

Paper Machine Drives Runnability Fingerprint

Improve machine runnability and increase productivity

Drives specialists provide on-site measurement and analysis to reduce sheet breaks, improve machine sequence, and decrease downtime.



Benefits

- Improve machine production capacity with minimum investment

Features

- Actionable improvement plan
- Executive report facilitates management decision process by focusing on high impact improvement opportunities

The ABB Paper Machine Runnability Fingerprint investigates drive system bottlenecks that limit increased production capacity, solves runnability problems, and identifies improvement opportunities. It provides steps to prevent stripes, wrinkles, and roll formation problems and reduce web breaks.

Available exclusively from ABB, the fingerprint generates both a performance benchmark and an actionable improvement plan. Savings can be measured in improved productivity and more satisfactory machine operation.

Applications

This service is applicable to the following machines:

- | | |
|------------------|----------------------|
| – Paper machine | – Off machine coater |
| – Board machine | – Winder |
| – Tissue machine | – Calender |
| – Pulp dryer | – Rereeler |

The fingerprint is modular, applicable to specific machine areas or the entire machine, and concentrates on the following:

- | | |
|-----------------------|--------------------|
| – Web tension | – Web-break |
| – Machine sequence | – Web-threading |
| – Control accuracy | – FFT measurements |
| – Static/dynamic load | (vibration) |

Auditing and testing

All auditing and testing measurements are completed using the drive system's tools. These can be completed in one to three days. Production losses can be minimized when site measurements are completed during scheduled shutdown. In some instances measurements may be required during normal production.

Depending on the machine runnability issues, investigation may concentrate on specific machine areas, such as transformer, incomer section, drive section, cable, motor, application software or drive settings. The powertrain can be investigated from the drive system point of view. In some cases multiple machine areas must be investigated to clarify bottlenecks.

Various drive production set-ups require tuning to maintain the correct control response. This is determined, for example, by wear of production machinery, grade variations or greater than expected set-up changes. A wide variation of grades or greater than expected set-up changes usually necessitate specific fine-tuning of control settings in order to maintain the desired response from the drive controls.

All collected and measured data is analyzed by the ABB Pulp and Paper Drives Optimization Team, which has a great deal of global experience with the evaluation, calculation and identification of solutions to improve productivity, within budget and with minimum investment.

Vibration analysis

When production is increased, vibration may become an issue. By measuring powertrain vibrations, ABB can assess any

remedial action required to reduce vibration and unplanned machine shutdowns. For machines with the latest generation of drives, measurements are obtained directly from the drive system without the need to install additional vibration sensors.

Drive types

The ABB Paper Machine Runnability Fingerprint can be performed for all ABB drives, for older Strömberg drives, and for related controllers.

Drives	Controllers
– ACS800 – Sami – DCV700	– AC800 – Selma
– ACS600 – DCS800 – Sele	– AC80 – Asea
– ACV700 – DCS600	– APC Masterpiece

In-depth support and expertise

ABB competencies in the following areas deliver in-depth diagnostic and implementation services for improved drive runnability.

- Extensive competence with drive controls and features
- Experienced process knowledge of paper industry machines
- Educated vibration analysis (FFT)
- Proprietary software and tools

The ABB Pulp and Paper Drives Optimization Team is available to provide assistance and best practice support leading to productivity improvement opportunities, supported by their expert knowledge of the drive system, controls, and process.

Reporting

The Fingerprint Report generates both a performance benchmark and an actionable improvement plan. Findings are presented in formal reports. An Executive Report and Technical Report are provided to disclose the findings and recommendations of the machine diagnosis.

- **Technical Report** provides trends, calculations and supporting data collected during the machine diagnosis.
- **Executive Report** provides benchmark results, summary of findings, financial impact of recommendations statement, implementation, and an actionable improvement plan, based on the machine diagnostic findings.

Improvement Plan

The improvement plan provides recommendations for resolving runnability issues, and identifies specific actions required to move towards optimal performance. Recommendations may include:

- Drive control changes (e.g. load sharing, settings, tail threading)
- Modification of application software (e.g. speed reference chain, grouping of sections, control modes, ramp times, machine sequence, latest software improvements)
- Hardware changes (construction changes, existing drives, motors, other components)
- Retuning drives due to machine aging (e.g. compensations, timings, regulator functions)

The fingerprint is the first step in achieving and sustaining higher machine productivity.

Fingerprint, Implementation, and Sustaining services are recommended as part of your service contract agreement to achieve and continue the improvement process. These can be scheduled within a single- or multi-year service contract agreement.

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Request for Proposal

To obtain a quote, the following types of information are required. Additional information may also be requested based upon the drive types and configuration at your site.

Machine type:

- | | | |
|--|---|---|
| <input type="checkbox"/> Paper machine | <input type="checkbox"/> Board machine | <input type="checkbox"/> Tissue machine |
| <input type="checkbox"/> Pulp dryer | <input type="checkbox"/> Off machine coater | <input type="checkbox"/> Winder |
| <input type="checkbox"/> Calender | <input type="checkbox"/> Rereeler | |

Machine ID:

(e.g. PM1) _____

Machine details:

Width _____
 Paper grades _____
 Design speed _____
 Normal production speed _____
 Start-up year _____
 Rebuild/modified year _____

	Type	Amount
Drive section*	_____	_____
Incomer section	_____	_____
Motor	_____	_____
Controller	_____	_____
Control panel	_____	_____
Tension control system	_____	_____

*Please provide motor list with drive section details

Explanation of identified problems:

List of issues to be improved:

For more information:

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