



The new melting department at Fonderie Laperle uses two induction furnaces so one can be used for pouring while the other is charging.

# New Melting at Fonderie Laperle

The Canadian municipal castings manufacturer swapped in two electric furnaces and built a new melting department to improve efficiency, reduce emissions and add flexibility. **SHANNON WETZEL, MANAGING EDITOR**

**S**urrounded by green fields and a mile from St. Lawrence River tributary Richelieu River in the small Quebecois town of Saint-Ours, Fonderie Laperle carries on a tradition started in the 19th century, but its melting department is a strictly 21st century operation.

The plant makes manhole castings—a somewhat commoditized market segment that has largely moved to overseas, 3rd world countries. It ships only to eastern Canada, yet the 80-employee Fonderie Laperle persists. The provincial government of Quebec and parent company Bibby Ste-Croix (a McWane Corp. entity) saw the value of locally made municipal castings and in 2016, the metalcasting facility underwent a \$5.5 million improvement project, which included a new melt deck and equipment, at a time when finding similar iron plants in Quebec is becoming increasingly rare.

“Not many foundries are left in Canada,” said Tom Leonard, president, Bibby Ste-Croix and Fonderie Laperle. “Laperle is successful because there is a large demand in

Canada for names on manhole covers. When a municipality wants a name or text on the cover, quality from overseas becomes an issue.”

Laperle makes custom castings well, with cosmetic details that cities use to portray their community’s identity. The foundry does more than

make a pretty casting, though. It has developed new systems for manholes that lead to better installation, longer service life and safer road conditions.

“Bibby Ste-Croix works closely with the municipalities and engineering community to develop newer and safer road castings,” Leonard said.



Fonderie Laperle casts iron municipal components, such as manhole covers and frames, for eastern Canada.

“We are always innovating to find better solutions.”

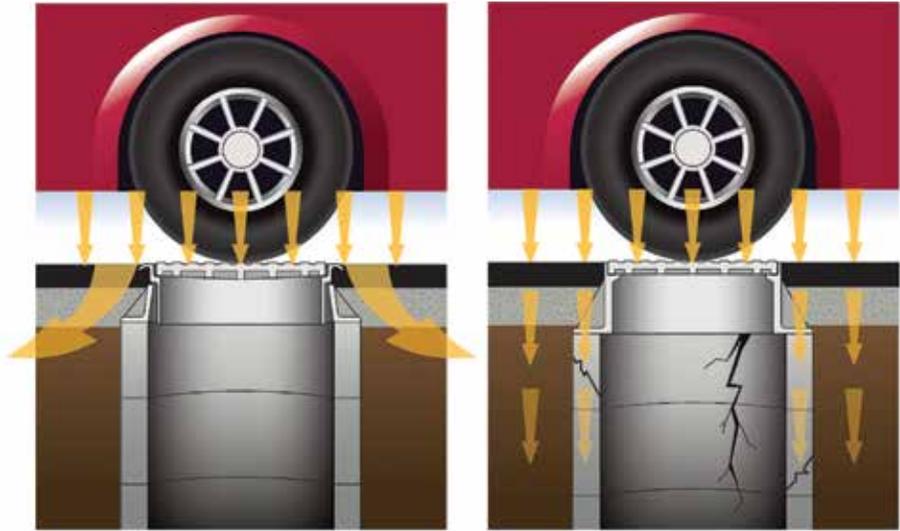
### Municipal Innovation

A round cast iron disk and a frame to go around it sounds simple. But it must withstand the fluctuating conditions of the surrounding pavement due to the expansion and contraction of paving material. This fluctuation eventually will cause cracks in the pavement. Once too many cracks appear, the manhole needs to be replaced and repairs must be made to the road. With the autostable, less cracking means fewer repairs.

“We’ve introduced new castings and different ways of designing the manholes and their installation,” said Mathieu Frechette, plant manager, Fonderie Laperle. “We make castings that float with the asphalt.”

Fonderie Laperle’s floating manhole (also called autostable) was the result of many discussions with municipalities. It’s a thicker, deeper frame that withstands asphalt chipping away around the manhole without it moving too much and cracking.

“If you install a standard manhole frame and cover, after a year, you’ll see a crack,” Leonard said. “With



According to Fonderie Laperle, with the autostable manhole installation (left), the frame responds to the changes in level caused by traffic and frost action. Traffic weight is distributed horizontally at the road surface and not transferred directly to the structure beneath, as is the case with conventional installation (right).

autostable, a year later, you won’t see a single crack. It costs more, but you don’t have to replace it.”

Fonderie Laperle also works with municipalities to customize the installations to accommodate the water flow at specific locations.

“We perform testing for how much water will enter the storm grate and then customize the pattern with the best fit for that water flow,” Frechette said.

Further innovations include bicycle-safe storm drains and grates, heavy duty castings for concrete high-

ways and airports, and new designs for water captation to bring more water down a storm drain during a heavy downpour.

“Fonderie Laperle is here because of our quality and traceability,” Leonard said. “Any municipality can come in here.

### Flexibility in the Melt Department

Fonderie Laperle began in the late 1800s and changed ownership a few times over the years. More recently, in 1987 it was sold to Bibby Ste-Croix. When Bibby was later acquired by McWane, Fonderie Laperle was part of the deal.

As a McWane company, the Saint-Ours metalcasting facility is outside the standard water and sewer pipe product line of its parent, but McWane has shown willingness to invest long term in its Canadian and Quebec plants. And if Fonderie Laperle, which was melting iron with a coal-fueled cupola furnace, wanted a long-term future it needed to become more energy efficient, both from a cost and emissions standpoint.

“We started playing with the numbers of our melting costs (at Fonderie Laperle). We were buying coke from the U.S. and operating on one shift,”



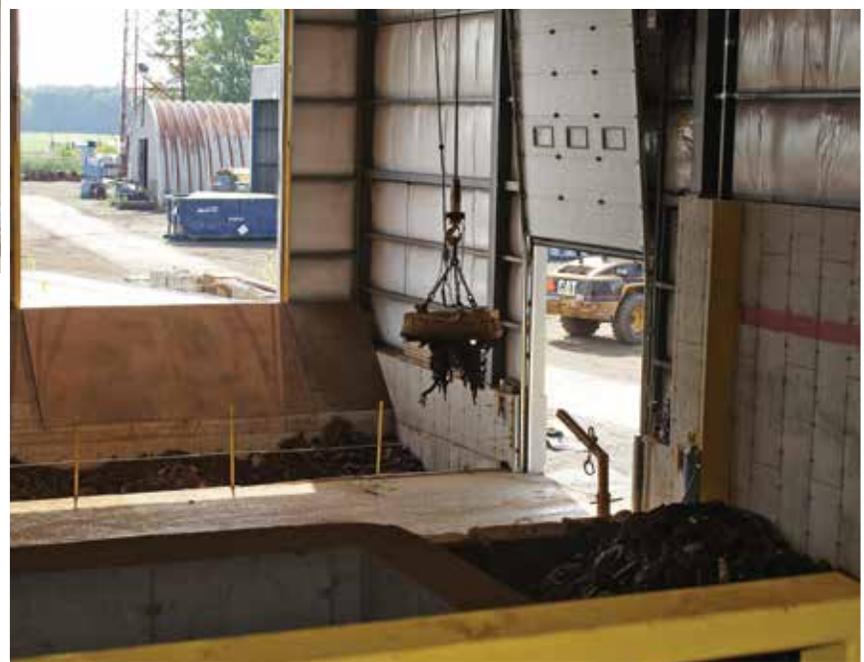
An automated transfer car carries a recently filled crucible from the furnace to the molding line for pouring.

### MEDIA RESOURCE

For a video of the new melting area at Fonderie Laperle, go to [www.metalcastingtv.com](http://www.metalcastingtv.com).



Fonderie Laperle invested in a new building addition to house its charging area (right), melt deck (above) and transfer car.



Frechette said. “We determined it would be more economical to use induction furnaces.”

As part of the effort to reach KYOTO air emissions targets, a program out of Quebec provided \$2.2 million to Fonderie Laperle to subsidize the change from coke to electric to meet clean air targets. Bibby and McWane invested an additional \$3.3 million.

The \$5.5 million covered the addition of a new building that houses the new induction furnaces, charging area, and transfer car. The improvements reduce emissions but also increase the plant’s efficiency of manufacturing and reduced the cost of equipment maintenance.

Fonderie Laperle, which employs 80 when operating at capacity, had been running one cupola furnace melting 8 tons per hour in one shift. By switching to two induction furnaces melting 6 tons per hour, the plant has more flexibility.

“We can start and stop, go to two shifts, or use overtime,” Leonard said. “We didn’t increase our per-hour

capacity, but we increased our availability and the quality of our iron.”

Although it is a learning process switching from cupola to electric melting, Fonderie Laperle is able to rely on help from the team at Bibby Ste-Croix, which is two hours down the St. Lawrence River and has been operating induction melting for years.

The new melting department also sets Fonderie Laperle up for the next step in its evolution—the incorporation of ductile iron, which it expects to begin pouring in late 2017 or early 2018.

“We have demand for ductile iron, but we could never do it with a single cupola furnace,” Leonard said. “Ductile

iron is a more stable microstructure. Without a holding furnace, we didn’t have the opportunity to put in any additions. Now we can. And we can produce a more even quality of iron.”

The new investment in the melting department and support of McWane and Bibby, along with the demand for quality municipal castings domestically-sourced, makes Leonard confident in the future of Fonderie Laperle and the employees who work there.

“These are high paying, skilled labor jobs,” Leonard said. “We want to keep the foundry going and keep Canada working. It’s a high-value middle-class job. There’s nothing more valuable than a foundry worker.” MC