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Lecuyer leverages flexibility of new systems to meet unique demands of local concrete pipe market

**LECUYER**  
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Le Groupe Lecuyer, Saint-Rémi (Québec), J0L 2L0, Canada

# Lecuyer leverages flexibility of new systems to meet unique demands of local concrete pipe market

When HawkeyePedershaab's Brad Schmidgall received the confirmation call from the Lecuyer Group of Saint-Rémi, Quebec, in the fall of 2009 confirming that Lecuyer was ready to pull the trigger on the construction of a state-of-art automated concrete reinforced pipe (CRP) plant, he was not surprised. "We had been in discussions with the owner and CEO of Lecuyer Group, Maurice Lecuyer, and the President, Antonio Tavares, since 2007," explains Schmidgall, HawkeyePedershaab Vice President of Sales for North America. "Long before that, we spoke with them at the Bauma show in Germany and elsewhere. They were very careful in researching the market and waiting for the right combination of factors to align themselves before making a commitment. That was smart and the results speak for themselves."

■ Hank Giles, Giles Associates, USA ■

## Pipe dream becomes reality

Founded in 1956 by Maurice Lecuyer's father, Lecuyer Concrete began life as a small family-run business producing precast catch basins, manholes and small diameter concrete pipe using a wet cast process. However, dry cast pipe manufacturing soon took over the market and Lecuyer abandoned wet cast pipe production to focus on growing its business in other precast products.

In 1969, Maurice became president of the family business and over the following decades would introduce many new product lines—including utility vaults, Easi-set and Easi-span precast utility buildings, and Stormceptor storm drain systems—establish new locations, and expand the firm's markets. However, the desire of Maurice Lecuyer, now CEO, to return to the company's roots in pipe production has grown stronger over the years.

"Mr. Lecuyer has been thinking about and researching every aspect of pipe production for at least the past 10-15 years," says Lecuyer President Antonio Tavares, who has been with the company for

many years. "We travel the world anyway visiting vendors, attending trade shows, and touring other plants, just to stay current and to understand what is state-of-the-art for all of our products, but we have also kept a close eye on the pipe industry as well."

## Market opportunity for automated plant

Tavares notes that the pipe market and manufacturing practices in the Quebec province—Lecuyer is based in Saint-Rémi, just south of Montreal—has changed over the past few years to the point that the firm's leaders believed it was time to take action. "We saw that many pipe producers in our area were using older equipment and labor-intensive processes," Tavares observes. "We believed that the time was right for a new, completely automated plant in Canada—which could produce the right types of pipe at the lowest possible cost, yet do so with the highest quality and on-time delivery. That's what we've done with the help of our partners, Hawkeye-Pedershaab and Advanced Concrete Technologies (ACT- American division of Wiggert+Co and Würschum GmbH). They've supplied a complete turnkey project."

The Lecuyer team chose to develop the new pipe plant—known as Quebec Concrete Pipe Inc. and in French as Tuyaux de Béton Québec Inc.—on an industrial park site the company owned, adjacent to its largest production facility in Saint-Rémi. The company also has a site north of Montreal in Laval where it produces precast aquaduct products. The state-of-the-art pipe plant was designed and built specifically to accommodate the HawkeyePedershaab PipePro XT RCP manufacturing system and ACT MobilMat Mo80/4-PCS concrete batching plant. Both HawkeyePedershaab and ACT engineers assisted Lecuyer and its general contractor from the earliest stages through to completion to ensure an optimal outcome.

Beginning in November 2009 and continuing until the plant was producing commercial quantities of pipe in early 2011, Hawkeye-Pedershaab and ACT representatives visited the Lecuyer site numerous times, provided detailed drawings, consulted by phone and email, and delivered and commissioned the pipe production equipment according to a detailed schedule, complete with performance guarantees. Despite some of the harshest winter weather in history in early 2009 and late 2010, the project moved smoothly, even achieving initial startup a month ahead of schedule.

## PipePro XT delivers production flexibility

Lecuyer chose the HawkeyePedershaab PipePro XT production system because its unique turntable design allows three different pipe products to be produced at the same time, making it ideal to



*Celebrating the opening of the state-of-the-art concrete pipe plant built by the Lecuyer Group in Saint-Rémi, Quebec, Canada, are key participants, including, from left: Ron Schmidgall, HawkeyePedershaab Vice President; Francois Halle, Lecuyer Vice President of Finance; Charles Lecuyer, Executive Vice President; Maurice Lecuyer, CEO; Antonio Tavares, Lecuyer President; Marc Contant, Lecuyer Director of Production (seated); and E. Max Hoene, President of Advanced Concrete Technologies.*



*HawkeyePedershaab PipePro XT pipe production system installed in the new Lecuyer Group facility in Saint-Remi, Quebec, features unique turntable design that allows three sizes of pipe to be produced at the same time, providing flexibility and efficiency to meet varying market demands.*



*The HawkeyePedershaab CageFlex welding system at the new Lecuyer pipe plant automatically produces precision pipe cages using advanced weld technology that saves time and energy.*

meet local market demands. "In the small market in which we operate, it's vitally important that we have a flexible manufactur-

ing system that allows us to fill multiple small orders for different types of products. With the HawkeyePedershaab PipePro, we can produce, for instance, 10 inch, 30 inch and 72 inch pipes in the same production run. Or, if necessary, just 72 inch pipe to meet a larger order."

This capability enables Lecuyer to easily and efficiently fill a variety of orders without stockpiling a large inventory. Not only does the system enable just-in-time production and delivery, but the HawkeyePedershaab system is completely automated, requiring just a handful of workers to operate: one for monitoring the pipe machine, one for monitoring the robotic handling systems, two to run the CageFlex reinforcement cage system, and two to move finished pipe to yard storage and conduct maintenance. No dedicated workers are required to run the ACT MobilMat batching system, which is computer controlled and integrated with the HawkeyePedershaab system.

"Most manually operated pipe plants would require at least two to three times as many workers," notes Hawkeye-Pedershaab's Schmidgall. "By building our plants with robotic systems and computer control, we reduce labor demands to a minimum and optimize output and quality." The Hawkeye-Pedershaab PipePro XT pipe manufacturing system includes the following features:

- Automatic demolding is accomplished by an automatic crane (off bearer) that moves the mold unit (containing from one to four pipes) to a moving floor system. The mold jacket is then loaded with a new reinforcement cage and returned to the production system.
- Moving floor transports green pipe into twin curing tunnels for approximately eight hours of curing.
- As pipe exits the curing chamber, it is processed by a robotic system that removes the joint rings at either end of the pipe. The rings are automatically cleaned and returned to the production system.
- Post-production processing automatically tips the pipe and conveys it downline for deburring, vacuum testing (every pipe is tested) and marking.
- Pipe sorting lines send different size pipes to an appropriate line to be picked by a forklift truck and moved to the storage yard.

"The HawkeyePedershaab PipePro and ACT MobilMat systems give us so many options and the highest quality," Tavares says. "We vacuum test every pipe we produce and randomly test pipes hydraulically as well. In addition, we check the measurements of the tongue and groove or bell and spigot of every pipe to ensure total accuracy. We record every detail of production on our computer systems, including concrete batching details, HawkeyePedershaab system characteristics, PSI, and other factors and we can associate it with each pipe by the serial number we stamp on the pipe."



*Here, a 24-inch Tri-Pac of RCP is demolded onto the moving floor of the HawkeyePedershaab pipe production system. Multi-form modules (1 to 4 molds per module) greatly accelerates production, allowing small bore pipes to be produced at a rate of less than a minute each.*

- Three-station rotary turntable design enables three sizes of pipes to be produced simultaneously. Dry cast mix is moved from the ACT MobilMat batching system to the PipePro hopper by conveyor.

**MobilMat delivers batching consistency**

Tavares was reassured to learn that HawkeyePedershaab recommended the ACT MobilMat batching system for the new pipe plant. “We have seen ACT batching systems at trade shows and at many plants we have visited and knew that it was a proven, highly engineered and automated plant.

Consistency and stability in dry cast mix is essential for a high quality product and the ACT system gives us that.”

The ACT MobilMat Mo80/4-PCS batch plant includes the following features:

- Wiggert HPGM 2250 high shear counter-current planetary mixer can produce 48 cubic yards per hour of dry cast concrete and provides optimal cement dispersion promoting higher initial strength and consistent mix production.

Mixer features automatic high-pressure cleanout system that saves end of day cleaning time and increases mixer life.

- PCS Control System is PC based, providing an intuitive, color coded real-time display of batching progress. The system integrates process supervision, production reporting, inventory tracking, and recipe management, with plant maintenance, and costing functions. The PCS system provides a performance edge by combining speed, accuracy, flexibility, and connectivity in one system.
- Hydromat microware moisture probe in mixer enables precision water/cement ratio calculation and batch water adjustment.
- Hydrotester moisture probes in sand/aggregate bins automatically compensate batch weights for variations in aggregate moisture content.
- Four-compartment aggregate storage system, accommodating a full day’s pro-

duction, is located inside the new pipe plant facility to protect it from the harsh winter elements. The bins are loaded by a conveyor from an exterior ground-level bunker where aggregates can be dumped from a truck. The aggregate is automatically directed to the correct bin by a 4-position shuttle belt.

- Two cement silos are located outside the building, both equipped with radar silo probes for accurate continuous level indication and user-definable alerts for “low” and “high” silo levels to help in inventory tracking.
- Sustainability features include: high efficiency electric motors to reduce power consumption and extend plant life, grey water recovery system enables recycling of mixer wash water; and dust collection system maintains a clean work environment.



ACT MobilMat Mo80/4-PCS concrete batching plant is installed inside the new Lecuyer RCP plant to protect it from the weather. At left is the mixer platform containing a Wiggert HPGM 2250 high shear counter-current planetary mixer; four-compartment aggregate storage bins are to the right of the mixer. Precision dry cast mix is transferred to the HawkeyePedershaab pipe system via the overhead conveyor that extends from the mixer platform.

Even after three months of operations, the Wiggert HPGM 2250 counter-current planetary mixer at the heart of the ACT MobilMat batch plant looks clean enough to eat from. Automatic dust collection and mixer clean out systems help reduce maintenance and operating costs.

"The ACT MobilMat batch plant came pre-wired, pre-plumbed and factory tested," Tavares notes. "It was delivered and installed and running in almost no time. It was ready weeks before HawkeyePedershaab even needed it. That was impressive. All of the important features of the ACT batch plant support our goal of lowest cost production, low labor requirements, and consistent high quality. Even the efficient electric motors on the plant help keep our operating cost low. It all adds up!"

According to ACT President Max Hoene, "The MobilMat batch plant operates in a way that is counter to what people typically expect or believe about concrete batch plants. Our philosophy is that concrete batching does not have to be a dusty, dirty process. In fact, it is this perception of concrete plants as dirty that can set up management to accept mediocre housekeeping standards. A dirty plant is probably not operating at optimal capacity and not being maintained well."

He continues: "The MobilMat plant at Lecuyer is clean and easy to maintain that way. Automatic washout, dust collection and other features not only help keep a clean, safe plant work environment but also help reduce operating costs. Another important benefit of our clean plant philosophy is that it makes it easier for our customers to retain happy and competent employees to operate their mixing batching plant. No one likes to work in a dirty environment."

**Certified for sale**

The new Lecuyer pipe production facility was ready in February 2011 for inspection by the Bureau de Normalization du Quebec (BNQ), the provincial certification agency accredited by the Standards Council of Canada (SCC). "We passed all of our testing by 28 February 2011 and could then begin selling our pipe," Tavares says.

"We had already approached many of our existing customers in January and had numerous advance orders for pipe. We are well known in this market and have a reputation for quality and on-time delivery. We are well on track to meet our tonnage goals for this year and we are certain that our production will continue to build in the near future."

The combination of HawkeyePedershaab PipePro XT pipe production system and ACT MobilMat concrete batching give Lecuyer the greatest possible competitive



*The ACT PCS Programmable Control System uses a graphical point and click user interface and keyboard to control the ACT MobilMat batching plant. The PC based system uses a programmable logic controller (PLCs) to control every part of the batching/mixing plant. Once set, the plant runs unattended with extreme precision.*

edge. "When they see the perfection in our product, our customer knows that level of quality carries through in every product we provide," Tavares emphasizes. "For a competitive price, our customers get the highest quality, on-time delivery, a detailed production history, and the assurance that we are here for the long haul."



*This four-compartment aggregate storage system is located inside the Lecuyer pipe plant to protect aggregates from the harsh Canadian winter. Aggregates are dumped by truck into an outside ground-level hopper and conveyed inside to a four-position transfer belt that automatically loads the appropriate bin with sand or stone. Two cement silos are located outside.*

**FURTHER INFORMATION**

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