

# Paper Machine Drives Speed Fingerprint

## Identify drive system bottlenecks to improve machine speed

A comprehensive drive speed analysis, based on a thorough investigation of the drive system configuration, production settings, and equipment base; to identify drive system performance improvement opportunities.

### Benefits

- Harness unused machine production potential
- Reach or exceed design speed
- Increase production with minimum investment
- Identify opportunities to improve drive system performance

### Features

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

The ABB Paper Machine Drives Speed Fingerprint is available exclusively from ABB. It provides a diagnostic service which identifies drive system bottlenecks and improvements required to attain machine target and maximum speed. Benefits can be measured in increased production, reduced sheet breaks and greater energy efficiency.

### Applications

The fingerprint diagnostic identifies improvements to help meet the production objectives of the following:

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

### Analysis

All measurements are completed by trained, local, service engineers, using the drive system's tools. These can be completed in one to three days. Installation of external measuring devices is not required. Some tests, such as acceleration, are completed during production breaks. Others may require short production breaks in order to prepare



measurements taken during production. Production losses can be minimized when site measurements are completed during scheduled shutdown.

While measurements are being taken, inrunner sections, excitation units, cables, gear boxes, shafts and tension system are observed. Existing frictions and inertias are measured to clarify correct compensations to ensure smooth operation can be maintained in the new, higher speed range.

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 reach a higher speed, within budget and with minimum investment.

A thorough analysis will reveal production limiting bottlenecks; each issue will be accompanied by a recommended solution and tailored improvement plan.

### Vibration

When speed is accelerated, vibration may become an issue. Mechanical safety and continuous machine production is greatly impacted by vibrations. By measuring powertrain vibrations, ABB can assess any remedial action required to reduce vibration and unplanned machine shutdowns.

For ABB PPS200, PMC200 and PMC800 drive systems, measurements are obtained directly from the drive system without

the need to install additional vibration sensors. Utilizing fast Fourier transform (FFT), this innovative measurement method is fast, reliable, and cost effective. For continuous monitoring applications, PMC800 drives vibration measurements can be integrated with the PMC800 Datalogger system.

### Drive types

The ABB Paper Machine Drives Speed Fingerprint is applicable to all ABB drives, from older Strömberg drives, and related controllers, to our latest technology including the following:

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 production speed.

- Experienced process knowledge of paper industry machines
- In-depth understanding of drive system characteristics
- Educated vibration analysis (FFT)
- Quick drives tools

The ABB Pulp and Paper Drives Optimization Team is available to provide assistance and best practice support – discovering speed increase opportunities even for older paper machine drives installations – 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. Benefits can be measured in increased web speed and higher paper machine production capacity.

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

### Improvement plan

The improvement plan provides recommendations for improving speed, and identifies specific actions required to move towards optimal performance. Actions to reach new target speed may include:

- Modifications of hardware
- Modifications of application software
- Drive control changes
- Retuning of the drives

Other recommendations to improve speed and productivity, utilizing existing hardware, may include software upgrades to match current generation machines, and modifying machine sequence.

The fingerprint is the first step in achieving and sustaining performance improvement.

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.

### Paper Machine Drives Speed Fingerprint

#### 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:

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

#### Machine ID:

(e.g. PM1) \_\_\_\_\_

#### Machine details:

Width \_\_\_\_\_

Paper grades \_\_\_\_\_

Design speed \_\_\_\_\_

Normal production speed \_\_\_\_\_

Desired new target speed \_\_\_\_\_

Start-up year \_\_\_\_\_

Rebuild/modified year \_\_\_\_\_

	Type	Quantity
Drive section*	_____	_____
Incomer section	_____	_____
Motor	_____	_____
Controller	_____	_____
Tension control system	_____	_____

\*Please provide motor list with drive section details

#### Explanation of identified problems:

#### For more information:

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