VOITH

SpeedSizer AT

Uniform coating ensures the highest paper quality

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1 Film application with different application media possible

2 Improved penetration and surface covering for outstanding paper quality

The best solution for your film application

SpeedSizer AT is an applicator for the online and offline process. With its broad range of applications, SpeedSizer AT is flexible and guarantees optimal machine efficiency.

Optimal surface

The surface composition plays a major role in paper and board quality. A high level of paper quality requires a perfect smooth and closed surface. This can be achieved through outstanding coating and sizing processes. For successful use of a film applicator, many factors such as exact premetering and uniform transfer in the nip are important. SpeedSizer AT meets the highest requirements and impresses with its uniform and flawless film application and optimal transfer and sheet release conditions in the nip of the applicator rolls, tailored to the respective application.

Perfect appearance

With SpeedSizer AT, Voith offers the perfect solution for application of starch, for surface sizing and for coating paper and board. Along with the paper characteristics, penetration and surface coverage are also improved in a targeted fashion. Thus other than hydrophobizing, the increase in strength characteristics and printability are key points when sizing. With coating visual characteristics in particular are important, along with better printability.

Broad range of uses

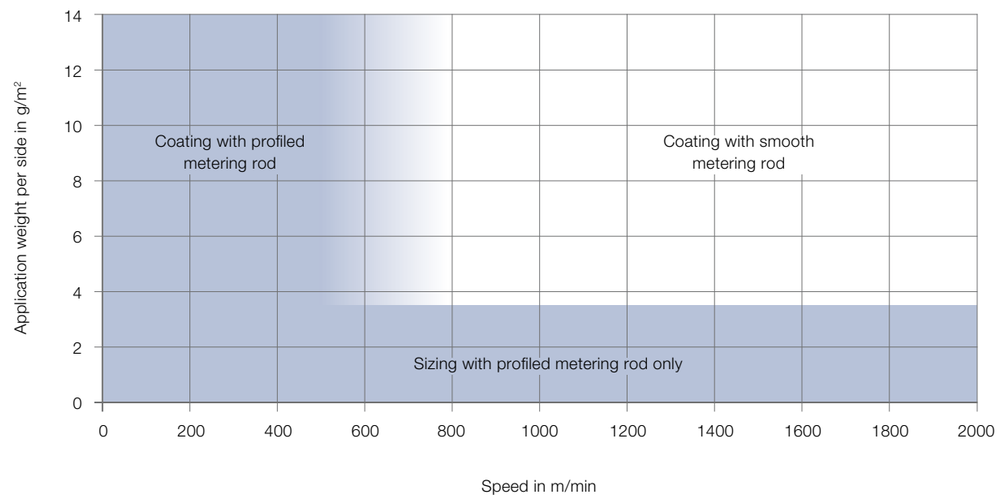
SpeedSizer AT has a broad range of uses and can be utilized in a multitude of applications. Various paper grades and qualities can therefore be produced on one machine. With SpeedSizer AT, film application with different formulations of the application medium is possible. Thus fast and flexible reaction to changing requirements can be undertaken.

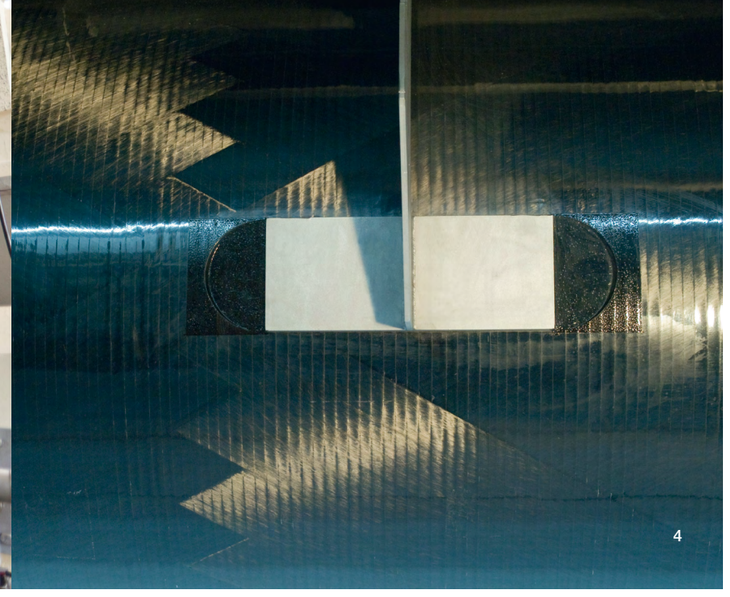
Nearly all paper qualities, from specialty paper to coated or uncoated commodity-grade paper, are refined with SpeedSizer AT.

Range of applications

+ Film coating of graphic printing paper
+ Starch application and sizing with packaging paper
+ Functional coats of all types with specialty paper
+ Sizing of the most varied paper grades with high productivity

Profiled and smooth rods





3 Consistent coating with SpeedSizer AT

4 Independent of external influences due to use of high-quality CFRP material

Better quality through innovation

Use of intelligent materials improves paper quality thanks to consistent and uniform CD profiles in all production phases. In combination with proven and functionally optimized components, this innovation ensures malfunction-free operation and thus increases cost efficiency.

Consistent dimensional stability
The three most important conditions for perfect film application are flawless premetering, ideally uniform film application and precise transfer of the medium onto the paper web. With SpeedSizer AT, Voith offers a product to meet these conditions, the core of which is the application system. It includes the supporting body with attached cross distribution pipe, rod holder and color return system.

The application system has to have lasting dimensional stability for consistent film application, independent of external influences. For that reason the supporting body consists of a high-quality, functionally optimized fiber composite material. It thus meets this precondition and is not sensitive to thermal influences such as changing application media or ambient temperature. The results are highly stable processes over the entire range of use as well as optimal profiles over the entire life cycle.

High-tech material for stability and precision
CFRP, a material originally developed for aerospace technology, is today also widely used in other branches of industry. Voith has used carbon fiber reinforced composite material for functional optimization of the application system. The supporting element of the SpeedSizer AT consists of a tailored fiber composite material and thus has characteristics such as low thermal expansion, a high level of stiffness and maximum straightness.

Combination gives an ideal solution
While the supporting element consists of CFRP material, the parts in contact with the application medium are made of proven stainless steel. Good accessibility in combination with surfaces that are easy to clean reduces break times. SpeedSizer AT is thus perfectly adapted to the requirements of the production process. Whether for sizing or coating: SpeedSizer AT is setting new standards for technically demanding film presses. The successful synergy of proven technology with the latest developments in intelligent materials is well demonstrated with this innovative development. Already more than 200 CFRP supporting bodies are successfully in use for various applications.

Roll-preserving start/stop sequence
Before the beginning of the coating process, the application medium is fed with reduced capacity. The color distribution pipe and the nozzle are completely filled and deaerated in the process. The application medium does not touch the roll in this process, but instead runs directly into the return channel. The roll is moistened once with water before contact with the metering rod in order to prevent wear on the roll. If there is a break, intelligent break detection in combination with the quick lifting sequence and, with fast-running systems, an additionally installed quick closing valve for the application medium, provides for a lower residual risk of roll damage, such as by paper winders.

MagnaSize II, LunaFilm and eVenFilm
Excellent results can be achieved through a combination of SpeedSizer AT and Voith roll covers. The MagnaSize II, LunaFilm and eVenFilm roll covers are outstandingly suited for sizing and coating. They were specifically developed for the high requirements in the film application process and are extremely abrasion-resistant.

Advantages at a glance

+ Excellent application CD profiles
+ Malfunction-free operation
+ Optimal stability of the supporting beam and a high level of process stability regardless of production interruptions
+ Easy maintenance and repair
+ Low energy consumption
+ Quick and easy cleaning
+ Optimal running characteristics

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5 Less wear and consistent CD profiles due to new finely-tuned technical solutions

6 Use of smooth and profiled metering rods possible

Consistent profiles with gentle operation

New finely-tuned technical solutions prevent wear of machine parts and at the same time guarantee consistent CD profiles.

Use of different metering rods
The metering rod is the key element of the film application as it determines the final metering of the medium's applied quantity. Depending on the application, profiled or smooth metering rods with various diameters are used. With the innovative SpeedRod M modular system, both the type as well as the diameter of the metering rod can be freely chosen without having to carry out elaborate machine settings. In combination with the specially developed Voith 6-edge coupling, a unique and economical system for quick and reliable change of metering elements is available.

Nozzle applicator with liquid seal
In contrast to other products available on the market, SpeedSizer AT has no contacting sealing element. The elastic baffle plate limits the application area towards the applicator roll, but does not touch it. The gap between the plate and roll is sealed via the operating medium and thus at the same time prevents the air layer carried along from entering. This system of contactless seal reliably rinses fibers and deposits from the roll and in addition prevents wear on the baffle plate and roll, which in turn leads to shorter shutdown and maintenance times.

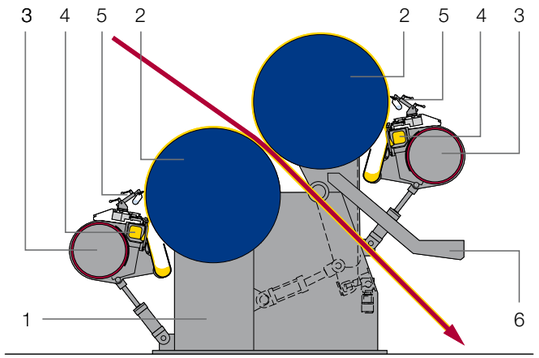
Profiled metering rods
The profiled rod is preferred for premetering when sizing and pigmenting. Different rod profiles facilitate the individual setting of film application quantities. This simple type of metering is used wherever there is insufficient pressure for using smooth rod elements. Reasons for pressure conditions being too low include low speeds or low levels of viscosity.

Smooth metering rods
As a rule, smooth rods are normally used for coating. When using a smooth rod, the quantity of film application is set by the contact pressure of the rod against the applicator roll. The contact pressure required for the desired quantity of film application is determined first of all by the rod diameter and secondly by the viscosity and the speed of the machine.

Correction of the CD profile with OnQ Profilmatic
A perfect coating CD profile is required specifically when coating with a smooth metering rod. The best results are achieved by additionally installing a Voith OnQ Profilmatic. If the film thickness deviates in an area from the nominal value, this can be offset by using OnQ Profilmatic. With OnQ Profilmatic, the contact force can be locally changed so as to obtain a consistent CD profile.

Key components: SpeedSizer AT

1 Upright & lever
2 Applicator roll
3 Supporting beam
4 Applicator unit
5 Edge doctor
6 Save-all pan



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7 Optimal access and good view of the applicator

8 Integrated SpeedRod M

Perfect operation through a new system

With its systemic advantages, SpeedSizer is easy to operate and also gives impressive perfect paper quality.

Perfect result without wear
In order to obtain an optimal result, the width of the premetered film is adapted to the paper web width. Edge deckles are integrated in the application zone for setting the width of the film application. In the edge area, water spray nozzles are located in front of the metering rod. By moistening the applicator roll outside the paper width, they prevent a dry run between the metering rod and the applicator roll. After the metering rod, the film of water is removed by the edge doctor. Wear on the roll is prevented, and both costs and downtimes are reduced.

Transfer in the roll nip
The premetered film is transferred to the paper in the roll nip. Depending on whether a penetration or film formation characteristic is to be obtained, different roll settings are chosen. The characteristic is determined by the pressure distribution on the roll. This pressure distribution is defined via the roll diameter, the hardness of the cover and the line load.

In order to obtain penetration characteristics, a short nip with high specific pressure is chosen, whereas a long nip with low pressure is used for film formation.

Versatile use due to nip release
It is important that the pressure in the roll nip remains constant both over the entire web width as well as over time. Standard pressing systems are used for size application. The movable roll is initially pressed against the fixed applicator roll with hydraulic and pneumatic actuators. This machine design is preferred for operation with medium to high nip forces.

By contrast, a lower nip load is required for application of a color film. The necessary fine adjustment is implemented with the aid of the nip release system. Mechanical actuators counteract the load actuators and thus reduce the nip force. This path-controlled system makes very exact pressure settings of the nip possible, even with the lowest nip forces.

Short shutdown times during changes
Depending on the area of application, different metering rods are required. The metering unit’s design ensures that even a change to another rod diameter is done quickly and without complex basic setting changes. A rod diameter of 10 to 38 mm can be chosen. With conventional film applicators, the entire rod holder has to be rebuilt for a change. Smaller rod diameters of the metering rod are compensated for by a larger design of the metering bed.

Contrary to conventional applicators, SpeedSizer AT is characterized by an integrated SpeedRod M. The biggest advantage of a SpeedRod M is that previous recurring hose damage and long shutdown times are eliminated by a simple and quick hose change. With this unique system, the metering rod, rod bed, loading hose and clamping hose are integrated in one component. Malfunctions in this area can be quickly and reliably eliminated. Shutdown time can be reduced by this simple change.

Easy cleaning
It is not just the change of metering rods that is made easier by SpeedSizer AT. Cleaning of the application equipment is also made very simple. The color return channel can be completely cooled for prevention of deposits. The application equipment is automatically rinsed with each stoppage of SpeedSpizer AT and with every break due to automatically running rinsing sequences in the entire system.

SpeedSizer AT offers an especially high level of user-friendliness. There is optimal access and a good view of the applicator. The front wall of the application chamber and the color distribution pipe can be opened and thus are freely accessible. Cleaning and changing the metering elements are thus easy to do. In addition, the safety circuit ensures safe operation without a grating being necessary for the machine. The continuous rinsing of the metering rod also prevents deposits and contamination in the area of the metering element.

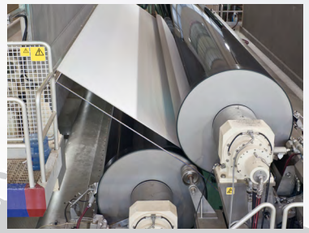
Over 270 installations speak for themselves

Paper machine efficiency can be optimized with SpeedSizer AT.
Numerous uses and positive feedback from customers confirms that.

Narew PM 5
In 2013 the PM 5 at Stora Enso Narew in Poland was successfully put into operation. Voith took care of assembly, start-up and various services. The goals of the project were and are low investment and operating costs in order to stand up to the competition and deal with rising demand. The SpeedSizer AT system has made an important contribution to achieving these goals. The paper machine in Narew produces packaging paper, especially corrugated cardboard base paper.

Paper width: 8,600 mm
Design speed: 1,600 m/min
Production/year: 455,000 metric tons/year
Paper grade: testliner, corrugating medium

Hainan PM 2
In May of 2010 the Hainan PM 2 successfully went into operation with a wire width of 11.8 m and a length of nearly 600 m. The paper machine set records not just for its size but also due to a design speed of 2.000 m/min. In addition, the Hainan PM 2 has achieved the highest production quantity worldwide. It is the largest paper machine in the world and the only one in which three SpeedSizers are installed for sizing and coating. This use is thus proof of the stable operation of SpeedSizer AT, even at high machine speeds.



Paper width: 11,800 mm
Design speed: 2,000 m/min
Production/year: 1.2 - 1.4 million metric tons/year
Paper grade: woodfree coated

vpz 1237 | En | Design: SoS | Content: ungemav | 2014-09-22 | Technical data and illustrations subject to change!

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