Variability measurement in finishing properties, machine response, profile control capability and roll tracking from the supercalender’s feeder machine provides a benchmark for overall calendering performance. The resulting diagnostic report provides improvement recommendations and associated estimated ROI.

Typical savings potential: $100,000 – $250,000

Benefits
- Facilitates management decision process by focusing on high impact opportunities for improvement
- Provides clear path to quickly close the performance gaps by using the proposed improvement plan
- Provides a solid foundation for continuous improvement based on data

Features
- Access to ABB optimization experts
- Process Performance Benchmarking
- Detailed ROI-based improvement plan
- Clear communications during data collection and diagnosis activities

Supercalender Fingerprint
The ABB Supercalender Fingerprint is ABB’s process diagnostic service for calendering machines. It is a platform-independent, non-invasive service. The fingerprint generates both a performance benchmark and an improvement plan consisting of a set of improvement opportunities, which are prioritized based on estimated economic benefits.

Calendering Performance Indicators
The Supercalender Fingerprint involves comprehensive testing and analysis designed to measure five key performance indicators. These performance indicators are used to assess calendering performance and identify potential improvement areas (see Figure 1).
- Product Variability
- Profile Capability
- Historical Analysis
- Machine Response
- Roll Tracking

Process Testing
Each performance indicator is made up of a series of indices derived from specific process tests. Each test is performed inside product specifications utilizing ABB’s diagnostic tools and methodologies. The resulting index is used to evaluate the performance level of different areas of the calendering process including:
- Mechanical vibration & rotational frequencies
- Machine and cross direction controls
- Process control system performance
- Machine startup and shutdown operation

Identifying that a calendering process area is under-performing is the first step in the improvement process. Understanding the problem and having the expertise to provide solutions is assured through ABB’s extensive experience in sheet finishing control.

Supercalender Implementation Modules
In order to provide practical solutions for problems often identified in the calendering process, ABB has developed defined, logical optimization steps for each calendering process area. Once the entry point has been established for each process area, the solution to the performance bottleneck and the remaining steps to optimize the process become clear.

The Machine Response indicator is used to determine a performance index for the machine direction controls (see Figure 2). The “test entry point” is defined by the specific machine
tests and data analysis associated with this Performance Indicator. The Machine Response indicator includes multilevel testing and analysis applied to top and bottom gloss controls. Similar testing methodologies are involved with each Performance Indicator. Complete Process Area testing sequences require three to five working days to collect the data required to complete the diagnosis and develop improvement recommendations.

**Reporting**
An Executive Report and a Technical Report are provided to disclose the findings and recommendations of the process performance diagnosis.

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

**Improvement Plan**
The improvement plan defines how to resolve the performance bottleneck and how to move towards optimal performance. In addition, the associated financial impact for each recommendation is provided.

Based upon the findings, recommendations may include isolating high frequency machine problems related to calender rolls, cleaning up signal conditioning problems, optimizing or adding control logic, updating machine startup-shutdown operator procedures, balancing MD and CD control objectives based on available control range, or re-tuning control loops for optimal performance.

The Supercalender Fingerprint is the first step in achieving and sustaining higher performance levels. Annual 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.

ABB is the world leader in pulp and paper applications. In depth knowledge and experience in this area allows comprehensive evaluation, diagnosis, remedial recommendations and implementation, and the ability to manage and sustain process performance improvement.