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Migrating Rockwell-Based Machines to Siemens Components

Case Study: OEM Wins Huge Brewery's Business

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Brewery opportunity: Risky but too big to pass up

In the packaging equipment industry, the family-owned Wayne Automation Corporation northwest of Philadelphia has long been known for building fast, extremely reliable and highly engineered solutions—with Rockwell components exclusively. When the company had an opportunity to bid on meeting the packaging needs of what is today one of the world's largest breweries, it faced a quandary: the spec for the machines required Siemens components, with which its engineers had no experience.

According to Wayne Automation Vice President and General Manager, Jay Bachman III, the project was too big to pass up. It would require nearly 60 packaging machines comprised of roughly 20 sets of three different machine types: partition inserters, which inserts the corrugated or fiber board divider to protect the bottles,

basket carrier erector/inserters, which open then place cardboard six-pack carriers inside cases; and case sealers, which glue case boxes shut.

The brewery was designed to produce 20 million Hectoliters of beer annually, and needed the packaging lines capable of supporting that output. To put it into perspective that's on the order of shipping 30 railcars of product each hour. "We do a lot of brewery work, so this opportunity was right up our alley, except for the Siemens spec. So, to win the bid and then execute the order, we had to get smart on Siemens really fast."

For help, Bachman contacted Applied Controls, Inc., its nearby Siemens distributor, which is not only a value-add Siemens Elite Partner but also the host of an authorized Siemens Technology Center for the mid-Atlantic region. With Applied Controls and Siemens standing behind it, Wayne Automation won the brewery bid.

As a long-time Rockwell customer using Siemens components for the first time, Wayne Automation successfully implemented a 1,000-case-per-minute packaging solution for one of the world's largest breweries, helped by extensive support from Siemens and Applied Controls, a local Siemens partner.

The brewery's packaging equipment needed to process up to 1,000 cases of beer per minute to support production designed to ship 30 railcars of beer each hour.

Show time: Migrating from Rockwell to Siemens

Of course, for a company with decades of Rockwell design and engineering know-how but no Siemens experience, delivering its machines to the brewery's spec on time and on budget was a giant next step that seemed full of risk—at first. "For us, we were really plying uncharted waters," says Bachman. "We knew Siemens had the products we needed to build our machines around, but we were uncertain as to how well we could match up their feature sets with Rockwell's and also about the levels of support we'd receive from it and Applied Controls."

Immediate support was a big help. To his great relief, Bachman's uncertainties evaporated almost immediately after winning the bid and engaging Siemens and Applied Controls. "From the start, both companies were on top of our needs to ramp up quickly like we were their most important customer in the world," he recalls. "They really gave us access to all the high-level technical resources we needed. And if our engineering team needed some over-the-shoulder advice, Applied Controls is right down the road and would have someone here by lunchtime."

Bachman found that the technical experts from Siemens and Applied Controls obsessed over the details to ensure his company's success. "They carefully reviewed our machines' schematics and our Rockwell bills of

materials, then did a one-to-one match for each component," he says. "We were impressed how aligned the feature sets were, nearly identical in most cases except for those features and capabilities that actually surpassed Rockwell's. They were also extremely price-competitive, if not less expensive."

The specific Siemens components used in the machines were:

- Siemens SIMATIC S7 315 Programmable Logic Controller (PLC), a proven platform able to provide both fast, precision controls and PROFINET communicate with the brewery's higher-level manufacturing execution systems and enterprise resource planning systems.

"High-performance with rock-solid reliability are hallmarks of all Wayne Automation solutions," says Bachman. "With the brewery's 1,000-case-per-minute volumes over the coming decades, even a few tenths improvements in throughput and uptime from the Siemens SIMATIC PLCs will add up to big productivity gains and greater profitability for the brewery."

- Siemens SIMATIC HMI Comfort Panels, with 15-inch, high-resolution color displays offer plenty of screen area for machine-level visualizations to help the brewery's equipment operators and maintenance personnel do their jobs better. These were easily programmed using the Siemens SIMATIC WinCC software in the Siemens TIA Portal. The latter is a common engineering framework that's core to the Siemens Totally Integrated Automation (TIA) portfolio.

"At Wayne Automation, we design and engineer all our equipment around the operators and maintenance

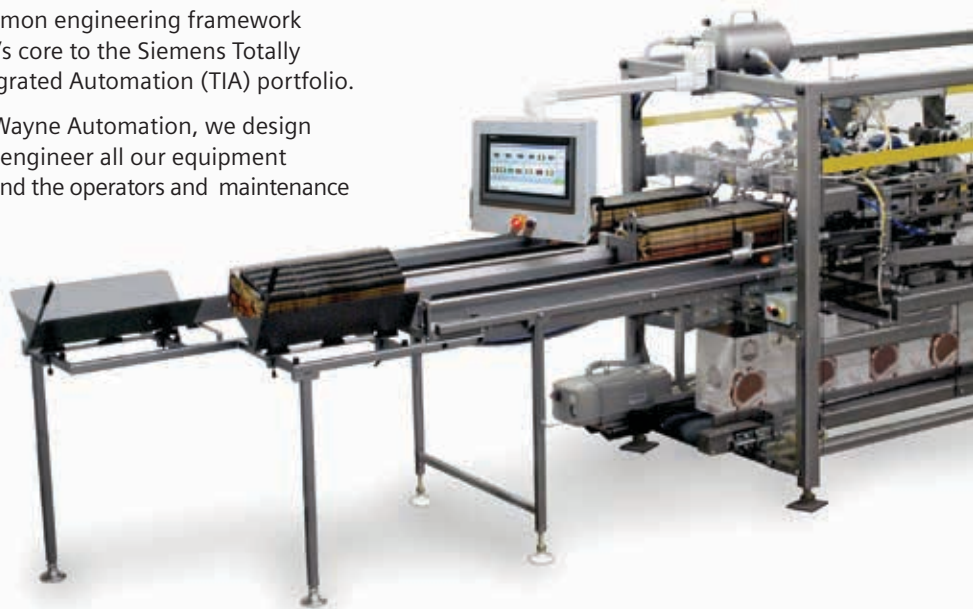
staff, so they can get their jobs done most effectively in the least amount of time and with the least effort," says Bachman.

"The Siemens SIMATIC HMI Comfort Panels helped us do that by providing brilliant, color displays that were easy for our guys to program using the TIA Portal," he adds. "What's more, the language option enabled us to develop in English, then automatically convert the interface to Spanish to meet the bilingual HMI requirement with no additional programming."

- Siemens SINAMICS S120 modular motion control drives, providing each machine's servo system with a wide range of features and capabilities, plus a space-saving footprint. The drives and their servo motors turn the machines' cyclic processes with precise and fast closed-loop, position control. They have intelligent starting functions for automatic restarts, in case of power interruptions.

"The Siemens SINAMICS S120 servo solutions were unique compared to Rockwell's in that they gave us a lot more flexibility and options in how we used them, plus gave us more space savings."

Bachman attributes the successful migration of his company's machines from Rockwell to Siemens components to other factors aside from the extensive support his team got from Siemens and Applied Controls. One was the compatibility, interoperability and



"Looking back, we incurred no time-development penalty for switching from Rockwell to Siemens components."

plug-and-play configurability of the Siemens TIA portfolio components. "Clearly the wide range of products in the Siemens TIA portfolio are designed and engineered to work together, so our guys weren't spending time scratching their heads trying to figure out how to make different component families work together," he says.



Another factor was the TIA Portal's common engineering framework, used after Siemens and Applied Controls helped the company convert its Rockwell code to Siemens code. The company's technical team found the process straightforward, after a brief detour using a beta version of a conversion tool that's now been perfected.

"Both companies helped educate our team in 'Siemens 101,' such as how to do I/O and program the HMI," Bachman says. "Once we had our code converted and in the TIA Portal, our progress really accelerated. The learning curve was small, and although I can't say specifically how much time was saved, I know it was substantial. Looking back, we incurred no time-development penalty for switching from Rockwell to Siemens components."

Results: Brewery deployment successful; new market doors open

All reports back from the brewery's prime integrator about the performance of the company's packaging machines using the Siemens components are extremely positive.

In addition, the Siemens components in the packaging machines are able to easily communicate over PROFINET industrial Ethernet to the plant's higher-level manufacturing execution system

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(MES) and enterprise resource planning (ERP) system. "Both systems are critically important to the brewery's production efficiency and being able to easily tie our machines into the facility's overall network helped make installation and commissioning that much easier," Bachman says.

Tapping into advanced features. He points out that his team looks forward to tapping into many of the advanced features of the Siemens SIMATIC and SINAMICS components beyond the brewery project scope of work. "We didn't even get to use some of the best ones," he says. "For example, one is the regenerative power feature of the capacitors on the drives' back plane. That could really help reduce power consumption."

For Wayne Automation, the successful migration from Rockwell to Siemens components for the brewery's packaging machines promises an even bigger company payoff down the road. "Now that we have Siemens experience and know we can count on local support and service from highly qualified partners like Applied Controls, we have vastly expanded our market opportunities," Bachman says.

"Anything that enables us to say yes to a customer or prospect is a good thing," he adds. "For anyone considering a switch from Rockwell to Siemens, I highly recommend doing it — and would do it again in a heartbeat. In this brewery project, we had an extremely important customer asking us to use what, for us, was an unknown control system. The support we got from Siemens and Applied Controls was nothing short of extraordinary, but for them, it was... just how they do business."

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