

## ABB Wet End Control

### ABB Ability™ Advanced Process Control for paper mills



Stabilize your process and improve profit potential with ABB Wet End Control. ABB uniquely applies Advanced Process Control (APC) with models that dynamically capture and adjust to process changes, which leads to higher throughput and quality. Available as a subscription-based service, mills can further benefit from continuous monitoring and control tuning for sustainable results.

The wet end of a paper machine is a highly complex system and includes a plethora of interacting physical and chemical processes. It only takes a small disturbance (change in pulp properties, machine speed, grade changes, etc.) to destabilize the process, resulting in product quality issues and high raw material usage that diminish the profit potential. Such operations will benefit from a solution that simultaneously improves product quality and optimizes raw material usage through APC strategies.

#### Overview

ABB Wet End Control is an ABB Ability™ Advanced Process Control for paper mills solution that improves wet end stability, helping to reduce product variability, chemical usage and sheet breaks while improving machine runnability. It does this by controlling, monitoring and optimizing wet end performance, simultaneously stabilizing white water consistency and optimizing the chemical and filler dosages. To achieve this, Wet End Control uses dynamic models that automatically adjust to process changes and optimally coordinate chemical dosages in presence of destabilizing back-end process changes. This minimizes product variability while also reducing production costs.

#### Features

- Uses multivariable Model Predictive Control (MPC)
- Online model adaptation: Automatic adjustments based on process changes
- Higher-order model support: Captures process dynamics accurately
- Automatic target management: Finds and implements cost efficiencies within process constraints
- Controls, monitors and optimizes the white water consistency and ash level in the wet end

#### Benefits

- Increases profitability
- Improves machine availability, throughput and quality
- Reduces downtime, sheet breaks, grade change time and chemical usage
- Minimizes operator interventions
- Creates energy saving opportunities
- Stabilizes process and white water consistency

### How it works

First, a process analysis benchmarks your process performance, identifies the current operating protocols, and investigates the availability and reliability of measurements — helping to quantify the overall process readiness for APC implementation. When it's deemed "APC ready," an ABB expert performs bump tests on the process to identify models from the mill data, which captures the intricate relations between the various process parameters. These models are used in the APC to automate and stabilize the process. Chemical use and ash content can be further optimized using automatic target management to find the best economical process constraints/optimal operating regions, i.e. how to increase white water consistency and minimize chemical usage without sacrificing paper quality.

### Sustaining results

Implementing Wet End Control as a subscription-based service delivered via ABB Ability™ Collaborative Operations enables structured monitoring and analysis of control performance for sustainable results. Continuous or periodic monitoring drives continued

improvement actions. Customers benefit from ongoing insight and collaboration on how to further optimize wet end stability for long-term improvement.

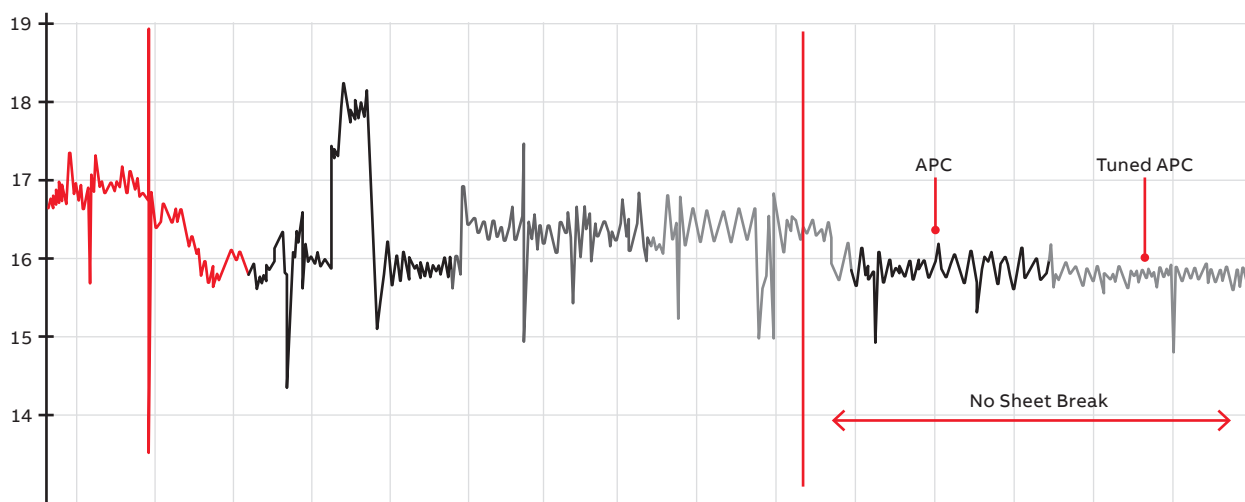
### Case Study

An Indonesian paper mill implemented ABB Wet End Control on System 800xA. The customer achieved measurable benefits immediately when the solution began monitoring and optimizing the production process. Even greater improvements were achieved once the APC was fine-tuned using the mill's operational data (see figure 01 below).

### Specific results

- 10% clay dosage reduction
- 15% polymer dosage reduction
- 20% retention chemicals dosage reduction
- Substantial production cost reduction
- Significant down time reduction

Contact your ABB sales representative today to inquire about how ABB Wet End Control can bring similar results to your operation.



01 Paper ash variability reduces drastically with Wet End Control running continuously and properly tuned.

01

ABB Ltd.  
Finnabair Industrial Park  
Dundalk, Co. Louth, Ireland  
Tel: +353 42 9385100

ABB Inc.  
579 Executive Campus Drive  
Westerville, Ohio 43082 USA  
Tel: +1 614 818 6300

ABB Engineering (Shanghai) Ltd.  
No.4528, Kangxin Highway,  
Pudong District,  
Shanghai, 201319, P.R.China  
Tel: +86 21 6129 8954

The information provided in this data sheet contains descriptions or characterizations of performance which may change as a result of further development of the products. Availability and technical specifications are subject to change without notice.  
Copyright© 2020 ABB.  
All rights reserved.