

Case Study:

CONESTOGA MEATS

Customer Profile:

Conestoga Meats' \$50+million, 100,000 sq. ft. plant addition is the most advanced, automated abattoir in North America. Ontario's second largest pork producer is owned by 157 hog farmers and employs about 1,100 people. With the new addition, they can process up to 58% more hogs weekly, with a large percentage being exported.



Solution:

Conestoga Meats' plant addition was multifaceted, involving five key components:

- 1) Base building electrical installation
- 2) Alarm system integration
- 3) Process equipment electrical installation and,
- 4) Design and development of a turnkey control solution for the associated blood transfer system control and integration.

In addition, the world class equipment supplier Marel Meat, sought a trusted electrical partner with the automation skills necessary to provide equipment check out, functional testing and commissioning support. Such a project demanded an electrical contractor with a proven track record delivering complex, critical electrical and automation systems for the high standards of the Food and Beverage industry.

Conestoga Meats Engineering Manager, Carlos Daza Donoso, P.Eng, retained Spark Power (formerly New Electric) for the complete electrical installation of the plant expansion. This included state-of-the-art Marel automation and robotics for its new "leading-edge, intelligent, and integrated" facility. Having previously partnered with Spark Power on a comparable protein-processing facility, Daza Donoso recognized Spark Power's technological acumen, dedicated support and transparent communications would benefit Conestoga Meats as much as their ability to address the challenges that are an inevitable part of every start up.

Challenges/Requirements:

Conestoga Meats' plant addition was multifaceted, involving four key components:

- 1) Enhance animal welfare regulatory compliance
- 2) Mitigate the negative impacts of certain tasks/jobs on employees
- 3) Enhance product quality
- 4) Maximize production & reduce downtime



Benefits:

- 1) Marel automation/robotics enhance animal welfare, ensure compliance
- 2) Marel robotics/automation eliminate the most physically and mentally demanding jobs
- 3) Improvement in meat quality
- 4) Production increased by 58%
- 5) Risk of unscheduled downtime is reduced thanks to 24/7 access to local electrical experts

Conestoga Meats' \$50+ million investment in its leading-edge, highly automated 100,000 sq. ft. addition in Breslau, Ontario is proof the farmer-owned pork producer cares. The co-op leveraged Marel automation and robotics equipment, imported from the Netherlands and Denmark, to benefit Conestoga's animals and the employees that process them. "As the global leader, Marel was able to deliver a facility that would still be considered state-of-the-art a decade from now," says Carlos Daza Donoso, P.Eng, Engineering Manager, Conestoga Meats. "Marel equipment, combined with Spark Power's automation and electrical services, takes our animal welfare, employment and product quality standards to the next level in the most advanced, automated abattoir in North America."

The new Marel equipment, which has an enviable track record in the Americas (North and South), Europe, and the Middle East, uses a series of gates to automatically guide groups of hogs into position for processing. The automated process reduces the animals' stress, which leads to improved final product quality such as improved shelf-life, color and texture. To further minimize stress to the animals, the heated barn also features noise-cancelling equipment, acoustic insulation in the walls and ceilings, and sophisticated air handling and filtering systems to manage temperature, sounds and smells.

"We easily comply with the most current animal welfare standards and product quality has improved," says Daza Donoso. "This allows us to target new market opportunities." Spark Power also designed, built, and installed a turnkey blood transfer control system. This blood transfer system treats this valuable by-product as gently as possible to maximize its value by filtering out the impurities, cooling, and then refrigerating it. This guarantees the product is kept at exactly the right temperature for the correct time period. The improved process delivers the quality required for inclusion in varied products.

"Technology reduces, if not eliminates, the possibility of human error," says Daza Donoso. "The two employees that worked in the blood handling department readily transitioned to dynamic and appealing roles."

Facility-wide, automation ensures consistency, precision and accuracy. This project also resulted in automating such operations as the belly opener, neck clipper, and splitter. Previously these all required incredible focus, precision and strength from each employee continually while on shift. Conestoga knew Marel's processes were effective having relied on their equipment for the past 12 years. "A robot's precise, symmetrical slicing gives full accuracy compared to 45% for a human," says Daza Donoso, who notes the opener, clipper, and splitter employees were happy to take on new roles with Conestoga Meats. "These jobs were so physically and mentally demanding that turnover was very high."

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Conestoga's Daza Donoso knew that Spark Power understood the extreme demands placed on both the equipment and employees, having worked with them in other food processing environments. At Conestoga Meats, the equipment is subject to severe wear and stress. In addition, sanitization requiring cleaning chemicals and hot, high-velocity, high-pressure (600 to 1,200 PSI) water presents a challenge.

"Spark Power understands the rigid, extreme demands faced by equipment and systems in an abattoir and food processing environment," says Jan Bos, sales director, Marel Meat, the Netherlands.

As Marel's Bos explains it, safety and product quality are a vital consideration with the robotics and automated equipment which is sanitized during each operation and after each cycle to minimize Total Plate Count (TPC) contamination rates. Thanks to the Marel equipment designs that eliminate hidden corners and crevices, as well as Marel's sanitation protocols, the TPCs on equipment and carcasses are significantly lower than competitors.

Safety, and specifically implementation and installation integrity, depends on the experience and expertise of Spark Power's electricians, programmers, and project managers when they're dealing with everything from cabling to sensors and complex overall electrical infrastructure. "In fact, we had Spark Power review all of our drawings to ensure design and installation compliance with local Canadian rules and regulations," says Marel's Jan Bos. "While the local know-how is key, their geographical proximity also delivers timeline and cost efficiencies as well as availability for future maintenance, troubleshooting, and overhauls."

Spark Power employees have the skills required to integrate multiple automation, robotic, and electrical systems into a single, intelligent facility. Whether required to meet tight installation timelines or troubleshoot post-implementation, Spark Power employees are available locally 24/7.

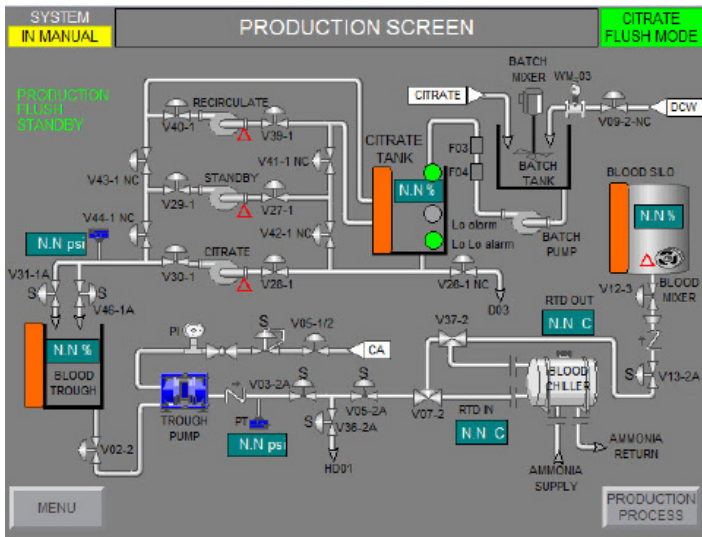
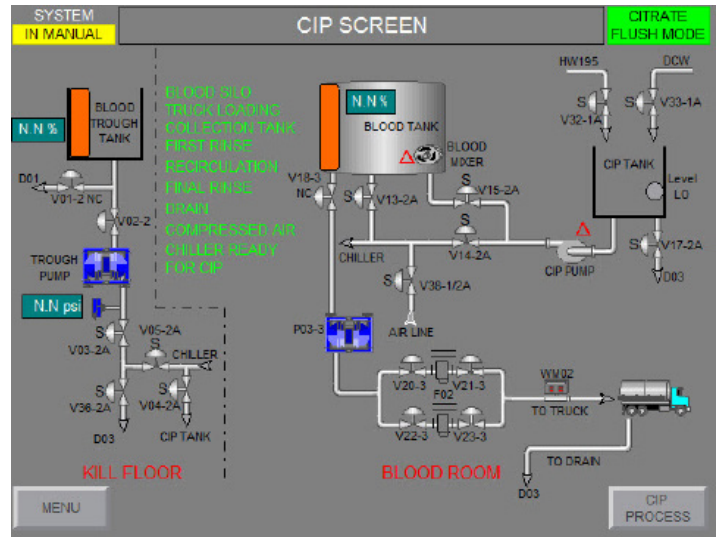
"Just two minutes of downtime creates chaos and shuts down a production line that is designed to process up to 800 hogs hourly, so Spark Power's on-site availability really is crucial to Conestoga Meats," says Daza Donoso.

Early on, Marel and Spark Power's engineering teams collaborated to ensure alignment on Marel's preferred connection strategies.

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"The multi-cable with a junction box approach requires more time and effort upfront but ultimately, it facilitates and expedites fault detection and solutions and minimizes the risk of wire damage, which Spark Power understands and appreciates," says Bos. "Spark Power has earned its good name and solid reputation for its work in food processing environments – word gets around." Conestoga Meats requested Marel to supply this system in accordance with company standards which included as specification for Rockwell Automation.

Benefits of Rockwell include utilization of Point I/O Modules. These ensure the control system is easily adaptable for future system expansions and as well as facilitating ease of maintenance with their superior diagnostics. And the local Rockwell distributor provides easy access to parts and technical support. "Rockwell knows safety is the top priority and in the food industry,



it's our job to help safely produce and deliver a safe, quality product to consumers," says Ryan Jack, Solution Architect, Rockwell Automation. "Rockwell and its distributors and their local offices are always available to customers like Conestoga because we know downtime is food safety's ultimate enemy."

As importantly, Spark Power trained multiple programmers and technicians on the Rockwell and Marel systems to ensure that Conestoga Meats has access to superior expertise when required. "Conestoga Meats' existing systems rely on Rockwell," says Daza Donoso. "Rockwell and its distributors have the resources required to service, maintain, and troubleshoot our equipment locally."

Conestoga Meats was sure Spark Power would provide the necessary support during the project and afterwards because Daza Donoso had experienced their local resources firsthand. In addition, Spark Power and its employees had a history of learning these systems intimately in order to be ready to face any challenges that might arise.

"The new Conestoga plant was a huge project for all of us, Marel, Rockwell, and Spark Power, and as a result of our collaborative efforts, we mitigate the stress to the animals to guarantee the quality and shelf life of Conestoga products," says Bos.



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