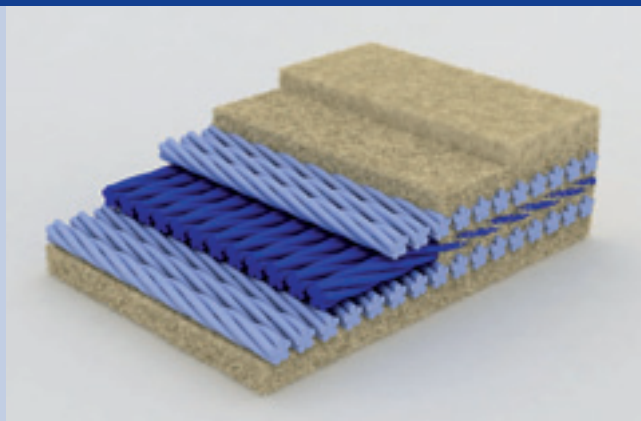


PrintFlex O2 Planar



PrintFlex O3 Planar

One more step in the development of non-woven press fabrics

## Combining established and new technology

**Voith Paper Fabrics takes another major step towards extending the application range for non-woven press fabrics. In the new press fabric concept non-woven yarn systems are combined with and integrated in other exclusive components offering unique press fabric properties.**

Double- or multi-layered non-woven press fabrics have been marketed for about 15 years and are today established standard products for many press section configurations, especially on graphic machines.

Compared with conventionally woven base structures, the non-woven concept has several clear advantages as, even pressure distribution thanks to the lack of yarn crossing points and faster startup due to the low initial pore volume.

The low void volume of the base structure and the lack of yarns in the Z-direction limit however the compaction resistance of products currently on the market and thus prevents them to be used in all kind of positions in the press section.

With the unique combination of Voith Paper Fabrics Vector and Spectra components with length and cross-directional yarn systems, the range of applications for non-woven products can be extended to such an extent that they can now be used on virtually all press positions.

### **Integrated components – Vector**

With the introduction of Vector technology by Voith Paper Fabrics some years ago, an important step in the development of new press fabric components was taken. The Vector layer's three-dimensional structure is unique as it combines the marking free properties of non-woven components with high compaction resistance and high elasticity in the Z-direction.

Vector – in combination with all types of basic fabrics – contributes to:

- Higher wear resistance due to a stronger fiber bond
- Optimized surface characteristics due to excellent bridging of the base structure
- Higher compaction resistance in the Z-direction
- Reduced flow resistance for more effective dewatering.

Vector modules can be combined successfully with yarn layers in different directions, and thus the above characteristics can also be transferred to non-woven fabrics. Vector provides in combination with woven components improved compaction resistance. The same advantages are achieved with PrintFlex V Planar and thus the fabric properties are much better retained through the whole life.

**Integrated components – Vector with weft yarn**

As a further development step, Voith Paper Fabrics can integrate a MD yarn system into the Vector component through a unique manufacturing process.

In addition to the characteristics listed above, the plied monofilaments in the machine direction serve for a greater tensile strength, which en-

ables use as a stand-alone component that in turn can be successfully combined with one or more cross-directional yarn structures.

**Elastomer technology**

Since introduction of elastomer technology as a complement to conventional woven structures, Voith Paper Fabrics was able to maintain its market-leading position for membrane fabrics, and even extend its lead.

Polyurethane membranes have the following advantages compared to conventional press fabrics:

- Improved dimensional stability
- Higher dry content due to higher compressibility and fast expansion after the press nip (lower re-wet)
- Faster startup thanks to excellent compressibility of the fabric
- Excellent vibration resistance
- Very well retained properties through the whole life due to the unique material characteristics of polyurethane.

The illustration shows how well the polyurethane membrane keeps its thickness and shape after the record run in a fourth press (1,650 m/min, grooved steel bottom roll, line load 140 kN/m). The ability of polyurethane to maintain its characteristics is

the key to the success Voith has achieved worldwide with this fabric type on fast-running graphical paper machines.

The elastomer technology proves especially successful in extremely demanding positions where conventionally structured fabrics quickly compress due to high line forces, hard rolls and high speeds. This can result in vibration problems and short fabric life. The picture of the polyurethane membrane shows an example of how the Spectra elastomer technology contributed in reducing vibrations and thus improves runnability in a high speed paper machine.

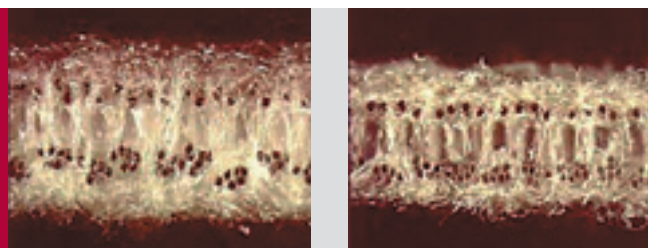
**Elastomer technology in combination with non-woven yarn structures**

The possible combination of differently oriented non-woven yarn layers with a polyurethane membrane, or the Vector technology, offers the advantages of two different concepts combined in the same press fabric design.

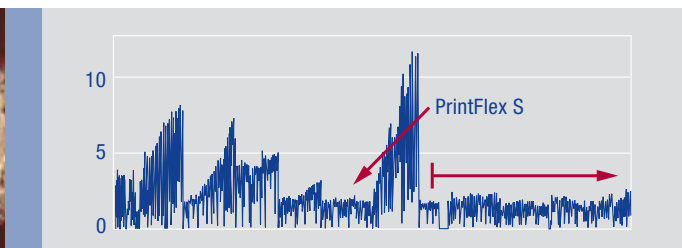
The lower void volume of non-woven fabrics combined with the high compressibility of the polyurethane membrane speeds up the startup even further compared to other fabric concepts. In positions where current

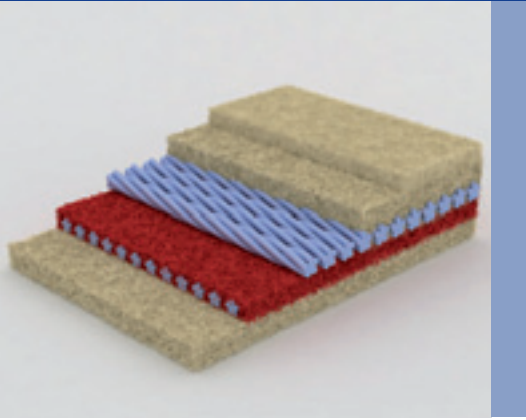
New polyurethane membrane

After use



Vibration reduction using Spectra elastomer technology





PrintFlex V2 Planar

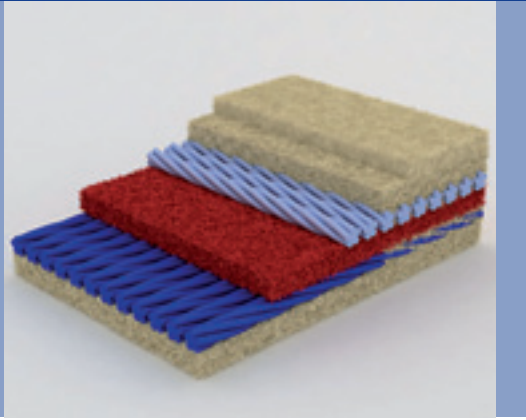
non-woven structures offer too low compaction resistance and thus cause vibrations, the membrane technology now allows for the advantages of non-woven fabrics to be utilized.

In several positions where membrane fabrics with woven basic components successfully have been used, a change was made to non-woven versions. The performance of the machines was thus increased even further.

**Reduced risk of roll and sleeve pattern marking**

Thanks to the shared resources offered by the Voith Group, product characteristics can be evaluated at an early phase and possible issues can be addressed in due course.

Traditional non-woven fabric concepts with their low initial void vol-

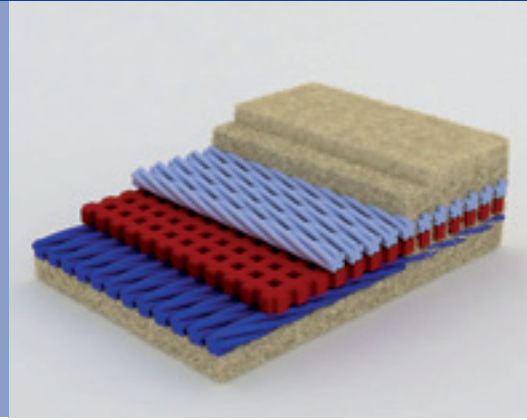


PrintFlex V3 Planar

ume are relatively often successfully used in shoe presses. Depending on the paper type and its weight, the surface structure of the shoe press sleeve can leave markings. In cooperation with the Voith Paper QualiFlex department, studies with different fabric types were conducted to determine the probabilities of structured press cover surfaces to leave markings. The result clearly showed that non-woven fabrics with Vector or Spectra components greatly reduce the risk of markings considerably compared to standard non-woven fabric types currently on the market. The differences become even more pronounced when comparing fabrics that have been run in the paper machine.

**Summary**

Voith Paper Fabrics offers the first-ever complete product range of non-



PrintFlex S3 Planar

woven press fabric products with its development of new, integrated press fabric components and unique combinations of non-woven structures from different materials with different characteristics:

**PrintFlex O2 Planar**

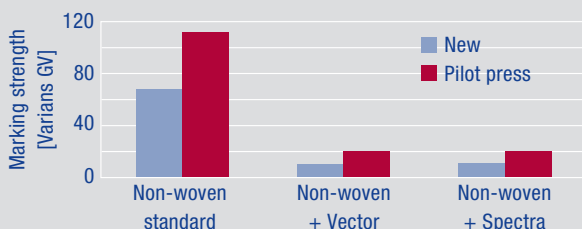
PrintFlex O2 Planar runs ideally on lower press loadings and mainly supplies graphical shoe presses.

**PrintFlex V3 Planar**

The open structure of PrintFlex V3 Planar is suited for higher press loadings with enlarged water outcome. In addition, the integrated Vector technology enables optimal cleaning.

**PrintFlex S3 Planar**

PrintFlex S3 Planar ideally runs on vibration-prone positions with higher press loadings. The unique Spectra Module is able to compensate for machine-related failures and irregularities in most areas.



Shadow markings from grooved shoe press sleeve

**Contact**



**Anders Nord**  
 Fabrics  
 anders.nord@voith.com