Off-Machine Coater Fingerprint
Identify opportunities for improved operation and improved OMC product quality

Measurement of variability in the coat weight, sheet moisture, machine response, profile control capability and coater kitchen stability provides a benchmark for overall performance on the OMC. The resulting diagnostic report provides improvement recommendations and associated estimated ROI.

Typical savings potential: $75,000 – $175,000

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

Off-Machine Coater Fingerprint
The ABB Off-Machine Coater (OMC) Fingerprint is ABB's process diagnostic service for coating application. 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. The ABB OMC Fingerprint is a platform-independent, non-invasive service.

Coating Performance Indicators
The OMC Fingerprint involves comprehensive testing and analysis designed to measure five key Performance Indicators. These Performance Indicators are used to assess coating performance and identify potential improvement areas (see Figure 1).
– Product Variability
– Machine Response
– Profile Capability
– Coater Kitchen Stability
– Historical Analysis

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 coating process including:
– Mechanical vibration & rotational frequencies
– Process control system performance
– Machine & cross direction controls
– Machine startup & sheet splicing operation

Identifying that a coating 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 coater controls.

Off-Machine Coater Implementation Modules
In order to provide practical solutions for problems often identified in the coating process, ABB has developed logical optimization steps for each coating 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 multi-level testing and analysis
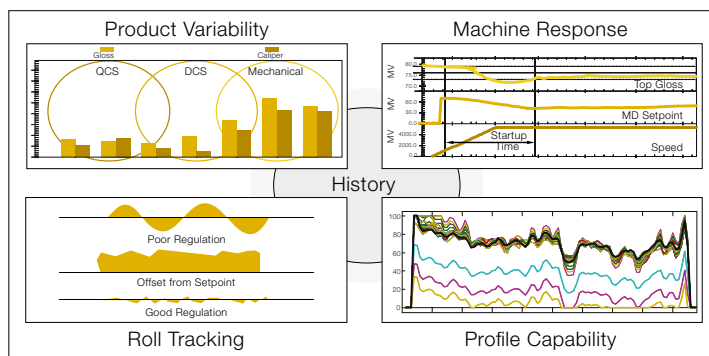
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Figure 1 | Performance Indicators

Figure 2 | Machine Areas: Implementation Modules

applied to coat weight and moisture 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 for the diagnosis and to complete the 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 coater applicator rolls, cleaning up signal conditioning problems, optimizing or adding control logic, updating machine startup and roll splice operator procedures, applying MD and CD control presets, or re-tuning control loops for optimal performance

The Off-Machine Coater 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.
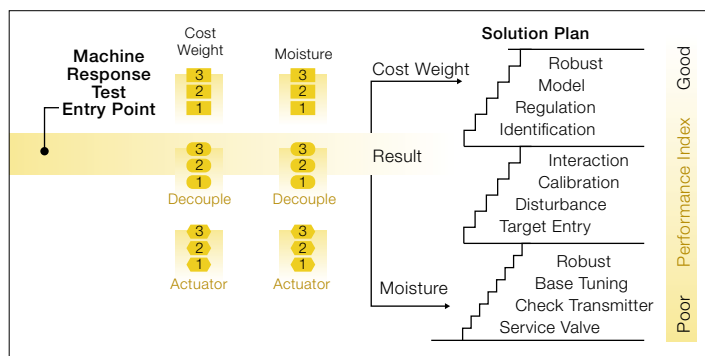
Delivery Schedule

Day 1
Project introduction meeting
Setup data collection software
Begin collecting QCS data for the Product Variability, Machine Response, Profile Capability, and Coater Kitchen Stability studies

Day 2
Complete the single point collections for the Product Variability test
Perform step testing on Coat Weight and Moisture for the Machine Response test
Collect machine startup and roll splice trends for transition time evaluation

Day 3
Complete Machine Response testing

Day 4
Collect steady-state profiles
Perform cross-direction bumps to complete Profile Capability testing

Day 4-5
Perform initial data analysis for Summary of Findings exit meeting
Conduct Exit Meeting

Day 6-10 (off site)
Complete final data analysis and generate executive and technical reports

Communication with the mill precedes scheduled activities to ensure coordination with ongoing mill activities. A daily activity list includes items completed during the day, a summary of findings, and a plan for the following day.

North America Customer Service Center

29801 Euclid Avenue
Wickliffe OH 44092 1832, USA
Tel: 1 800 HELP 365 (1 800 435 7365) Option 0
Outside USA/Canada: +1 440 585 7804
Fax: +1 440 585 5087
E-mail: NAService_info@us.abb.com

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