by the lapper principle of the CL 4000 with short carded web passage and a patented layering belt guidance in the laydown area. Additional supporting carriages connected with the upper and layering carriage enable a dynamical support of the lower belt ends and therefore ensure complete coverage between the carriage movements in the lapping system and the layered web. With this system very light and fragile carded web can be handled with layering speeds of more than 70 m/min together with an optimal layering pattern and layering strength.

In modern pre-needling installations there is a so-called intermediate lapper between the pre-carding machine and the fine carded web carding machine. A transportation belt is integrated to connect and provide height alignment between the delivery belt of this lapper and the infeed on the second carding machine. The intermediate lapper there fore serves as feeder for the second carding machine. In this function the intermediate lapper also is of considerable importance for the quality and evenness of the fine carded web of the second carding machine. AUTEFA Solutions recommends the Cross liner CL 2002 for this purpose. It has all technological requirements for this application, and shares control technology with the CL 4000 PF.

The Topliner CL 4000 PF can be delivered for layering widths of up to 17 m.





Crossliner CL 2002: The intermediate lapper produces optimal fiber infeed for the fine carded web carding machine.

Web Guidance: By means of the synchronous carriage movement, the carded web is brought to lapping via the front layering belt.

Topliner CL 4000 PF: The finish-lapper processes light and sensitive carded webs with high speed and at the same time ensures perfect layering strength.

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