

STORA-ENSO ANJALA PM2 OPTIMIZED DRYING SECTION PRODUCTIVITY

Poor runnability at Stora Enso Anjala PM2 (bookpaper) drying section created problems in higher machine speeds. In the double felted section sheet fluttering caused wrinkles. In single felted section it was impossible to increase the speed, because the web did not release nicely from contact and followed the upper cylinder surface.

The PM2 drying section runnability was optimized in two steps. In 2009, runnability problems of the double felted section were eliminated with machine geometry modification and EVdf Web Stabilizers tailored for the area.

In the second step, in 2010, runnability of the single felted section was optimized with the EV EasyOne technology.



*Project Manager Mika Hovilainen,
EV Group*



"The problems because of poor runnability are eliminated after the web stabilizing projects in single and double felted sections.

We have now more stable sheet run, and the drying section runnability enables also higher speed."

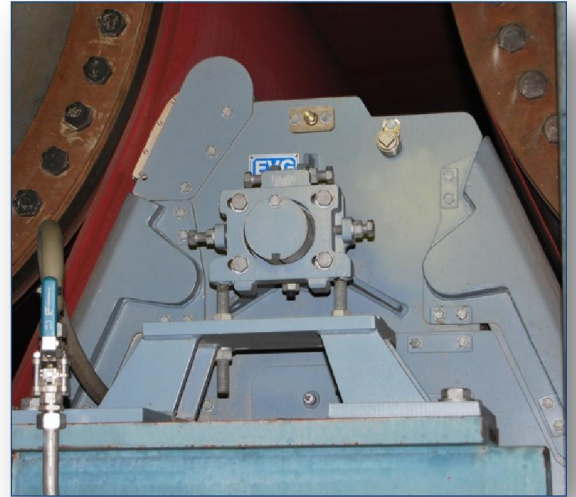
Antti Outinen, Production Manager,
Stora Enso Anjala PM2



Optimization of Double Felted Section, 2009

Complicated machine geometry created runnability problems at the 4th dryer section. The sheet release from contact was unstable causing fluttering and wrinkles in the long open draw.

This problem was eliminated with both machine geometry modification and web stabilizers. Offset felt configuration and EVdf stabilizers tailored for the double felted section optimized the runnability in the area. Wrinkles were no longer created and it was possible to increase the PM speed.



Optimization of Single Felted Section, 2010

The speed increase was still difficult because of the runnability problems in the first, sensitive groups of the single felted section.

Old, ineffective stabilizers (with only 300-400 Pa vacuum) did not support web release from contact of the upper cylinder. It was impossible to increase the PM speed, because the wet, sensitive web was following the upper cylinder surface in the 1st and the 2nd dryer groups of the area. Cylinders 4 and 10 were closed to help the problems but this decreased the drying efficiency of the section.

EV Group proposed to solve the problems with the EV EasyOne technology, which creates high release vacuum and supports the sheet between the upper cylinder and the vacuum roll. With a high release vacuum as 2000 Pa, sheet release can be optimized up to speed of 1500-1600 m/min. The first stabilizer with a high release vacuum area was installed for a test run at the 4th cylinder. After successful test period and problems in this position were eliminated, the mill invested in EV EasyOne stabilizers for the entire 1st and the 2nd dryer groups.

Without support the web does not release from contact between upper cylinder and vacuum roll. This results in breaks and paper defects.

EV EasyOne technology ensures the web release between the upper cylinder and the vacuum roll. This optimizes drying section runnability and draw, and enables improved paper quality.

The optimization project clearly improved the single felted section runnability. EV EasyOne technology enabled the speed increase, because the web is now constantly kept in contact with the fabric and there is no sheet fluttering. The PM run with less draw between the press and drying section is also possible after the project. In addition, optimization enabled more efficient drying because it was possible to increase the steam pressure and there is no longer need to control runnability with closed cylinders.

Runnability Optimization of double felted section, 2009:

machine geometry modification and
8 units of EVdf stabilizers

- speed up from 1250 m/min --> 1300m/min
- runnability clearly improved
- no wrinkles

Runnability Optimization of single felted section, 2010:

6 units of EV EasyOne

- EV EasyOne for test run at 4th cylinder: speed 1330 m/min
- EV EasyOne stabilizers with high release vacuum area for the entire 1st and 2nd dryer groups: speed 1365 m/min
- runnability even better
- no sheet fluttering
- less draw
- increased steam pressure, no closed cylinders

RESULTS:

- remarkable improved runnability thanks to constant wire contact
- increased speed enables additional production
- more efficient drying
- improved paper quality

IMPROVE DRYING SECTION PRODUCTIVITY WITH EXCELLENT RUNNABILITY



Hi!

Do you have runnability problems at your paper machine complicating the PM run and decreasing the drying efficiency?

The EV Team has over 20 years and hundreds of projects' experience on solving problems related to PM runnability, energy efficiency and cleanliness. Every paper machine is unique, so every solution improving the productivity needs to be tailored to that particular process. The key for great results is a deep analysis on production and its bottlenecks before any corrective action.

The following list includes some typical drying section problems, which complicate PM productivity. Test how many of these frustrating bottlenecks you face at your drying section and contact us for further discussion - let's solve the problems for better productivity!

Best Regards,
Timo Haverinen
Runnability Specialists, Sales Director
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Do you face these typical runnability problems at your drying section?

- ✓ air bubbles below the sheet are created before press nip of free standing press
- ✓ sheet fluttering especially in open draw and section changes
- ✓ sheet does not release from contact and follows eg. the previous cylinder
- ✓ paper quality problems, sheet creasing and wrinkles
- ✓ runnability is controlled with draw difference, which results in paper defects and breaks
- ✓ especially the first single felted groups are very unstable and sensitive to run
- ✓ we need to close cylinders to control runnability
- ✓ low permeability and contamination of dryer fabrics
- ✓ process is very sensitive for process fluctuations
- ✓ complicated tail threading
- ✓ we use expensive compressed air to support the web
- ✓ web breaks
- ✓ moisture profile problems
- ✓ impossible to increase speed

Improve PM Productivity!

Runnability and energy efficiency optimization constitute a remarkable, yet often untapped potential to improve PM productivity and paper quality in many paper mills.

Drying section runnability optimization seldom requires large scale investments. Already minor up-dates, section rebuilds or modifications of existing machinery clearly improve the drying section performance.

A deep-going survey and analysis about drying section problems, machine geometry and production are always required before the runnability optimization. Drying section geometry modifications and web stabilizers tailored for different drying section positions are generally required to eliminate runnability bottlenecks.



” Typical results after runnability optimization projects are the increased PM speed and production by about 10 %, while paper defects commonly decrease by even tens of percents.”

Esa Virtanen, Runnability Specialist, Managing Director of EV Group



Runnability Improvement Requires Wide Understanding

Runnability, energy efficiency and cleanliness of fabrics and cylinders impress strongly the drying section performance.

Drying section productivity optimization always requires a deep understanding on how all these factors affect each other and the entire drying section performance.

EV Survey Is a Lead for Drying Section Optimization

EV Survey Team has experience from over 200 drying section surveys, which provide the mill with a deep analysis and conclusions on how to optimize the drying section performance.

”A professional survey at your paper machine takes only a few days and you receive the primary conclusions right after the survey”, states Marko Immonen, EV Survey Team Manager.

