Maximum dewatering plus energy savings

Franz Kiefer, Strategic Product Manager Pressing, Heimbach

INTRODUCTION:

Faced with a backdrop of spiralling energy costs paper manufacturers are more than ever confronted with the difficult task of keeping the cost of production as low as possible. The motto is – less energy, more productivity. The implication of this is that paper machines have to be pushed to their performance limits: High machine availability, optimum runnability and maximum possible speed are the focus. A top priority in achieving these goals would normally be to obtain maximum dry content coming out of the press section. This, of course, places high expectations on the performance of press felts. Atromaxx and Atromaxx.Connect from the NewTech product portfolio are well placed to satisfy these expectations.

The concept is based around multi-axial carrier modules providing a structure that is essentially incompressible. On the one hand, this allows a designated void volume to be maintained throughout the lifetime of the felt, whilst on the other hand the open drainage channels are able to handle large volumes of water. The result: exceptionally high dry content!

Thanks to its modular design, Atromaxx is highly versatile in terms of paper grade application as well as speed range and, combined with a suitable non-woven layer , should be suitable for every machine and nip configuration.

Turn off Uhle boxes

Nip dewatering can come into play when machine speeds exceed 600 m/min, making it possible to reduce – or even completely switch off – vacuum in felt suction boxes. When this occurs, the door is opened to huge energy savings. A prerequisite for this would be an individually designed and precisely matched press felt design such as Atromaxx, whereby higher dry content, better runnability and faster start-up can be realised. Numerous references provide compelling confirmation of this.

Unmatched flexibility

The dewatering behaviour of a press felt is significantly influenced by machine speed, pressure pulse and felt saturation level. So, at speeds below 600 m/min nip dewatering is more or less impossible. Even under these conditions, however, Atromaxx can achieve considerable dry content values. This flexible design can come into its own on machines where, depending on paper grade, speed fluctuations necessitate switching between nip and suction box dewatering.

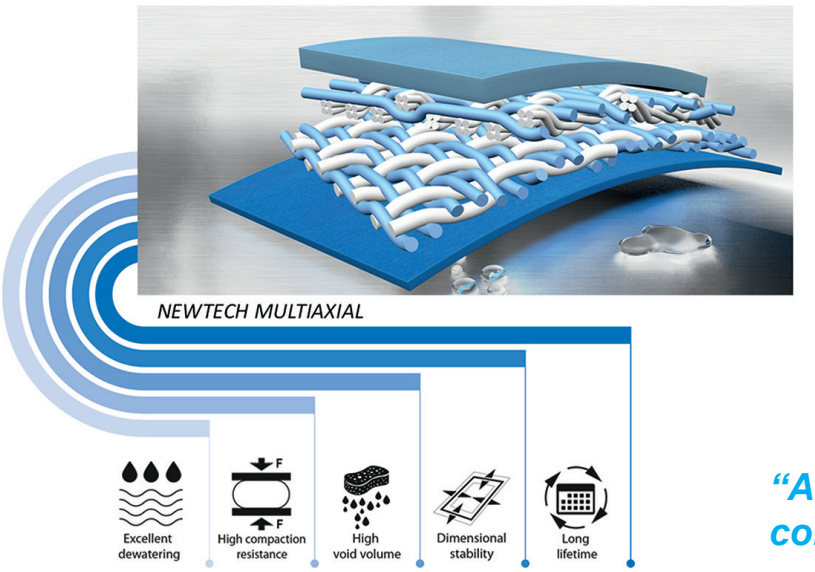
Safe and fast

The outstanding properties of conventional Atromaxx are certainly replicated in the seamed version of the felt. Atromaxx. Connect can be installed quickly and safely while requiring few personnel and brings the additional benefit of drainage values that conventional seamed felts cannot match. High speeds are no problem either, as the seam area and seam itself are designed with this in mind.

The Atromaxx family - Product Features

Multiaxial felt

- **Modular construction: Combination of totally different base properties possible within one felt**
- **Outstanding compaction resistance due to multiaxial structure**
- **Outstanding void volume retention**
- **Absorption of huge amounts of water**
- **Excellent dewatering throughout felt lifetime**
- **High stability**
- **Operation modes for nip and uhle-box dewatering**
- **Applicable for all paper grades**



atromaxx.

"High machine efficiency, optimum runnability and maximum possible speed are the focus."

"A top priority is maximum dry content after the press."

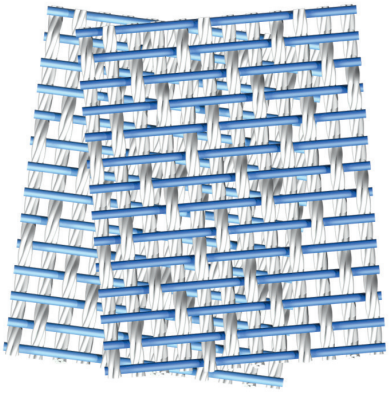


Figure 1: Combination twisted / twisted

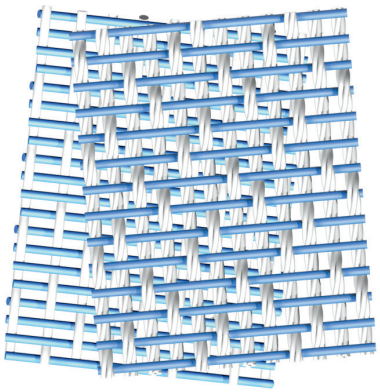


Figure 2: Combination twisted / mono

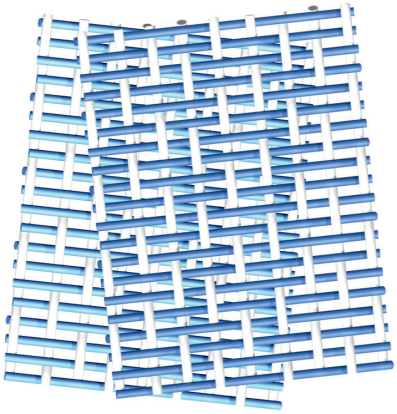
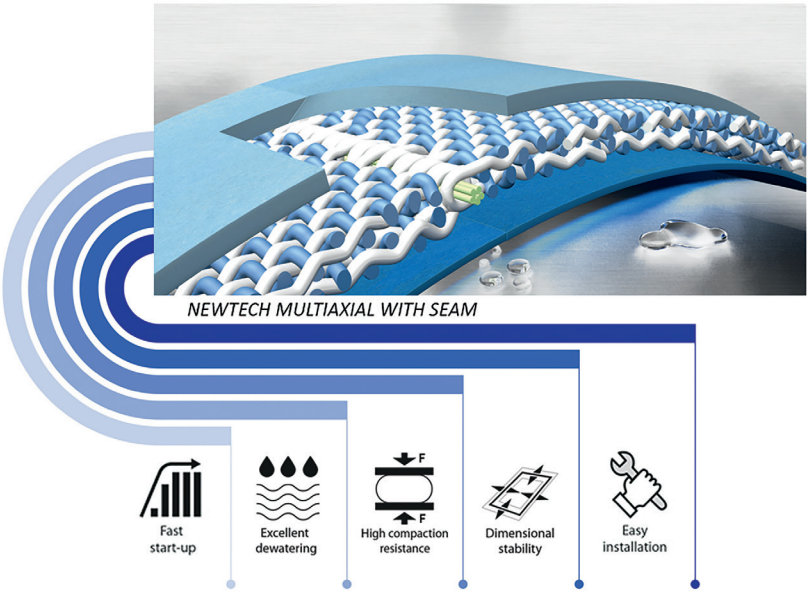


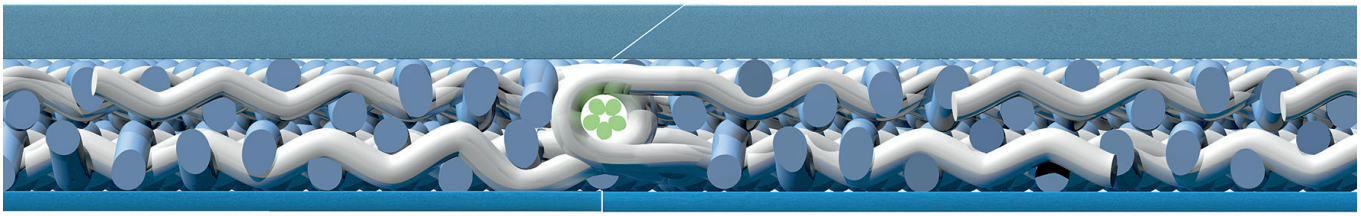
Figure 3: Combination mono / mono

Atromaxx.Connect – the seamed version offers the same dewatering performance with safe and fast installation



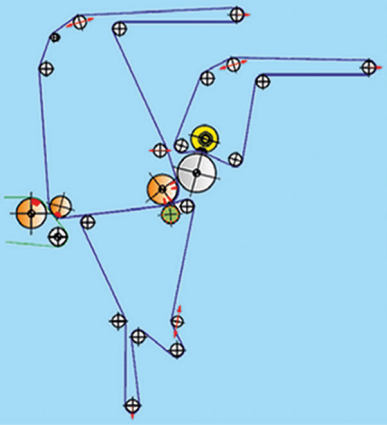
atromaxx. CONNECT

Atromaxx.Connect cross section



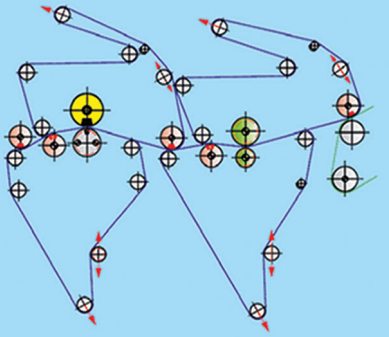
References Atromaxx and Atromaxx.Connect

Reference 1



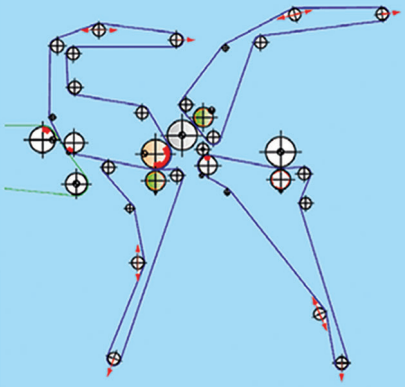
Configuration: Tri-Nip
Speed: 800 m/min
Width: 4,00 m
Paper grade: Special fine paper
Position: Pick-up,
3rd shoe press: Atromaxx
1st press bottom: Atromaxx.Connect
Results: Significant efficiency increase up to 86%. Clear energy savings achieved by switching off felt suction box. Additional advantages: reduced breaks, improved runnability

Reference 2



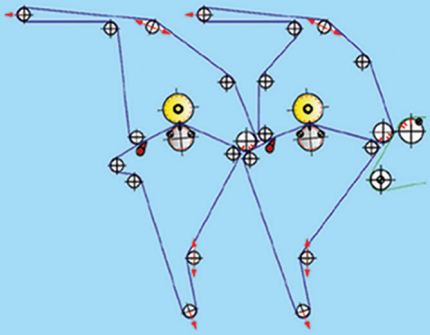
Configuration: Optipress
Speed: 1.200 m/min
Width: 10,50 m
Paper grade: Fluting
Position: 1st press bottom/
2nd press top & bottom: Atromaxx
Results: 56% dryness leaving press section, 16-20% energy saving

Reference 3

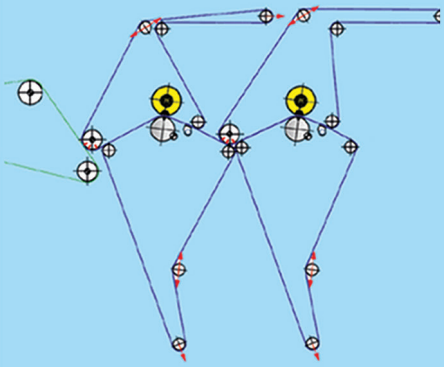


Configuration: Tri-Nip + 4th press
Speed: 950 m/min
Width: 4,50 m
Paper grade: Thermal paper
Position: 4th press: Atromaxx
Results: 50% fewer breaks, more efficient dewatering

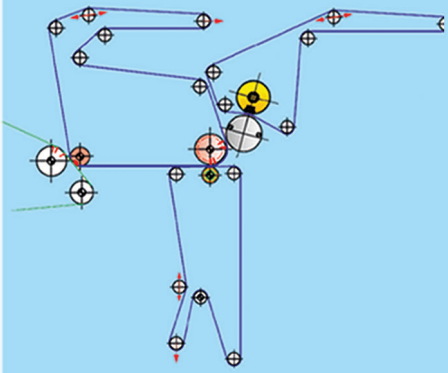
Reference 4



Reference 5

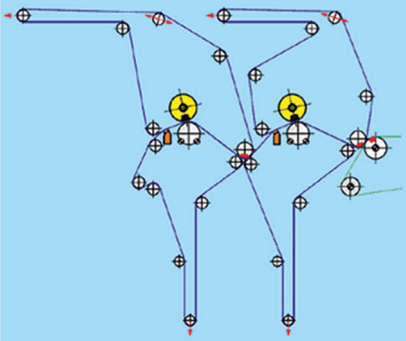


Reference 6



Configuration: Optipress
Speed: 900 m/min
Width: 7,00 m
Paper grade: Folding Box Board
Position: 1st press top/bottom Atromaxx
Results: Improved moisture profiles, production record

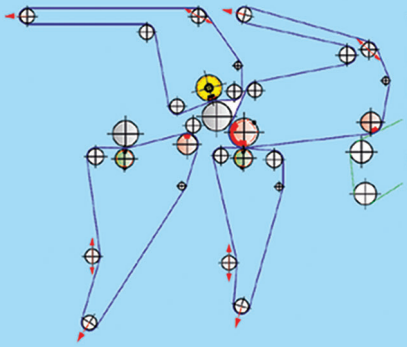
Reference 7



Configuration: Tandem NipcoFlex
Speed: 900 m/min
Width: 7,40 m
Papiersorte: Kraftliner
Position: 2nd press top/bottom: Atromaxx
Results: Very good start-up, longer lifetime compared to competitors

Configuration: Tandem NipcoFlex
Speed: 1.200 m/min
Width: 7,30 m
Paper grade: Fluting
Position: 2nd press: Atromaxx
Results: Faster start-up, improved paper characteristics

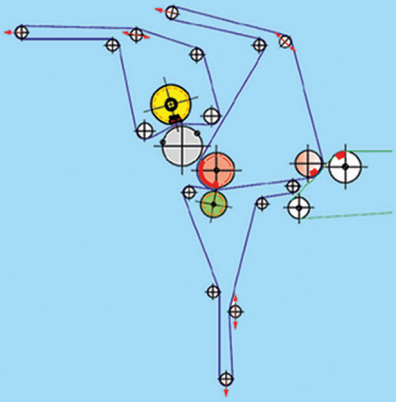
Reference 8



Configuration: Tri-Nip with shoe press + 4th press
Speed: 1900 m/min
Width: 10,50 m
Paper grade: Newsprint
Position: Pick-up: Atromaxx
Results: Fast start-up, good dewatering and runnability throughout felt lifetime

Configuration: Tri-Nip with shoe press
Speed: 1.100 m/min
Width: 5,20 m
Paper grade: Release paper
Position: 1st press: Atromaxx.Connect
Results: Fast seam closing, completely marking-free

Reference 9



Configuration: Tri-Nip with shoe press
Speed: 950 m/min
Width: 5,50 m
Paper grade: Fluting
Position: Pick-up/1st press, 3rd press: Atromaxx.Connect
Results: Perfect performance in all three positions