CLARIPROD

HOW WINDMILL PLASTICS IMPROVED OVERALL PRODUCTIVITY WITH **CLARIPROD**

WINDMILL PLASTICS

Windmill Plastics by the numbers

- Founded in 1985
- 85 full-time employees
- 12M parts produced annually
- 24/7/365 operations
- 18 large-tonnage presses
- 10 robotic cells with FANUC 6-axis robots
- Over 100,000 square feet of manufacturing and distribution space

THE SEARCH FOR THE RIGHT INDUSTRY 4.0 SOLUTION

In 2015, Windmill Plastics started pushing toward greater automation. Based in Knowlton, Québec, the injection molding and contract manufacturing company was growing and, like many manufacturers, having trouble filling all its available positions. To help, Windmill implemented robots to take over some of the repetitive tasks.

"As we automated, we started looking for ways to leverage sensors, connectivity, and big data to replace the information gathering that used to be done by staff on the floor," said Frank Desrosiers, president and co-owner of Windmill. But finding the right system to extract and analyze all the company's data was not a straightforward process.

In its search for the right Industry 4.0 solution, Windmill looked in depth at a number of different systems and actually tested three, but none of the established commercial offerings felt like the right fit.

Most of the systems required significant upfront investment in hardware, which would then need ongoing maintenance by IT personnel. For a small/medium-sized plastics manufacturer with neither an IT department nor a server room, those requirements were a barrier to entry. Windmill also considered emerging cloud-based systems, but the significant upfront implementation costs, coupled with high subscription fees and additional charges to extract and access data, made those options unrealistic as well.

Rather than giving up, Desrosiers was inspired:

Clearly there was an offering missing from the Industrial Internet of Things (IIoT) market that he could fill with a product that would, at the very least, meet the needs of plastics manufacturers like Windmill. "As small/medium plastic products manufacturers, there were needs we had that weren't being met by the other systems," he said, adding that other systems typically were not designed by manufacturers from "the shop floor up."

Meeting those needs was the basis for developing the Clariprod System. Throughout the development process, Desrosiers was clear about what Windmill and other small/medium plastics businesses needed in a real-time production monitoring system:

- Fast and simple installation and use
- Low initial setup fees
- Easily scalable system
- Equipment-agnostic design
- No hardware or IT personnel requirements
- Excellent ROI

He partnered with local experts to make the system a reality. After about three years of prototypes and system trials on site at Windmill, Clariprod was born and officially made available to other manufacturers.

CLARIPROD

SEEING THE FULL PICTURE
WITH CLARIPROD

When Windmill Plastics decided to make the leap to Industry 4.0, it did so with the goal of using data to provide a more complete picture of what was happening at any given moment on the factory floor in order to drive overall efficiency.

"We were leaving a lot of potential efficiency gains on the table," Desrosiers said, adding that in the push to automate, there were fewer employees on the floor actively engaged in monitoring the equipment.

Windmill's management team saw the promise of Industry 4.0 and its focus on machine interconnectivity as the best way to fill that gap, allowing them to collect and process data in real time so they could react quickly despite having fewer employees on the floor.

Cycle times were an early area of concern. "I wasn't surprised by the issues we uncovered," Desrosiers said. "But I was shocked by the frequency and amplitude of the problems."

"We had machines where the target cycle time was 30 seconds. Clariprod showed us that we were very often running at 31 or 32 seconds and, more importantly, alerted our teams as soon as the machines were off cycle, allowing them to correct the situation immediately," said Desrosiers. "We even had some instances where the machines were off cycle at times by 5 seconds."

Windmill Plastics' facility runs 24 hours a day, 7 days a week, meaning that those lost seconds were adding up to thousands of dollars in wasted production time every month.

"On average at Windmill Plastics, we estimate that running 1 second over the standard cycle time on an average cycle of 20 seconds costs us approximately $500 a week on one single machine," Desrosiers said. "Over the past year, our Clariprod data shows that we have saved at least that amount on cycle-time savings alone on a number of our machines.

"Before we started monitoring our overall equipment effectiveness in real time, we had shifts where the cycle could be off 2–3 seconds from the standard for extended periods of time," he added.

After just one day, Clariprod was delivering actionable data.

DOING MORE WITH LESS

Thanks to Clariprod's built-in analysis capabilities and suite of reports, the production team no longer has to spend time compiling production sheets with explanations for downtime, scrap counts, etc. The faster turnaround means those reports are always ready and up to date, giving the management team a head start on the day.

"It's a huge time saver,"

said Erik Desrosiers, vice-president and general manager of Windmill Plastics. "Before Clariprod, we used to gather the previous day's production sheets and enter them into our system in order to understand where production stood and how things had gone. Sometimes it was 10 a.m. by the time this was done. Now, we come in and open the report on Clariprod and we have all the information we need at 7 a.m., right when the day starts."

Clariprod allows for varying levels of access, and because the number of people who can sign in to the Clariprod Portal is unlimited, everyone who works at Windmill can have view-only access of the dashboard and reports. That has led to shift teams adopting the language of the system, including increasingly basing their verbal shift report on the data rather than an anecdotal sense of how it went.

In addition, Clariprod's ease of access via any Internet-connected device is especially valuable when key members of the management team need to work remotely. Clariprod allows everyone to have eyes on the Windmill Plastics plant, in real time, even from home. In meetings, it also means everyone can literally be on the same page.

CLOSING THE LOOP

Windmill Plastics had installed Clariprod Controllers in about half the plant when the company changed its enterprise resource planning (ERP) system. It then continued to roll out Clariprod Controllers to the rest of its facility, eventually linking the two systems together.

Clariprod linked seamlessly to Windmill's new ERP—via an application programming interface that can be adapted for any ERP—allowing for a direct link between real-time production events on the floor and production planning and management. That has allowed the team at Windmill to validate counts, track progress against work orders, and more.

"Very few ERPs are really real-time," Frank Desrosiers said, adding that Clariprod can provide the real-time production tracking module that takes your systems to the next level.

THE PAYOFF

By developing a system optimized for his business and others like it (including packaging, assembly, etc.), Frank Desrosiers is now seeing the payoff at Windmill.

"Over a four-year period, we have improved our overall productivity (measured as revenue over salaries paid) by 43% through the integration of automation and real-time data monitoring and capture," said Erik Desrosiers.

As their numbers continue to improve, the Desrosiers say their team's use of Clariprod continues to grow and expand. For example, at the beginning they relied on a few primary features: the dashboard and the real-time monitoring. Now, in addition to those functions, their team also uses alerts and historical reports—the retrospective data is especially useful for diagnosing the root cause of issues. They even see Clariprod data becoming a useful tool for employee feedback and performance reviews.

Overall, Clariprod has been an important addition to Windmill Plastics.

"Clariprod has played an important role in enabling automation, improving our efficiency and reducing costly data-entry hours for our supervisor and management teams." —Erik Desrosiers

Although it can be daunting to make the leap to IIoT/Industry 4.0, having a partner like Clariprod can make it feel simple.

Get in touch to talk about how Clariprod can transform your business:

info@clariprod.com

43%
increase in **overall productivity**

$150
monthly savings, per machine, in **reducing downtime by 5 minutes**

$2,000
avg. monthly cycle-time savings, per affected machine