

FlowJec

Increase in efficiency due to new dosing technology



- 1 Significant saving of fresh water
- 2 Reduced consumption of energy ...
- 3 ... and chemicals
- 4 Homogeneous mixing in the process flow

More sustainable paper production with FlowJec

Depending on the paper grade, more than 70% of production costs are caused by the use of energy, pulp and water. For this reason, Voith is concentrating its attention to creating new products that reduce the consumption of raw materials. The FlowJec dosing system is another component to save resources and thus leads to more sustainable paper production.

By efficient dosing of process chemicals and additives in the approach flow system or in the wire section, consumption of chemicals, fresh water and energy is significantly reduced. In addition, dosing with FlowJec leads to improved paper quality and runnability.

Increase of runnability due to homogeneous mixing

The type of chemical and additive dosing substantially influences their effect and consequently the efficiency of the process. In contrast to conventional systems, FlowJec mixes the chemicals with a part of the process flow preliminarily. An overconcentration at the dosing point is thus prevented and instead a homogeneous distribution in the process flow is achieved.

With FlowJec, the dosing can be optimally adjusted to the process and to the chemicals. This characteristic and the optimal selection of the ideal dosing points contribute decisively to an increase in runnability.

Reduced use of chemicals due to the specifically developed dosing nozzle

All process and functional chemicals as well as additives can be dosed with the FlowJec dosing system. Furthermore, the



precondition is provided for simultaneously adding several chemicals or additives at one point – even immediately before the headbox. With FlowJec, this is facilitated by especially effective transversal mixing.

A dosing nozzle was exactly developed for this, called AddJector. The speciality about AddJector is that the chemical is initially mixed with only part of the process flow. Before the mixture is injected into the main flow, the dosing volume is increased. The chemical is thus homogeneously mixed and consumption of the chemical is reduced.

Significant saving of fresh water with dosing and preparation

First of all, use of fresh water is dispensable when dosing chemicals with the innovative AddJector. Secondly, up to 70% of fresh water can be saved in the preparation of chemicals. Instead, dilution is done here with the stock suspension itself

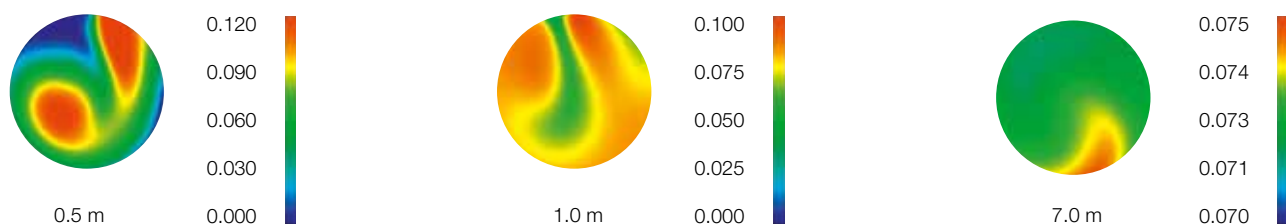
or alternatively with white water, clear filtrate or flotation tailings. The reduced consumption of fresh water has extensive consequences. It lowers energy costs, since a smaller amount of water has to be heated to process temperature. Emission of CO₂ is thus reduced and also less waste water accumulates.

Integrated cleaning increases process availability

FlowJec is completely integrated into the process control system of the paper machine. Due to the integrated cleaning function, the entire system is automatically freed of chemical residues and the injection medium such as stock suspension or white water, for example, depending on the process condition. Automatic cleaning is indispensable, especially if the dosing of chemicals in the approach flow system only takes place after the screen. This function is vital to reduce the maintenance outlay and increase the process availability.

Course of homogeneous mixing (CFD simulation of dosing on the test stand)

Mixing from 0.5 to 7 m





2



3

Individual dosing depending on the process flow

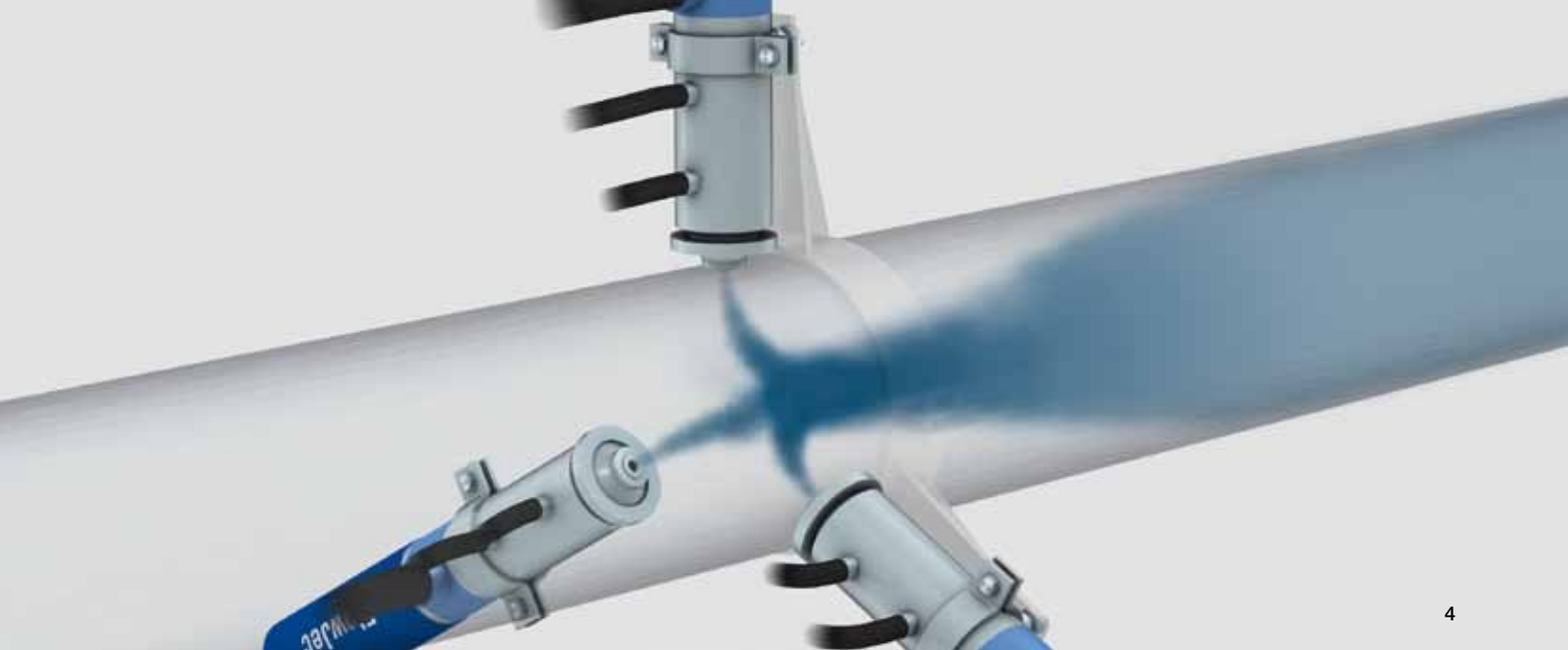
With up to six AddJectors



The benefits of FlowJec at a glance

FlowJec in contrast to conventional systems

- + No fittings in the stock line that could cause deposits and breaks
- + Preliminary mixing of chemicals leads to homogeneous distribution and improves runnability of the paper machine
- + Efficient mixing allows dosing of chemicals even with higher concentration, and the need for fresh water is thus drastically reduced
- + Adjustable dosing conditions allow an ideal penetration depth of the chemicals, which results in a homogeneous floc size and better paper quality
- + The integrated cleaning function of FlowJec contributes to a lower maintenance outlay and thus to higher process availability



Characteristics of FlowJec	Benefits for the paper manufacturing process
Efficient dosing in substantially higher concentration	Fewer chemicals
Preliminary mixing of chemicals with part of the process flow instead of with fresh water	Less fresh water
Reduced use of fresh water	Less waste water
Smaller amount of fresh water has to be heated to process temperature	Less energy
Homogeneous mixing of chemicals	Fewer breaks and better paper quality
Ideal dosing in the approach flow system of the paper machine	Improved paper quality
Integrated cleaning system	High level of process availability
Homogeneous mixing leads to better distribution of stock consistency	Improved runnability



“With FlowJec, we are achieving an improved paper quality, savings of up to 10% of the retention agent, fewer breaks, an increased running time and consequently a higher efficiency of the PM.”

Jochem Meier,
Head of Production at Smurfit Kappa Zülpich Papier

Headquarters

Voith Paper Holding GmbH & Co. KG
St. Poeltener Str. 43
89522 Heidenheim, Germany

paper@voith.com
www.voith.com/paper

Regional Contacts

Asia
Voith Paper in Kunshan, China
Tel: +86 512 5799 3600

EMEA
Voith Paper in Heidenheim, Germany
Tel: +49 7321 37 0

North America
Voith Paper in Appleton (WI), USA
Tel: +1 920 731 7724

South America
Voith Paper in São Paulo, Brazil
Tel: +55 11 3944 4000

VOITH
Engineered Reliability