E-Flex – the new generation of press fabrics

Maximum dewatering performance from start to finish

E-Flex provides better paper quality, immediate startup of the newly installed press fabric as well as higher nip dewatering and corresponding dry content. A number of well-known paper manufacturers are using the structurally optimized felt in their presses to achieve these benefits.

It was the desire for better surfaces for high-quality board grades that spurred the Research and Development department to reconsider the structure of press felts. The result is E-Flex, a breakthrough in the position-specific design of press felts. The dewatering performance is provided from the beginning, due to the extremely uniform surface structure of the felt and the associated pore volume distribution.

Constant performance

This is achieved by targeted placement of polymer particles, which keep the felt characteristics constant over the entire running time. The polymer treatment penetrates into the pores of the batt structure making them more homogeneous. An extremely high contact surface to the paper web is the result. This also controls uniform transmission of press loading in the nip. The integrated polymers perfectly bind the batt fibers and thus prevent abrasion-related fiber losses. The felt surface is preserved, pressure transmission is uniform and there is an extremely large contact surface to the paper. Optimizing the microstructure of a felt means less contamination can penetrate it. Cleaning with high pressure showers can therefore be carried out at reduced pressure, which in turn helps to preserve the felt surface. In addition, the porosity and dewatering behavior hardly change.

The performance of E-Flex remains constant over its running time. The result is constantly high dewatering with corresponding dry content. And since the added polymer particles give the felt structure long-lasting elasticity, longer running times can be attained, compared to standard felts.

So, with E-Flex, the operating lives in the test position in a board machine were nearly doubled in only a short time from the launch. In the case of a fast-running graphic paper machine, the life was extended by approximately 25%. The goal of a 33% increase is within reach. Along with an increase in running time, the improved dewatering performance remains in focus. In combination with

suitably optimized polyurethane roll covers for the suction press roll (SolarFlow), increases in dry content of more than 1% can be achieved. Most papermakers using E-Flex report maximum dewatering rates immediately after startup.

Broad range covered

These results show that the structural optimization undertaken with E-Flex enables it to be used in a broad range of paper manufacturing applications. E-Flex thus not only facilitates improvements in manufacturing for special paper or board, but also for fast, high-performance graphic machines.

The polymer structure with an improved rebound capacity of the felt gives stable dewatering characteristics over the entire running time. The optimally set pore volume controls the flow of water into and through the felt to the press roll cover or shoe press belt. Upon leaving the press nip, the polymer structure of the felt prevents water from flowing back to the fine capillaries of the paper and thus re-wetting it. The structural optimization by means of polymers can be worked into various levels of the press felt, depending on the characteristics that are to be achieved or optimized. Of course, the respective press position or paper grade also prescribes the way a felt is constructed.

The paper side or the coarse batt layers can be modified with polymer particles. But this also applies to the basic structures and – if the requirement demands it – to the side of the felt not in contact with the paper.

The manner in which the polymers are placed or applied is extremely uniform. As the particles do not just remain on the felt structure but actually penetrate into it, proper treatment creates a three-dimensional network. This gives E-Flex long-lasting elasticity – the key to constant felt characteristics. Together with the newly developed AquaFlow and SolarFlow polyurethane suction press roll covers, synergy components were created for a highly efficient press section.

On Focus: E-Flex

ProEnvironment	++++
ProRunability	++++
ProQuality	++++
ProSpeed	++++

Section: Press

Paper grade: Graphic papers, board, packaging papers

Contact

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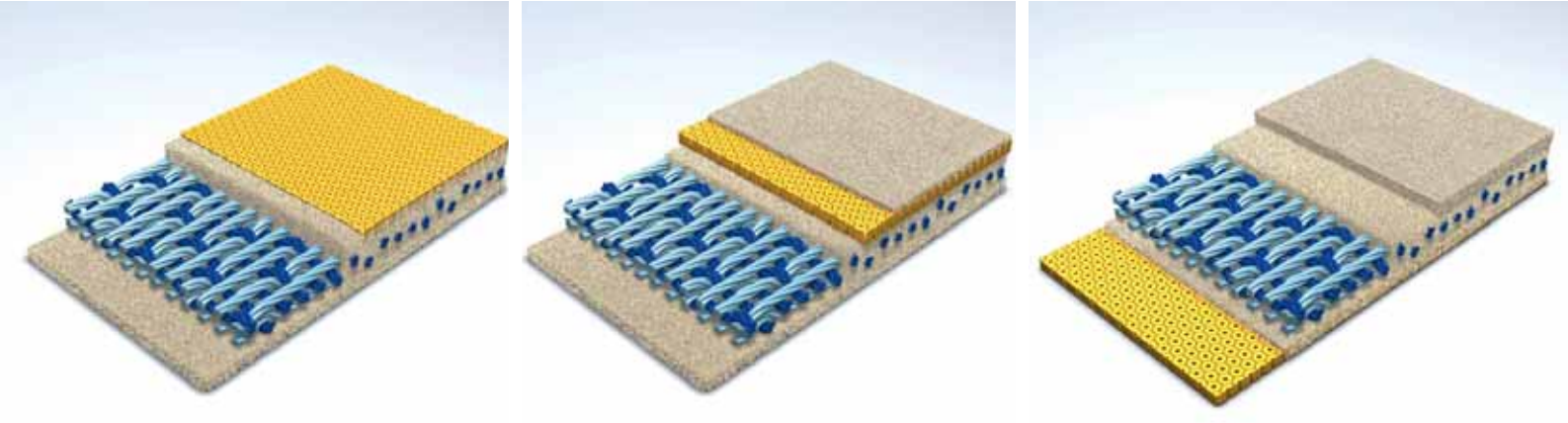

E-Flex in different designs with position-specific polymer structure.