VOITH

FlowJec - Increase in efficiency due to new dosing technology

2015-11-19, DITP in Bled

presented by Axel Dreyer

Economic and sustainable paper production go hand in hand

Improved fiber efficiency

Reduced primary energy consumption

Reduced fresh water and chemical consumption

Our plants, products and services make a valuable contribution to resource-saving paper production. This reduces operating costs and protects the environment.

Why a new chemical dosing technology?

Reasons for development

Existing injection systems are inefficient, due to ...

... high consumption of chemicals, water and energy.

... insufficient mixing.

... poor cleanliness and safety.

... initiation of plugging or even machine breaks.

Challenges for new development

Homogeneous mixing
into approach flow stock pipe right away

Saving chemicals
up to 20%

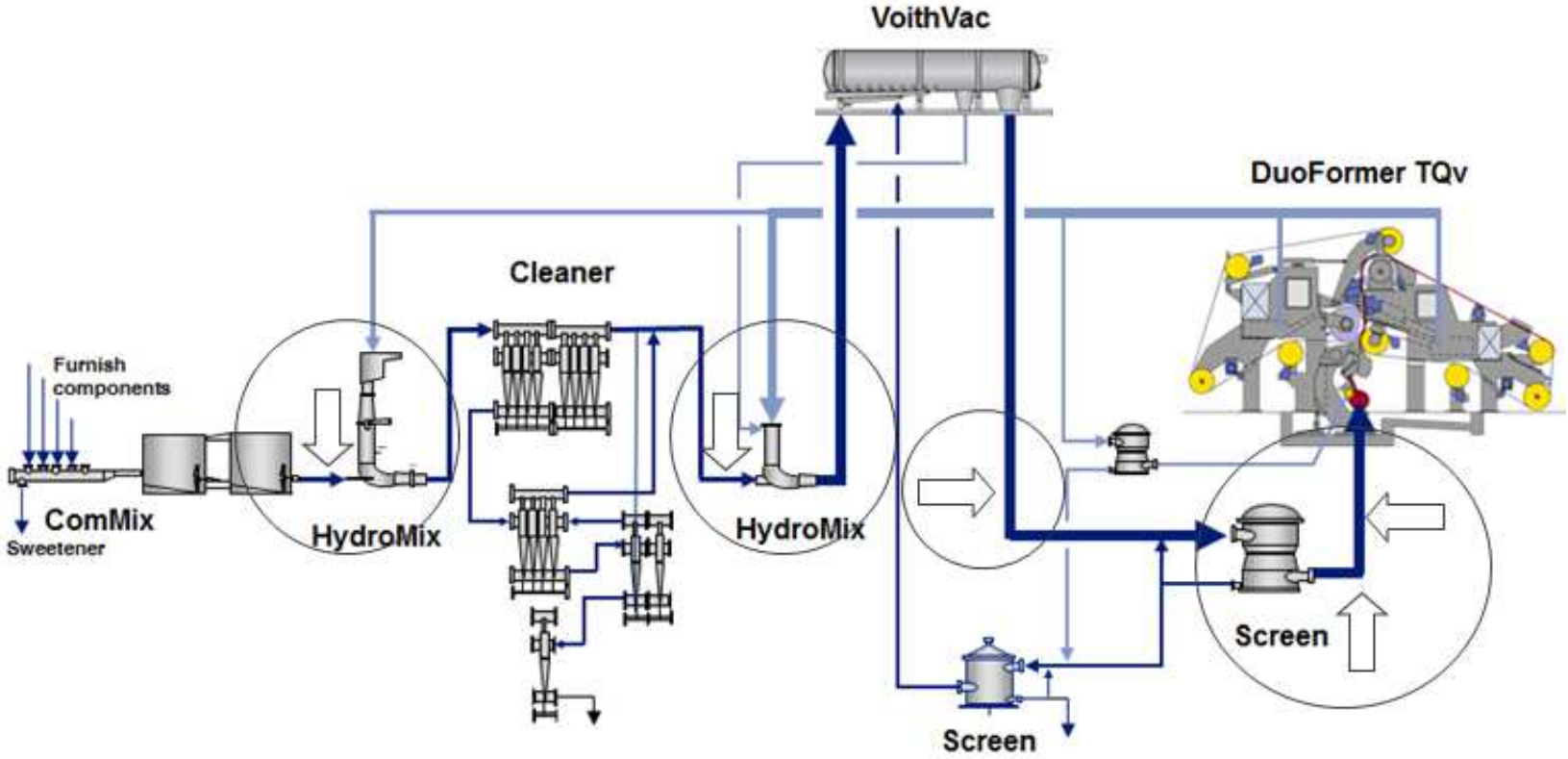
Clean and safe operation
no breaks caused by dosing system

No built-in components
no fiber strings build up in pipes

Saving fresh water
stock used as injection medium

Competitive price
ROI < 12 month

Typical dosing positions



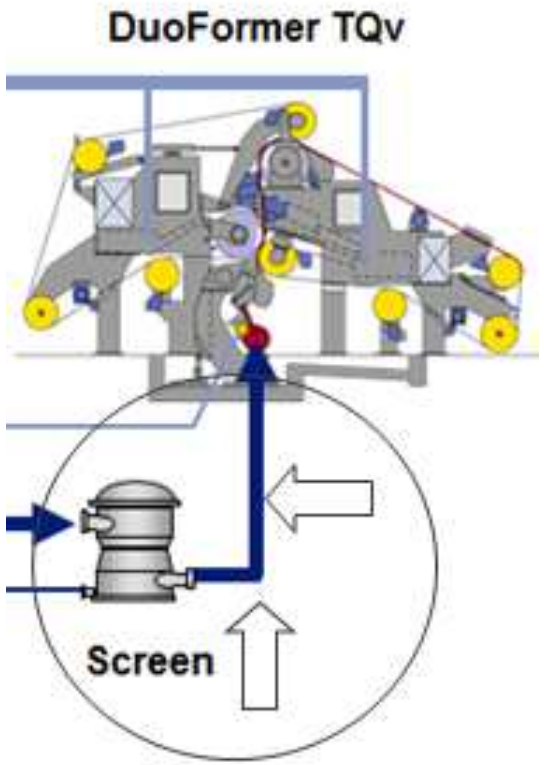
All dosing position along the process line in thin- and thick-stock.

Any chemicals and additives can be dosed.

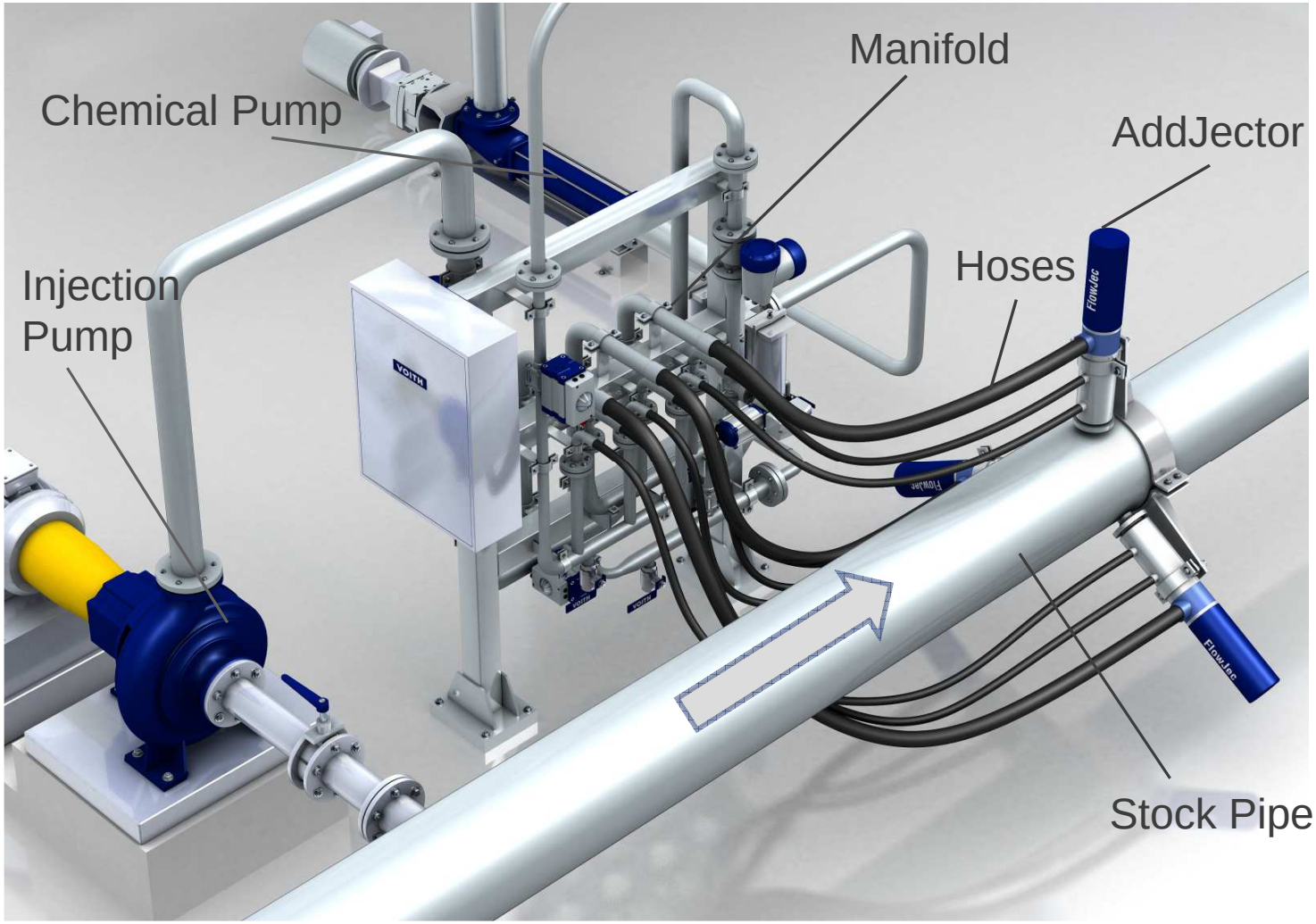
Typical dosing positions

Dosing after screen before headbox, must fulfill following preconditions:

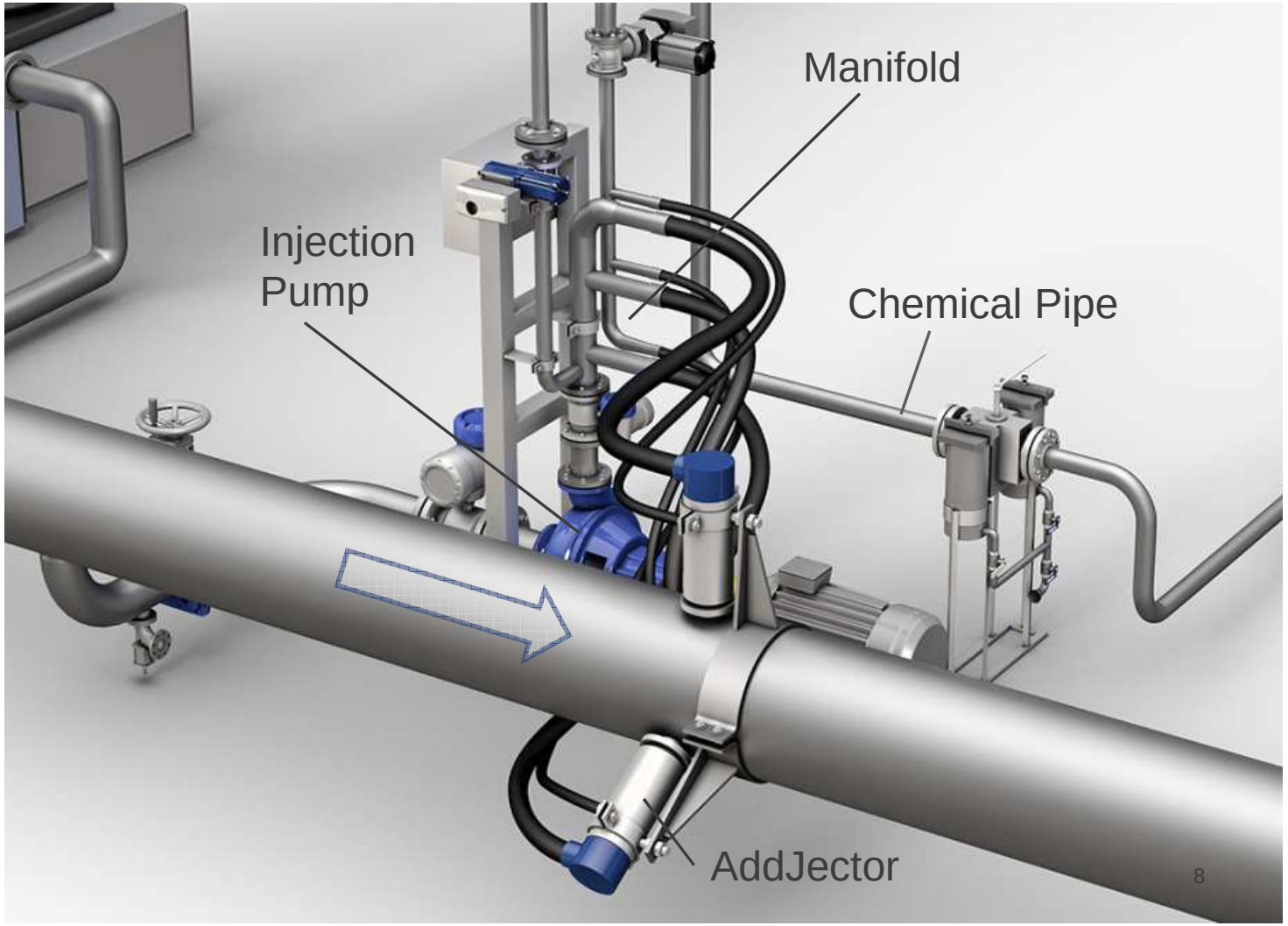
- homogeneous mixing into stock pipe
- clean & safe operation
- no built-in components in stock pipe
- no build up of deposits



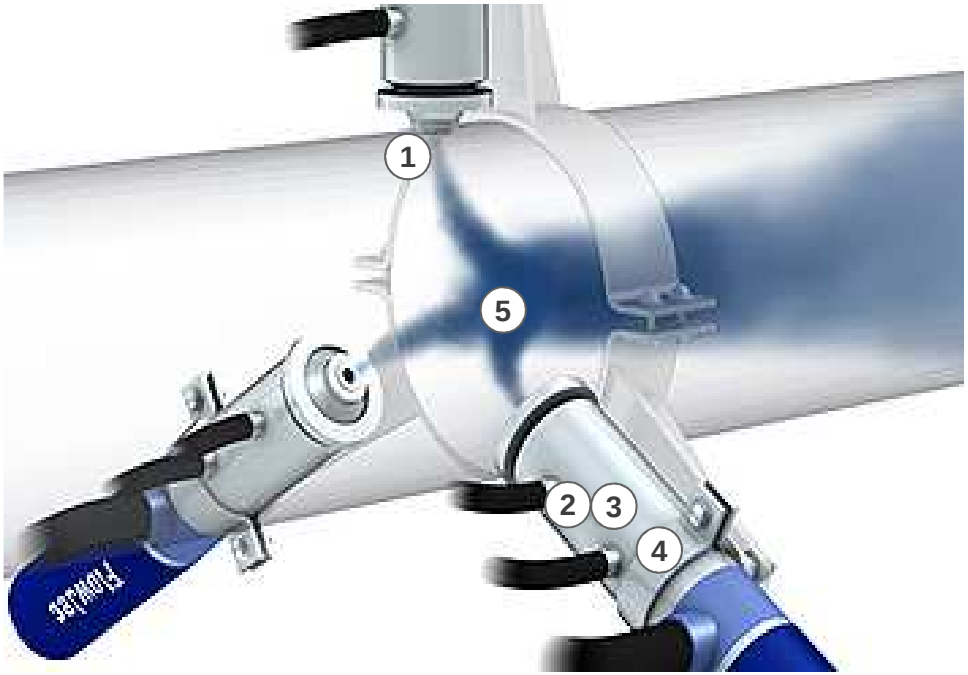
FlowJec – Premium



FlowJec – Basic

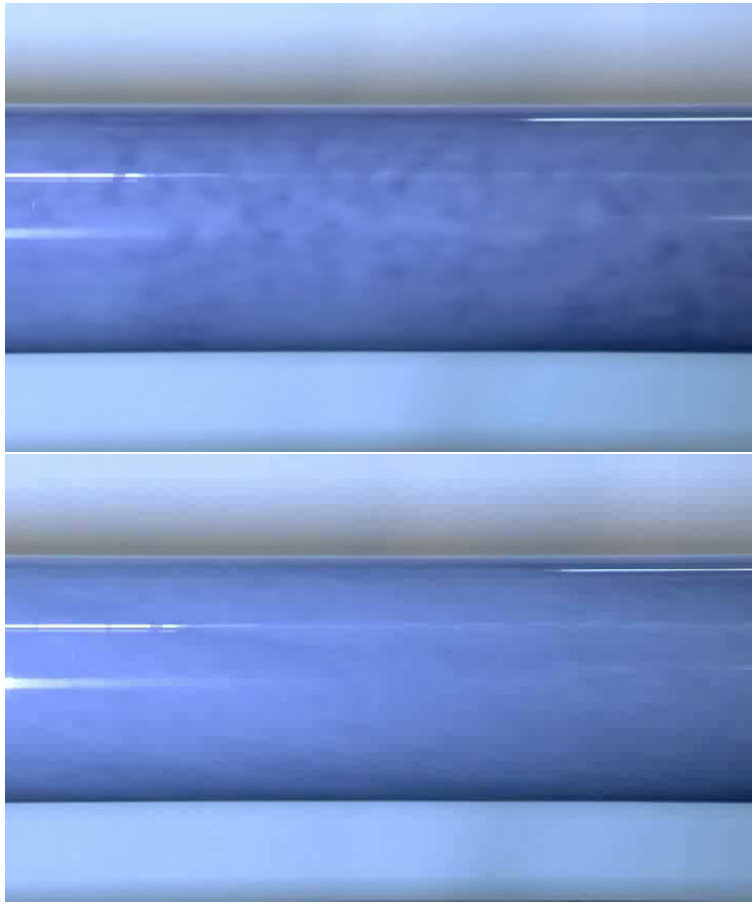


AddJector™ means a mixing nozzle



1. No built-in components in the approach stock pipe that could cause deposits and breaks.
2. Dosing of up to 3 chemicals.
3. Distinct mixing zones for premixing of chemicals into injection flow.
4. Efficient premixing for use of chemicals at high concentration.
5. Homogeneous mixing into stock flow.

Increase in efficiency
Adjustable dosing conditions



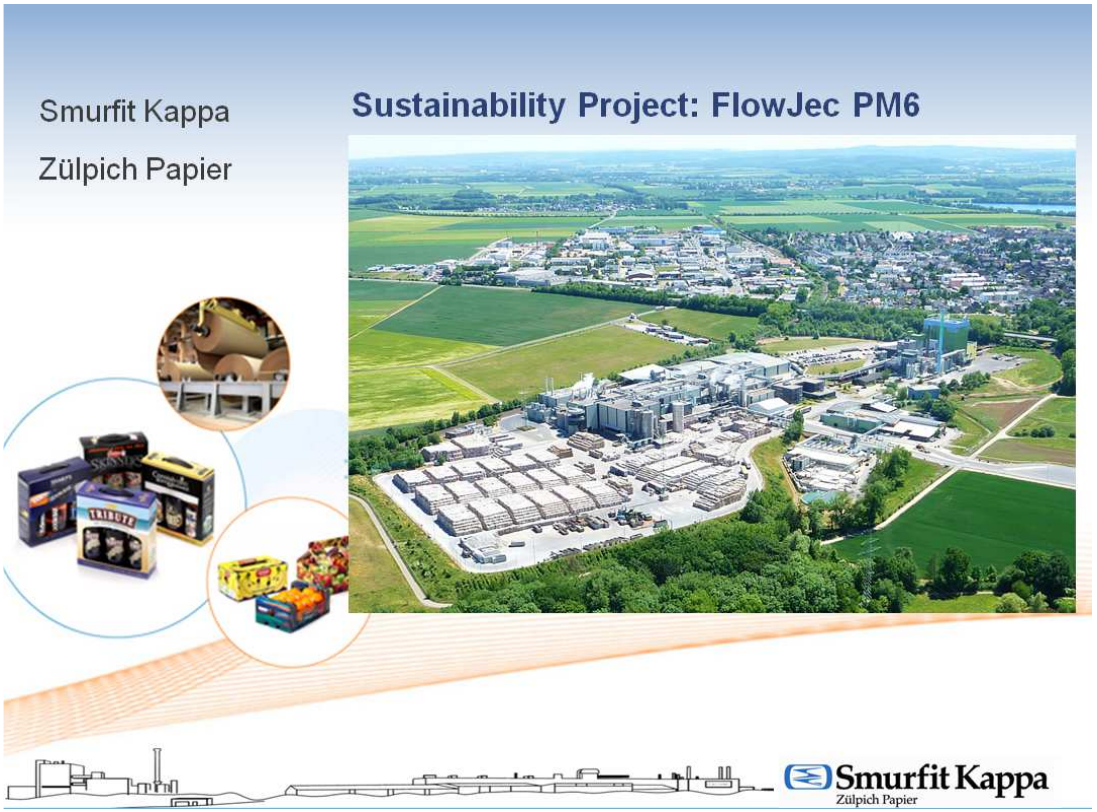
Varied injection flow

Chemicals dosed according to process requirements.

Optimized floc size and distribution.

Reduced shear forces for shear sensitive chemicals.

Increase in efficiency due to new dosing technology at Smurfit Kappa



Main Machine Data:

Production:	288.000 t/a
Width:	5,05 m
Speed:	1.140 m/min
Grades: recycled-based fluting and testliner	
Grammage:	100 – 150 g/m²

Dosing with FlowJec™ at Smurfit Kappa

Before rebuild:

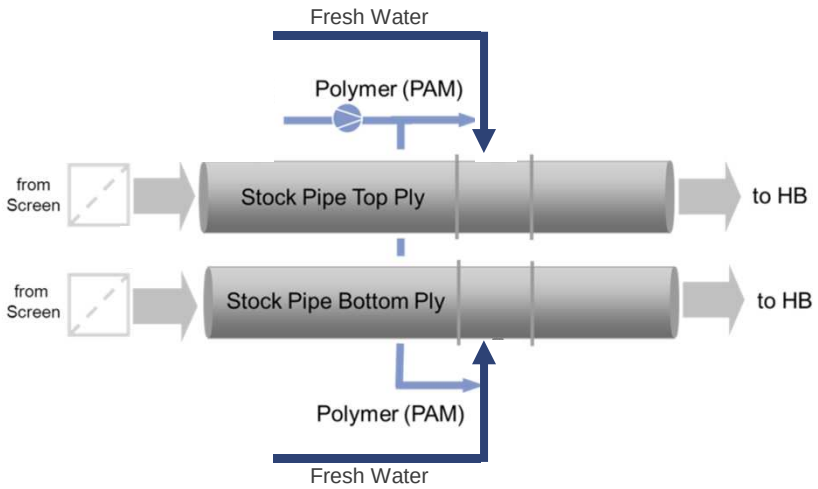
Conventional dosing after screen

After rebuild:

FlowJec dosing after screen

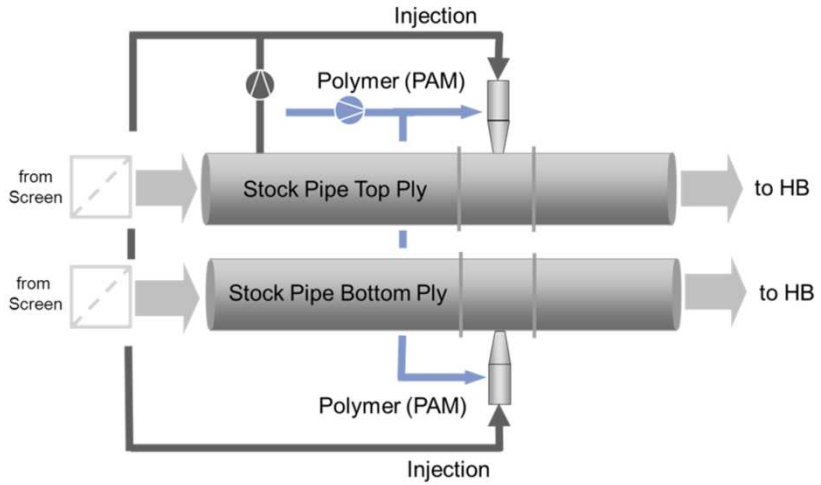
Dosing with FlowJec™ at Smurfit Kappa

Before rebuild:



Fresh water used for injection
Chemical at low concentration

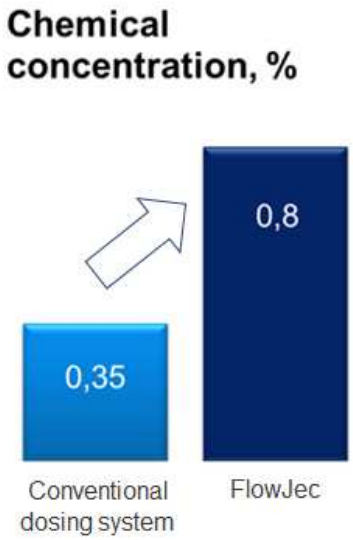
After rebuild:



Stock suspension used for injection
Chemical at high concentration

Benefits achieved at Smurfit Kappa

11.000 m³/y fresh water savings due to increase in chemical concentration



savings of

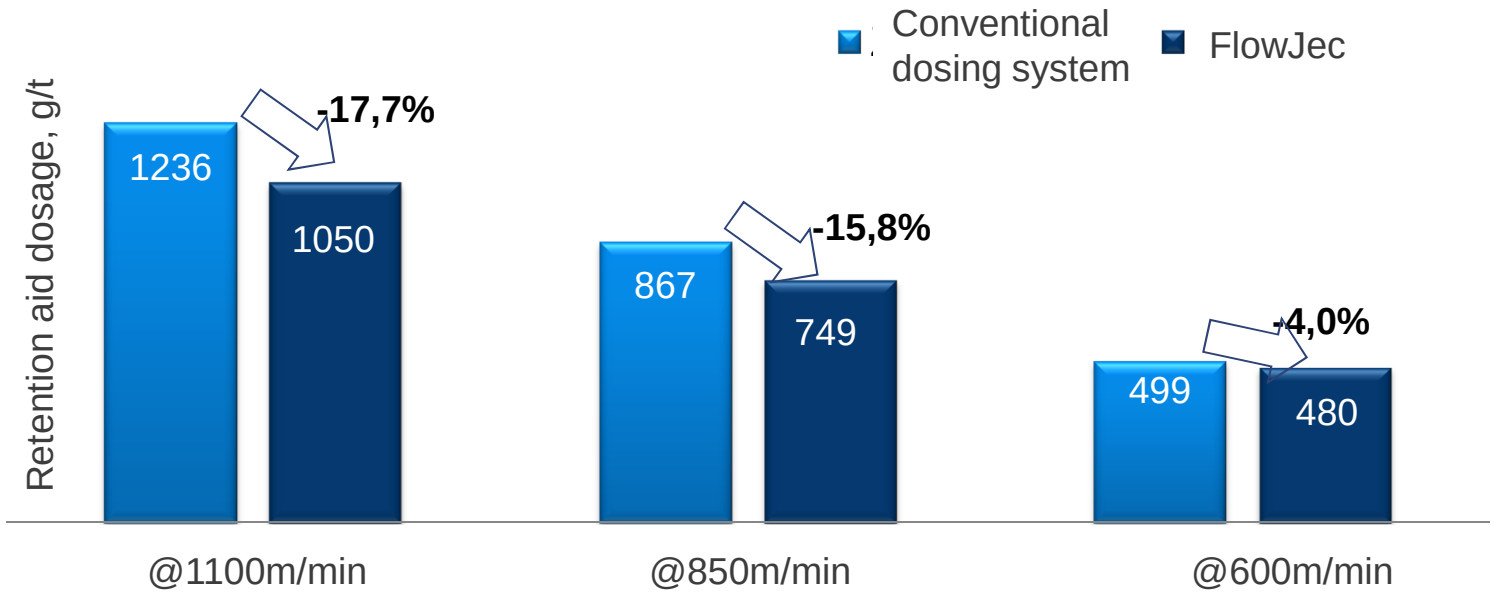
11.000

m³/y

fresh water and effluent

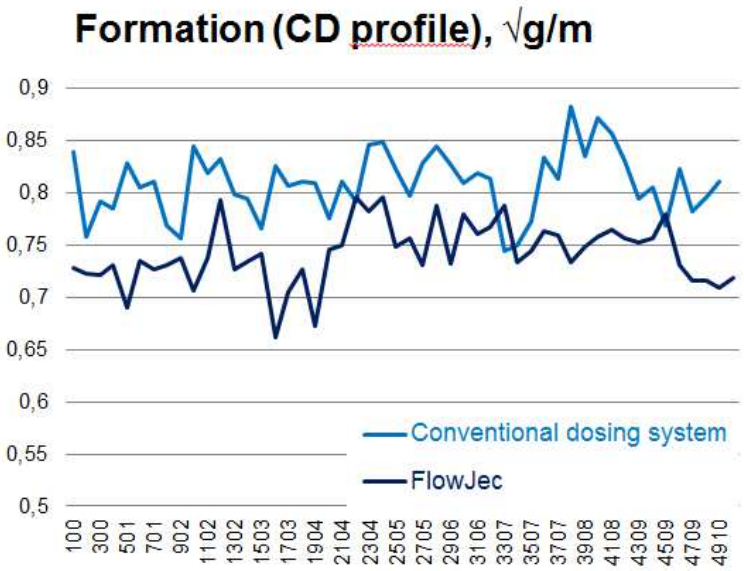
Benefits achieved at Smurfit Kappa

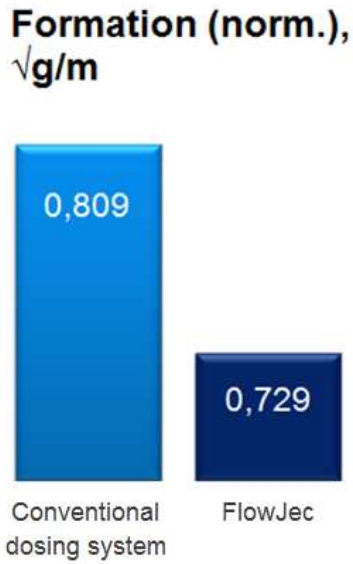
10% savings of retention aid as an average



Benefits achieved at Smurfit Kappa

9% improvement of Ambertec formation





FlowJec™ - Benefits at Smurfit Kappa
Sum up

Recycled-base fluting and testliner, max. speed 1,140 m/min, closed water cycle

Saving 4 – 18* % retention aid at same PM retention, due to homogeneous mix after screen.	**Improve by 9 % in formation**, due to better retention aid distribution and floc sizing.	**Improve by 20-30 %** of **run ability**, due to safe and clean system set up.
Saving 11.000 m³/y fresh water, due to stock suspension as injection medium and high chemical dosing concentration.	**Saving 11.000 m³/y effluent**, due to less fresh water need.	**ROI < 1 year**

*depending on machine speed and paper grade

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