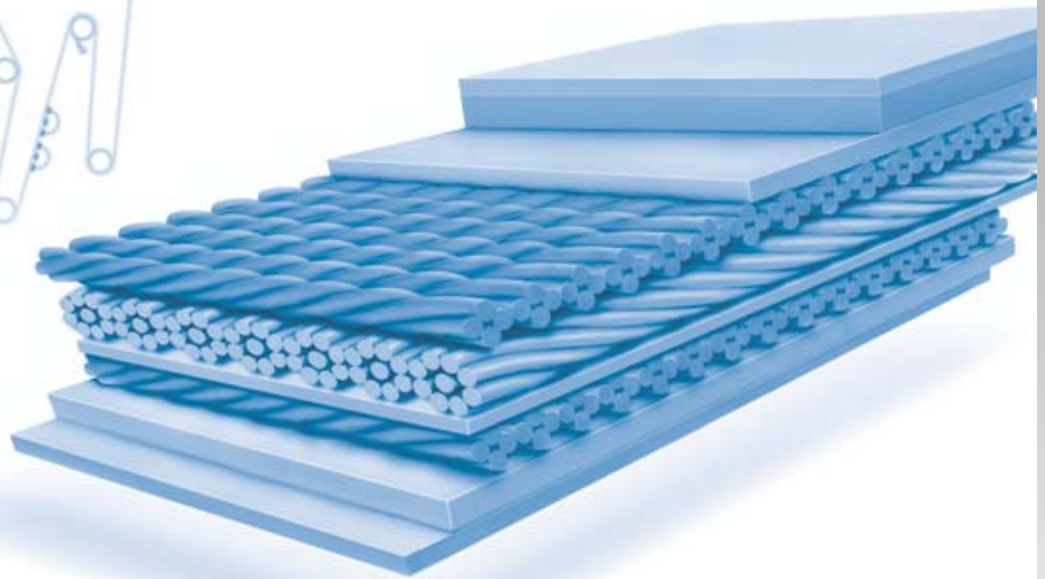


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## Single Shoe Presses on Fine Paper Machines – a Challenge to the Clothing Manufacturer



GROUP

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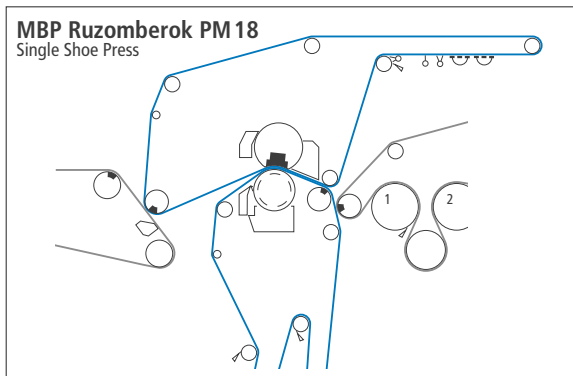
## Single Shoe Presses on Fine Paper Machines – a Challenge to the Clothing Manufacturer

The first single shoe press machines have now been running for a few years. The US market set the trend in this technology: Weyerhaeuser Johnsonburg PM5 and Weyerhaeuser Kingsport PM1 were the first to introduce the revolutionary technology exemplified by the highly simplified press section. In September 2003 the first single shoe press machine in Europe started up: Mondi Business Paper SCP Ruzumberok PM18 in Slovakia.

At present four of these machines are running world wide, two more will start up in the second half of 2005 or early 2006: Mondi Merebank PM31 in South Africa and Hankuk Onsan PM4 in South Korea. All these machines produce fine papers.

International interest in single shoe press technology is at a very high level. Reasons for this: Investment costs and space requirements are lower, only two felts are needed – and the most important factor: single shoe presses can deliver just as high a dry content combined with the same excellent paper quality as on previous shoe presses.

The clothing, particularly the two press felts, play a very important part in single shoe press operation. Based on the experience gained it can even be said that success or the lack of success of the press is heavily dependent on the suitability of these felts.



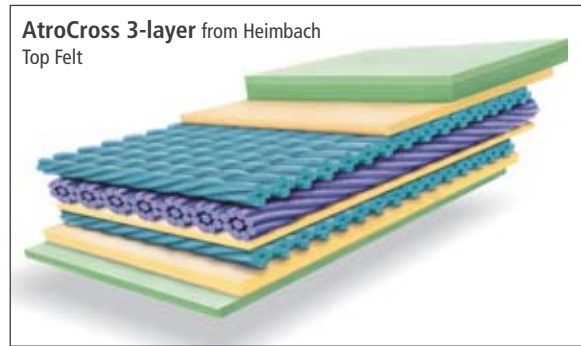
The challenge to the press felt manufacturer is the requirement for the two felts to remove an enormous amount of water and at the same time to produce a good, smooth sheet quality – and all this in a single press. This means that the felts have to be simultaneously “open” as well as “dense” – seemingly unbridgeable opposites... And on top of all this a reasonable felt life is expected.

It was clear to the designers at Heimbach from the start that the conventional woven technology on which the construction of felts had been based since the start of industrial paper making 150 years ago could in no way meet this challenge.

Following precise calculations of void volume and water balance as well as QFD (Quality Function Deployment) where customer’s needs are defined, Heimbach developed a special tailor-made felt design for single shoe presses – based on AtroCross.

The extremely successful special Heimbach felt design now used has a very fine and smooth batt surface on the paper side – for optimal smoothness values (= virtually zero two-sidedness), combined with an open non-woven base element (substrate) for the extremely rapid and reliable removal of the gigantic volume of water (= high dry content after the

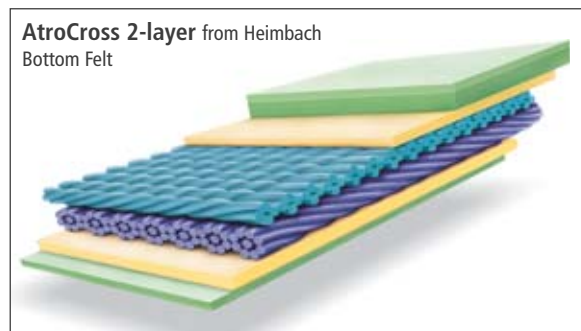
press section). With AtroCross SSP – the special design for single shoe presses, the bridging of the above mentioned opposites “density” and “openness”, is successfully achieved.



Further advantages for the efficient production process: The substrate, with upper layer CD yarns laid across MD yarns in the bottom layer, has no yarns in the Z direction. Therefore the whole felt cross-section has no weave knuckles. As a result the incompressible and very homogenous structure creates an extremely even pressure distribution with optimal saturation of the felt in the single shoe press nip. These features ensure fastest possible start-up and the necessary high dewatering throughout the whole felt life.

Proof of the functional suitability of AtroCross SSP can be found in the continuing successes on PM18 at Mondi Business Paper SCP Ruzumberok. After about a year and a half after the initial start-up it can truly be said that PM18 has exceeded all expectations. The current speed is now 1450 m/min at 80 g/m<sup>2</sup> – and the sensational dry content after the press section averages 54%.

With these results – as well as an average felt life of 3 weeks – PM18 is one of the fastest and most efficient fine paper machines world-wide. A substantial contribution to this continued success is the fact that up to now at each change



a pair (so-called “married couple”) of AtroCross SSP felts were installed. The big advantage of this is that the two felts are not only specifically designed for the demands of the single shoe press, but that they are also matched carefully to each other. That means that each AtroCross SSP felt complements and supports its “partner felt” in its total runnability. In this way excellent sheet CD moisture profiles, two-sidedness differences of virtually nil and in total superb paper quality was achieved.

Recently the 25<sup>th</sup> set of AtroCross SSP (“married couple”) since the start-up was installed on PM18.

Heimbach congratulates Mondi Business Paper SCP Ruzumberok and the crews of PM18 on their great and continued success with the new press technology and are proud to have been able to make a contribution.

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