

Amcor Australasia chooses ABB to optimize their process and lower the cost of manufacturing.

Located in Botany, Southern Sydney, Australia, Amcor Australasia turned to ABB and its Paper Machine Optimization Services to diagnose runnability issues and improve efficiency on two aging paper machines.

Amcor Botany objectives

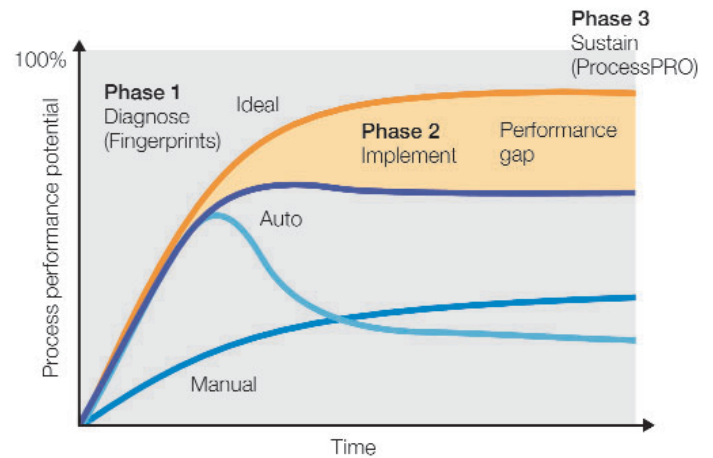
Amcor in Australia, one of the world's largest packaging companies, plans to shut down two paper machines (BM7 and BM8) that have been in operation since the 1960s and replace them in May of 2012 with a new recycled paper machine (B9) that will significantly increase mill output. But Amcor decided to continue working with ABB, the service supplier that helped keep their old equipment performing at top levels. Anticipating the changes ahead, Amcor signed an additional optimization service contract with ABB.

Amcor's objective was to reduce the variability on the paper machines BM7 and BM8 and diagnosis the issues that cause disturbances on the runnability of the machines. The resulting optimization services reduced sheetbreaks, increased throughput, reduced quality variations and rejects, and provided savings in raw materials and chemicals.

ABB began providing optimization services in September 2009. By June 2010, Amcor had achieved record production with increased production of 2,570 tons over forecast.

Why optimize?

Investing in a DCS control system to control machine equipment, and a quality control system to control the quality, papermakers mistakenly believe they are all set to maintain stable production and quality. But the reality is the machine process and operation conditions vary on a day-to-day



Papermakers can achieve sustained equipment performance improvements through our results-driven automation services programs. Mills remove the performance gap to operate at the ideal and safe mechanical constraints of the process.

basis, the machine equipment, instruments valves and pumps deteriorate over a period of time. Unless these issues are diagnosed, analyzed and the root cause of the variability and disturbances are identified and addressed, there will be a detrimental effect on the runnability of the paper machine.

ABB Optimization Services

Amcor hired ABB experts to support optimization activities, equipped with advanced data collection and analysis tools that exposed issues and identified the root cause of any problems. ABB's Process Optimizing Tools provide a set of powerful software tools for detailed data analysis, tuning, reporting and control loop simulation. These tools were deployed for machine direction (MD) as well as cross direction (CD) controls. Process Optimizing Tools can be used with any model of ABB QCS or control systems as well as all competitive QCS and control systems by utilizing optional data acquisition features.

ABB process engineers start by generating a Fingerprint as a performance benchmark and an improvement plan, consisting of a set of improvement opportunities that are prioritized based on estimated economic benefits. Identifying machine area under-performance 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 paper machine control.

Issues were raised as Modification Forms in the technical analysis report, which were then submitted to Amcor's process area managers for review and approval, and finally passed on to the people responsible for eliminating the issues and avoid the problems from recurring. As an ABB Full Service site, Amcor was able to leverage the ABB Full Service Team to execute most of the resulting resolution work orders. The actions taken range from calibration and servicing of the instrument and valves, to tuning controls, process modification, modification of the control logics, addition of some equipment and change in operating practices. Examples of the actions:

- Identified root cause and proposed control modification to avoid sheet breaks
- Removed unnecessary filtering on the measurements and tuned controls
- Control logic modifications to avoid process upsets and improve process control response
- Proposed operational changes to avoid process upsets and disturbances
- Made changes in the control strategy and tuned controls to reduce process variability
- Modified control setup and tuned controls to avoid frequent changes in the actuators, which can damage motors, drives and valves

Results

ABB and Amcor teamwork resulted in renewed stability of the paper machines and significantly higher production. Now the optimization team is focusing on identifying the bottlenecks in the waste paper plant with the objective of increasing the throughput and improving the pulp quality. Once issues are addressed it doesn't mean that improvements are going to stay forever. The next objective is to sustain the results achieved by periodical evaluation and look for other opportunities for further improvements. To sustain process performance ABB has set-up Remote Services (RAP) to access the data logger to collect data and analyze remotely.

The optimization service started in September 2009 and at the end of financial year in June 2010 Amcor had record production. Production increased in spite of the following conditions:

- The time efficiency is 2% less than the previous years (due to few failures)
- Rejects are 0.4% higher due to the trial of a new grade on B7
- The machines are at the end of their lifecycle

Tremendous anticipation is now building due to Amcor's construction of the new recycled paper mill in Botany (B9), with commissioning expected to commence around the end of the 2011 calendar year. ABB will continue to be a key Amcor partner in a relentless effort to reduce the cost of manufacturing and ensure high quality products and market competitiveness.

For more information, please contact:

North America Customer Service Center

29801 Euclid Avenue
Wickliffe OH 44092 1832, USA
Tel: 1 800 HELP 365
(1 800 435 7365) Option 4
Outside USA/Canada: +1 440 585 7804
Fax: +1 440 585 5087
E-mail: NAService_info@us.abb.com

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