



World Record Crew: Ruzomberok PM18

Press Release

**Mondi Business Paper Ruzomberok PM18
Single Shoe-Press runs 1600 m/min:
World Speed Record with Non-woven SSP
Special Felts from Heimbach**

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GROUP

MBP Ruzomberok PM18 Single Shoe-Press runs 1600 m/min: World Speed Record

Introduction

In September 2003 the very first machine with a single shoe-press in Europe started up at Mondi Business Paper (SCP) Ruzomberok PM18, Slovakia. At the present time ten of such machines are running world-wide. All these machines are producing fine grades.

International interest in single shoe-press technology is very great. Reasons for this include lower investment cost, less space requirement and lower operating costs.

Only two press felts are needed. Nevertheless suitable production on single shoe-presses can achieve a very high dry content and excellent paper quality equal to that on previous shoe-presses.

At the end of March, Mondi Business Paper (SCP) Ruzomberok achieved on their 7.35 m wide PM18 single shoe-press 1600 m/min – a world record (Fig.1). This speed was entirely maintained without problems.

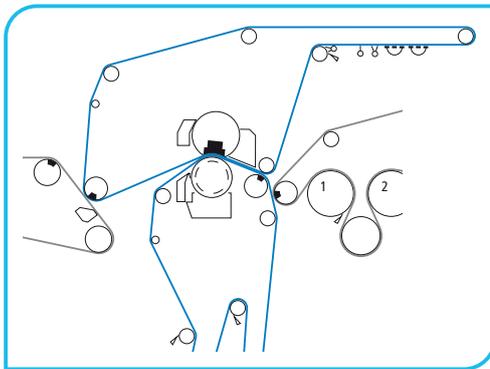


Fig.1 MBP Ruzomberok PM18 Single Shoe Press

For the operation of a single shoe-press the two press felts play an outstanding and absolutely central role.

Technical Facts

In order to obtain the special features and compatibility of the two felts for the single shoe-press, the Heimbach designers had to solve four difficult problems simultaneously:

1. The two felts alone have to dewater the enormous volumes that are normally handled on conventional fine paper machines by the first, second and third presses combined.
2. This has to take place at (almost) the same speed as on comparable machines.
3. At the same time the dewatering process has to be extremely gentle in order that the evenness of the paper fibre structure is retained.
4. The base construction and the batt surfaces – particularly the paper sides of the felts – have to be designed specifically to produce homogeneous, even paper surfaces without any marking and virtually without any two-sidedness.

In order to solve this 4-fold problem, only the non-woven ATROCROSS concept could be considered. This unwoven product, adapted in its permeability and base construction to the operating position, ensures with cross-machine orientation of its upper base layer (Fig.2 to 4) the fastest and most reliable removal of the enormous water volumes present and prevents as far as possible any rewetting. The incompressible base provides optimal saturation before the nip, creates a highly regular pressure distribution in the nip and at the same time a high level of water penetration through the base. Result: virtually one hundred percent nip-dewatering.

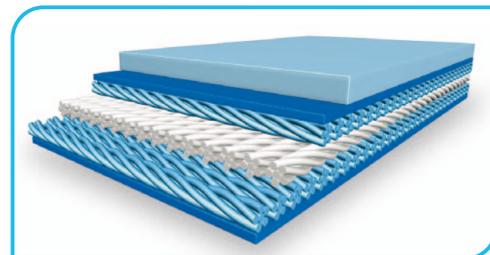


Fig.2 ATROCROSS 3-layer – Top Felt

The initial removal of water from the paper sheet as well as its transport into the felt interior is carried out by the paper side batt. Its function is on the one hand to start a fast and high volume take-up from the sheet and on the other to ensure an optimal paper surface.

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This job is performed by the top felt (Fig.2) with a stable conventional batt topped with flat fibres.

In the bottom position Heimbach supplies ATROCROSS with an ATROTOP batt surface (Fig.3 to 5). Manufactured from special fibres it is characterised by its exceptionally smooth and homogeneous nature. Technical note: This new felt surface quality is not achieved by the use of extremely fine fibres (= risk of becoming prematurely dense), but through the particular manufacturing process (Fig.6).

There is an important reason for this: The felt surface must retain its dewatering activity throughout its whole life. Also such a batt surface contributes significantly towards minimising two-sidedness and – in conjunction with the base – to evening out the CD profiles.

Case Study: World Speed Record Ruzomberok PM18

Only with the planned coordination of all the above functions can the necessary total performance of successful felts for single shoe-presses

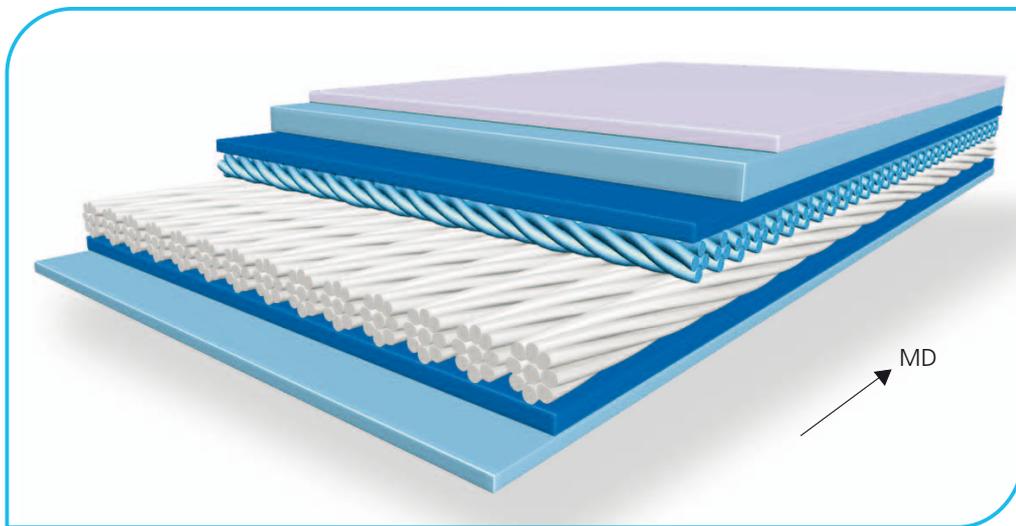


Fig.3 ATROTOP with ATROCROSS base – Bottom felt

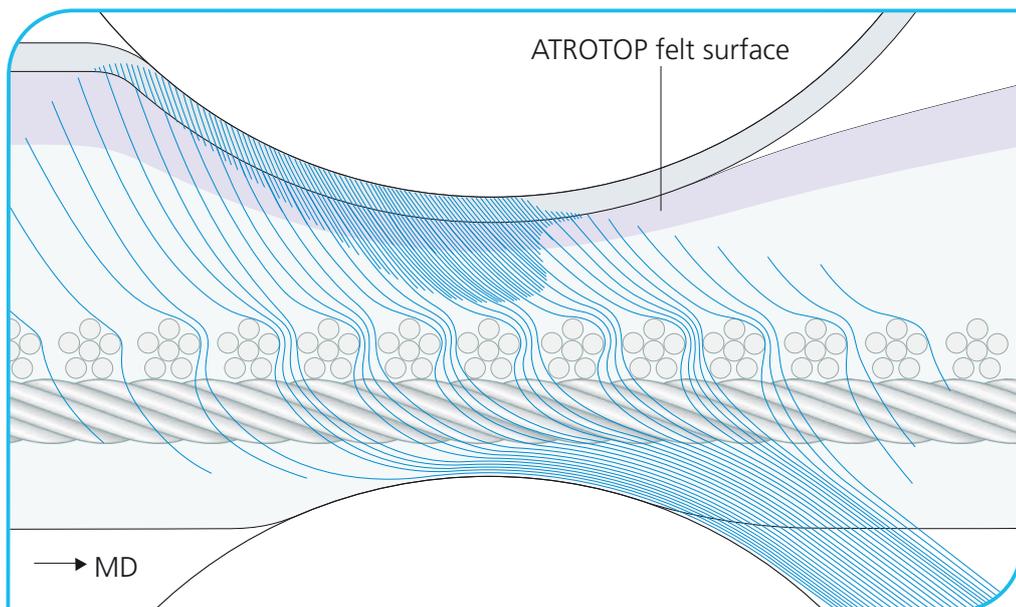


Fig.4 ATROTOP with ATROCROSS base

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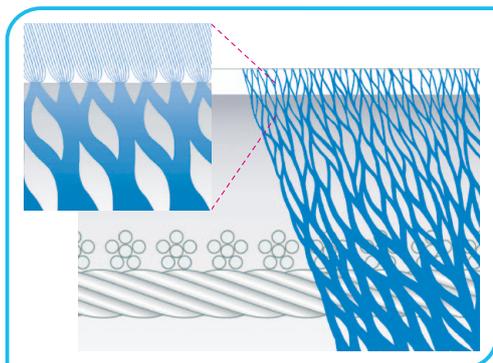


Fig.5 Fine batt surface

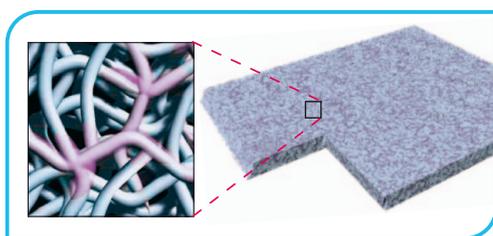


Fig.6 ATROTOP batt surface from Heimbach

be achieved. This coordination applies not only to the individual felt but to the felt pair running together – referred to by Heimbach as the “married couple”. This means that each felt in its total runnability is permanently supporting its “partner felt”.

Such an ATROCROSS “married couple” contributed to the world speed record of 1600 m/min on the 7.35 m wide Ruzomberok PM18 (80 g/m² copy paper) at Mondi Business Paper in March 2009. The speed reached was maintained absolutely trouble free.

Dry content measurements gave a sensational average of 54 % after the press section. These figures confirmed PM18 as one of the most efficient fine paper machines in the world.

“In Slovakia we have good papermakers – and we have ATROCROSS”, thus remarked Franz Aigner, Operations Manager Paper Mondi SCP a.s. Europe & International, on the success. Furthermore the world record “married couple” was the 110th pair to be run successfully on PM18.

In addition, Heimbach supplies the majority of the ten single shoe-presses world-wide with such pairs of felts.

Energy Components

Independent of the above case study the energy related saving potential of the single shoe-press felts should be mentioned:

Also the non-woven felts from Heimbach running here are reputed to create the typical steep start-up/performance curves which mean fast start and high operating speeds. Result: high productivity and more efficient utilisation of the available energy, particularly in the dryer section.

Calculation: Faster Start

If, for example, a 7.35 m wide fine paper machine (80 g/m²) as a result of a faster start can run 100 m/min faster for one day, the result is that during the start-up phase an additional production of 84.67 tonnes can be reached. At 800 EUR per tonne this gives an additional 67,730 EUR. With 15 felt changes per year that provides an additional 1,270 tonnes with a value of 1,016,000 EUR.

A further aspect of energy saving potential is in the reduced break rate. Another positive consequence of the above average high dry content after the press is the increase in the wet strength of the sheet. Such an increase leads inevitably to fewer breaks.

Calculation: Reduced Break Rate

If the paper machine in the “fast start” calculation runs for example at 1500 m/min and because of higher wet tensile strength the sheet has 100 fewer breaks per year, then at a down time of 20 minutes per break an additional production of 1,764 tonnes results, which at 800 EUR per tonne gives an additional 1,411,200 EUR. Add to this the “intermediate” advantage of more efficient energy utilisation of the heated dryer cylinders.

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Summary

This article confirms yet again the varied applications of ATROCROSS. Its modular construction is the prerequisite for its flexibility for installation in the relevant position. As the absolute fast-starter and the ultimate nip-dewaterer this Heimbach non-woven felt has proved itself more than 8,000 times – world-wide.