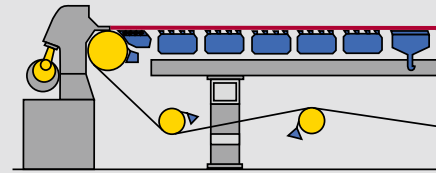




The eight shaft structure on the machine side.



PrintForm HR – Developed for "hybrid" formers such as the DuoFormer D.

Forming fabric PrintForm/MultiForm HR

## Forming a quality sheet on a robust fabric, the perfect combination

**Type HR forming fabrics create new possibilities for paper and board producers: they provide long life potential and contribute decisively to paper quality.**

The PrintForm HR has proven itself to be versatile in terms of the paper grades it produces and the machine configurations on which it can run. On graphical grades, its successes include a growing number of Hybrid formers, often prolonging the fabric life despite the increased use of abrasive fillers and high forming blade pressures.

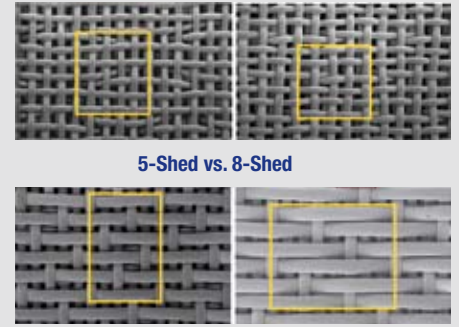
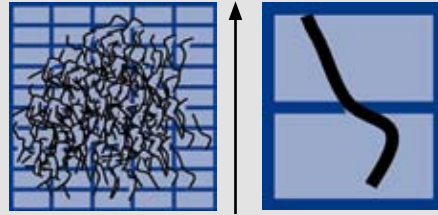
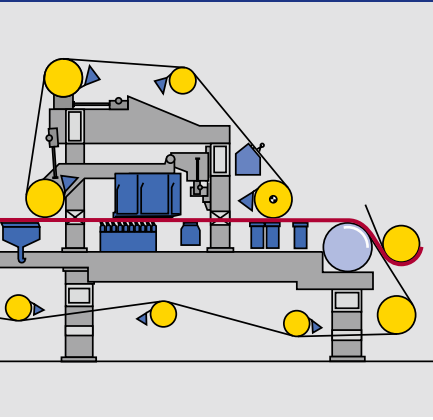
In the packaging sector the MultiForm HR has regularly performed at speeds over 1,300 mpm on gap formers, its robust structure standing up to the extreme drainage conditions. On board machines, MultiForm HR has produced some of the most critical grades in the world in terms of smoothness and visual properties.

### The development process

There is a growing number of Hybrid formers used in the market. The DuoFormer D produces a wide range of graphic paper grades often with large amounts of abrasive fillers.

Visual and surface printing properties are increasingly critical in the Board & Packaging sector, for example on bleached, folding box and white lined chip boards.

High-speed gap formers, such as the DuoFormer Base, produce packaging grades that require fabrics with increased stability that also counter pressure from extreme water flows yet maintain solids in the sheet despite



Open warp structure and sheet support mechanism.

Paper side (top) and machine side (below), both as 3:2 ratio.

the increased use of shorter recycled fibers.

The industry required a robust Sheet Support Binder (SSB) fabric which provides a wide operating window for paper quality, clean running and prolonged running time. The development targets for such a fabric were:

- Increased resistance to abrasion on the machine side
- High-drainage capacity but with excellent CD stability.
- High-sheet support, similar to the levels seen on “fine” SSB designs

The PrintForm HQ is already proven on graphic machines often at world record speeds. The design concept

of an open warp and denser weft has shown that drainage can be optimized through maintaining an open surface area and that retention can be improved through improved bridging of the MD-orientated fibers. The PrintForm HR takes this concept to the next level. Maintaining an open warp structure allows increased paper side CD yarns and maximum sheet support.

The open warp structure also allows coarser yarns on the machine side increasing the stability and resistance to abrasion through improved warp burial. The use of 16 shaft structures has been used to good effect in multilayer fabrics to increase their life. Using an eight shaft structure on the

machine side, the HR has an increased the float length by 7.6% compared to the 16 shaft multilayer and 9.3% from a conventional SSB having a five shaft machine side weave.

**Benchmarking the project**

Benchmarked against a fine five shaft SSB design with similar permeability and machine side yarn diameter, the HR matches sheet support properties (SP & FSI) on the paper side.

The yellow colored squares show the paper-side structure of the HR is close to the benchmark whilst the machine side is more robust. The combination of larger yarns and the eight shaft structure provides increased resistance to CD bending stiffness. The

Abrasion Resistance Index (ARI) shows the potential for extended running life on the machine.

**Benefits to the customer**

The target features of the fabric were achieved. The range of variables includes different weft ratio and weft yarn diameters which allow the design to be considered for a wide range of applications. The benefits to the customer are:

- Exceptional retention of solids and minimum marking through the high sheet support
- Unparalleled formation through use of different weft ratios which can control the dewatering
- Long life potential through the eight shaft yarn float and larger diameters on the machine side
- Solid sheet profiles through improved resistance to CD bending stiffness

**Proof of the benefits**

Yanzhou Zhongtian China started up their PM 21 with a Voith DuoFormer D, in March 2007 with Voith clothing on all sections of the machine. With a

design speed of 1,300 m/min the machine produces graphic paper.

PrintForm HR provides controlled dewatering on the bottom forming position ensuring ideal stock consistency into the DuoFormer D and contributed to excellent formation results. The robust fabric structure continues to increase the life potential and the last fabric, having achieved a record life, had a further 20% remaining from the laboratory report.

The PrintForm HR on the bottom position is run in combination with the HQ on the DuoFormer.

This combination is said by the customer to provide improved two sidedness and first pass retention.

**Conclusion**

The demand for PrintForm and MultiForm HR continues to grow at an exceptional pace and its versatility is benefiting a wide range of applications.

**Customer Comment**



**Jason Macreadie**  
Superintendent,  
Amcor Botany B7

In Australia, Amcor Botany B7 is a Fourdrinier machine producing corrugating medium. It has specific needs in terms of controlled dewatering in the initial forming zone and low draws off the couch. Jason Macreadie, B7 Superintendent states, "The trial period gave improvements in all required categories, the greatest being formation. There was a step change in runability and a reduced couch draw gave the ability to go faster. The fabric was removed as planned and the life met our expectations. The technical assistance leading up to the trial ensured success of the MultiForm HR. Overall a very successful trial which has now become the benchmark."

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Development target compared to the benchmark SSB.

