

One Platform Concept

For years, the paper industry has generated a steady stream of numerous innovations. According to surveys, Voith Paper is the most innovative paper machine manufacturer in the world. There is no end to the creativity and drive at Voith Paper – there are plenty of ideas – but “Innovation takes methodology”.

History

Voith Paper had already been building large, fast and productive paper machines in the past.

Braviken PM 53 (1996 series) was the first paper machine in the world that could exceed 1,800 m/min – thanks to the shoe press.



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Bernhard Kohl,
Paper Machines Graphic*

Gratkorn 11 (Triple Star) was designed in 1997 for an annual production of 470,000 t and is, therefore, still the highest-capacity fine paper machine in the world.

With *Dagang PM 1* and *PM 2* in China, 1998 saw the delivery of the widest paper machines in the world, with a wire width of 10.5 m.

These three global references document the state-of-the-art in the years 1996 to 1998. It is clear how new developments were introduced piece by piece.

Challenge

Paper manufacturing is a complex process, which must continuously meet new demands. In many regions of the world, the increased use of secondary fibers is required; while on the other hand, it is clear that the quality of recovered paper for recycling is decreasing. The paper types are also undergoing constant change.

In order to reduce costs, ever-increasing amounts of filler are used and, at the same time, the basis weight is diminishing. Ever-higher yields and faster production are expected using ever-decreasing amounts of fiber. The fact that quality demands are simultaneously increasing is not surprising. This all creates enormous pressure to innovate, which can only be successfully responded to through a

systematic development, the One Platform Concept.

The demands mentioned above cannot be met simply by building faster and more complex paper machines. These demands can only be met if the paper manufacturing process is analyzed in context and comprehensive solutions are developed. The following examples show how complex the interrelationships are.

Two Examples of Challenges

1. Example: Use of Recovered Paper for Recycling

Voith Paper can, without reservation, be called a leader in secondary fiber preparation. Voith Paper has a long history of experience in the design and outfitting of secondary fiber preparation facilities (dispersion, flotation and sorting), but who decides how the finished prepared stock must look?

- How many dirt specks are permissible?
- How much ash is needed?
- How is the calenderability?
- How suitable is it for coating?
- Or, is this the maximum yield?

All of these questions can only be answered in the overall context of the manufacturing process and the end quality requirements. This is precisely where the One Platform Concept begins.

2. Example: Base Paper Requirements

A second example says: “In order to produce standard LWC paper, which is film-coated and calendered online, what condition does the base paper have to be in?” It is not enough to define values such as breaking length, smoothness, oil absorption or porosity. The entire process must be reanalyzed. Stock preparation, post refining and base paper production have to be viewed in context and occasionally must also be tested. The result, however, can only be evaluated in paper which has been coated, calendered and printed.

The fundamental principle of the One Platform Concept is to view the individual steps in context.

The Three Basic Rules

■ **One platform for all graphic paper grades**

In order to permit a comprehensive development for a broad application field, there must be only one platform.

■ **Specific modules for the specific paper grades**

In order to cover the specific requirements of individual paper grades, there are uniform quality modules that are built into this platform:

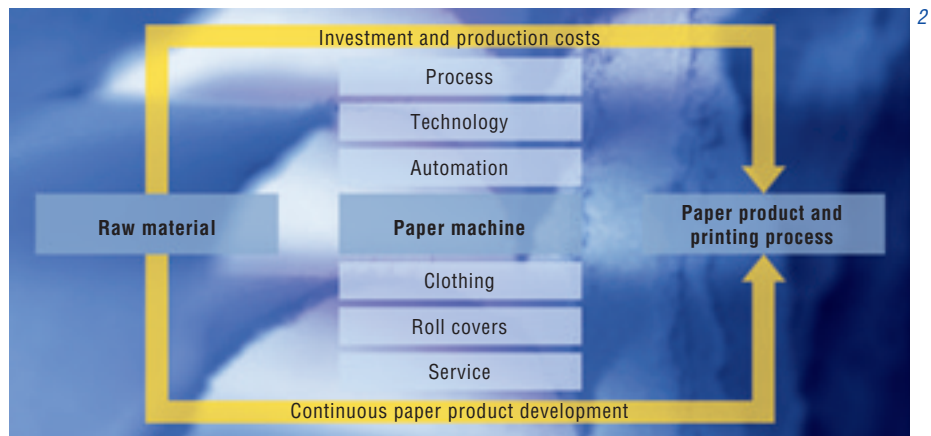
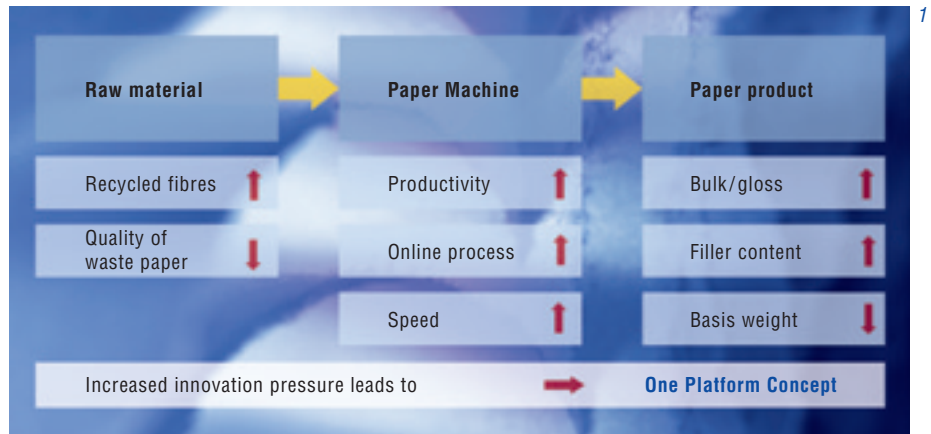
1. Paper Contact Systems (clothing, roll covers, special machine elements)
2. Process Control

■ **Suitable for all raw materials**

The One Platform Concept must be suitable for all available raw materials.

Fig. 1: Challenges to the One Platform Concept.

Fig. 2: Extent of the One Platform Concept.



Definition

The One Platform Concept means the comprehensive solution of the stated goal – the production of paper.

This includes:

1. A paper machine with all of the steps (from stock preparation to finishing)
2. Automation of the entire facility
3. Paper technology know-how

4. Optimization of the process
5. All paper-influencing surfaces (clothing, coatings)
6. And comprehensive service concepts.

What is special about this challenge is the dynamics of the stated goal. Demands from the raw materials, market producers and financial markets lead to ever changing peripheral conditions, which must be considered at each start for a solution.

*This is what new paper machines look like!
The persistent implementation of experience with the One Platform Concept puts Voith Paper in a position to offer optimal paper machines for any desired type of paper.*

Advantages

If all paper machines are built in accordance with the One Platform Concept, a maximum of experience assures a minimum of risk. This experience, from all of the One Platform Concepts, is immediately available to all.

Operating experience from existing facilities can be used to further optimize individual components and developments. Experience from new facilities can be used to increase the capacity of existing facilities that were placed in service earlier.

At the same time, this accumulated experience leads to improved production facilities with faster start-ups and higher production.

As a whole, the One Platform Concept improves economy and simultaneously minimizes risks in all investments.

The Proven Concept

With all of this experience in several facilities for a wide variety of graphic papers, Voith Paper is in a position to offer a proven One Platform Concept.

This cumulative experience was the basis for the trust that convinced SCA Laakirchen and Myllykoski to each order a new paper machine using the One Platform Concept from Voith Paper.

Newsprint

Based on the above-mentioned elements, ModuleJet™, DuoFormer™ TQv, TopDuoRun, EcoSoft™ and Sirius™, the Tandem-NipcoFlex™ offers an additional degree of freedom. For very light paper grades (under 40 g/m²), a smooth transfer belt has advantages over felt, whereas the asymmetry in the surface can be compensated for in the calender.

Magazine Papers (SC)

A Janus™ must be used as a quality module. Because of the high demands with regard to symmetry, the TandemNipcoFlex™ press must be equipped with four felts. All other elements were already part of the newsprint concept.

LWC Papers

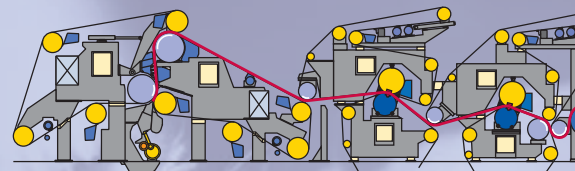
The quality module SpeedCoater™ is integrated for online coating. At the same time, this includes the pre-calendering and the end drying by a ModuleDryer™. The other elements were transferred from the magazine paper concept.

Office Papers

These papers are likewise surface-treated by the SpeedCoater™, but pre-calendering is not required. On the other hand, curl in cutsize papers needs special consideration. Therefore a CombiDuoRun is used. The remaining elements correspond to the basic newsprint concept.

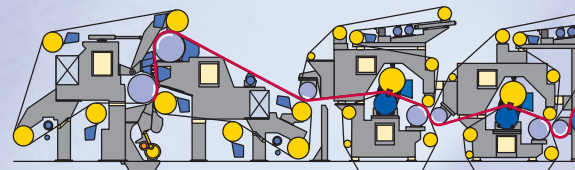
DuoFormer TQv

Tandem NipcoFlex



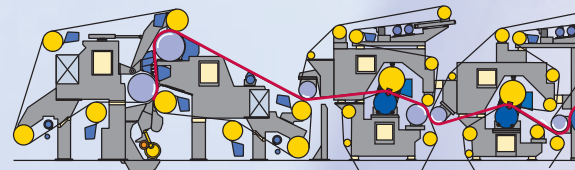
DuoFormer TQv

Tandem NipcoFlex



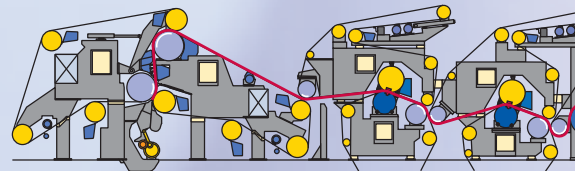
DuoFormer TQv

Tandem NipcoFlex

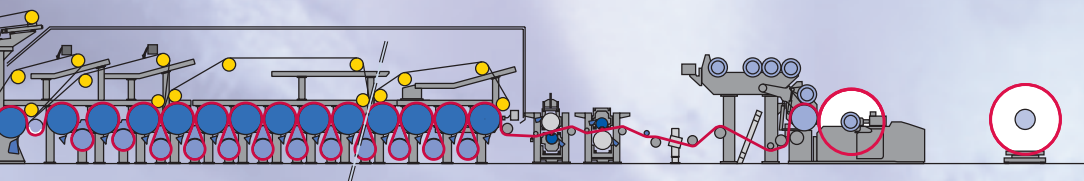


DuoFormer TQv

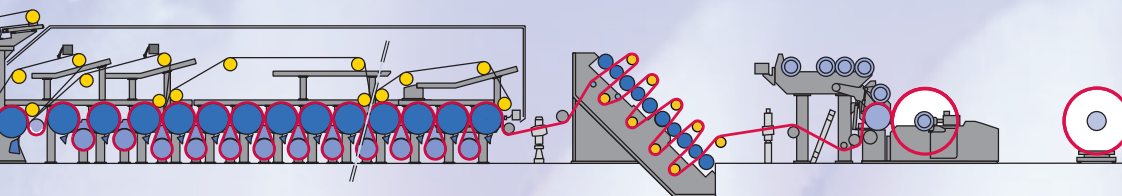
Tandem NipcoFlex



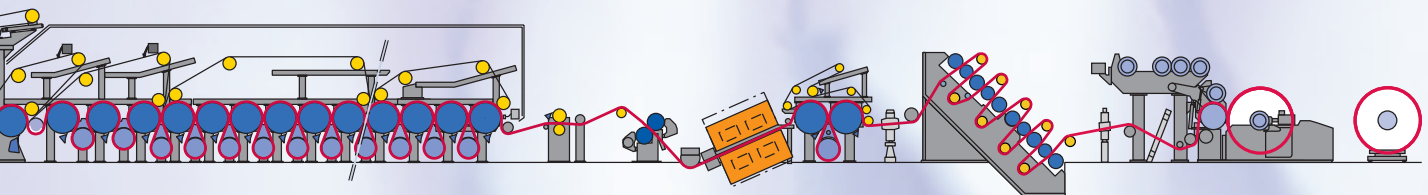
TopDuoRun | Ecosoft | Sirius



TopDuoRun | Janus MK 2 | Sirius



TopDuoRun | Calender | SpeedCoater | ModuleDryer | Janus MK 2 | Sirius



TopDuoRun | SpeedCoater | CombiDuoRun | Ecosoft | Sirius

