

# Aluminum Company of Malaysia reaps productivity gains of 15%, decreases setup time by 10% and greatly improves product quality

Rockwell Automation's cost effective upgrade on a foil separator control system enables precise regulation and control, enhanced diagnostics and improved manufacturing flexibility.

## Background

When the foil separator control system needed upgrading at its sheet and foil plant, the Aluminum Company of Malaysia (ALCOM) called on a familiar partner, Rockwell Automation, for the modernization. Rockwell Automation had previously upgraded the control system at ALCOM's cold mill and the company had seen productivity soar by 18% as a result.

ALCOM, a wholly owned subsidiary of Alcan Inc. of Canada, manufactures and distributes aluminum sheet, foil and other fabricated products for the Malaysian market. A global leader in aluminum and specialty packaging, Alcan's annual revenues exceed US\$12 billion.

## Challenge

The control system driving the Motor-Generator (M-G) set on the foil separator was installed in 1967 and used an archaic analog system. Since this system could only provide imprecise, low resolution control, ALCOM experienced fluctuating product quality and a high percentage of waste. In addition, the legacy system was difficult to troubleshoot and maintain. Parts were obsolete and becoming scarce. Unscheduled downtime — resulting in lost productivity — was a constant challenge.

ALCOM required a flexible control system that could enable reliable, repeatable performance — and easily adapt to changing manufacturing needs.

## Solution

Rockwell Automation's solution, based on



Reliance Electric AutoMax Distributed Power System (DPS) hardware and software, applied the latest in digital technology to create an easy-to-use system that would provide ALCOM with the precise control, diagnostic capabilities and flexibility they required.

Like many modernization projects, the foil separator upgrade retained and reused existing equipment, including DC motors, all field devices, limit switches and operator control stations (other than the new main operator panel).

To apply the new solution, Rockwell Automation replaced the existing M-G set AC Motors and DC generators with a new static (SCR) drive control system. When applying the SCR drives to the older motors, care was taken to ensure that no damage was done to the insulation system. ALCOM agreed to have the DC motors rewound to suit the rectified

AC supply, and three new brushless resolvers were also used for coupling to the existing DC motors. AutoMax drive control software provides the sequential control.

The existing small DC motors for the deflector and welder rolls were also reused and are controlled by new, individual single phase Reliance Electric DC2 DC drives.

Allen-Bradley 1794 Flex I/O, a flexible, modular I/O system, was chosen for the interface between the field devices and operator controls. Providing all the functionality of larger, rack-based I/O without the space requirements, the Flex I/O modules were strategically placed to reduce cabling costs. An Allen-Bradley PanelView operator interface, featuring an easy-to-use 900-keypad type display, monitors the solution and allows operators to set parameters accurately and to display faults and alarms.

With Rockwell Automation Global Manufacturing Solutions providing the startup services, the project was completed on time and on budget.

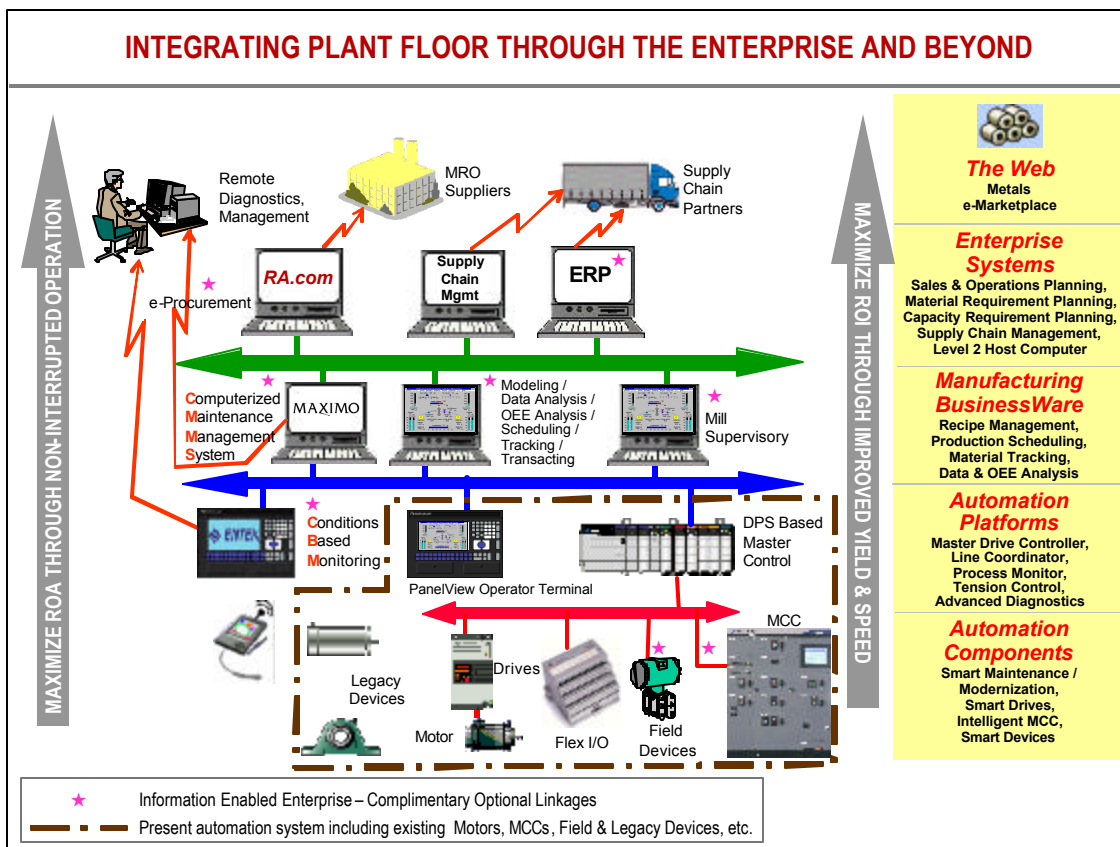
### Results

ALCOM has reaped substantial benefits since implementing the new user-friendly system, which is significantly easier to troubleshoot and modify. With improved reliability, enhanced regulation and control, and better diagnostics, productivity on the foil separator has

increased by 15% and setup time has been reduced by 10%. In addition, using the PanelView display, operators are now able to set accurate tension loop which has greatly improved product quality. "The system modernization that Rockwell Automation provided has helped us achieve much greater efficiency at this plant," said Kantilal Patel, ALCOM Engineering Manager. "And it was a very cost-effective solution. By reusing the existing DC motors and only replacing the M-G sets with digital DC drives, Rockwell

Automation has also helped us achieve a lower total cost of ownership."

The architecture below depicts Rockwell Automation's concept of an Information Enabled Enterprise. The area outlined with a brown dash line represents the present automation level under discussion in this document. The remaining portion illustrates a host of solutions that Rockwell Automation can provide today to integrate the plant floor to the enterprise and beyond.



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