

MOMENTUM

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SUPERCLUSTER: LEADING MANUFACTURING TRANSFORMATION

DRIVING INNOVATION IN STEEL MAKING
THROUGH DIGITAL TECHNOLOGIES.

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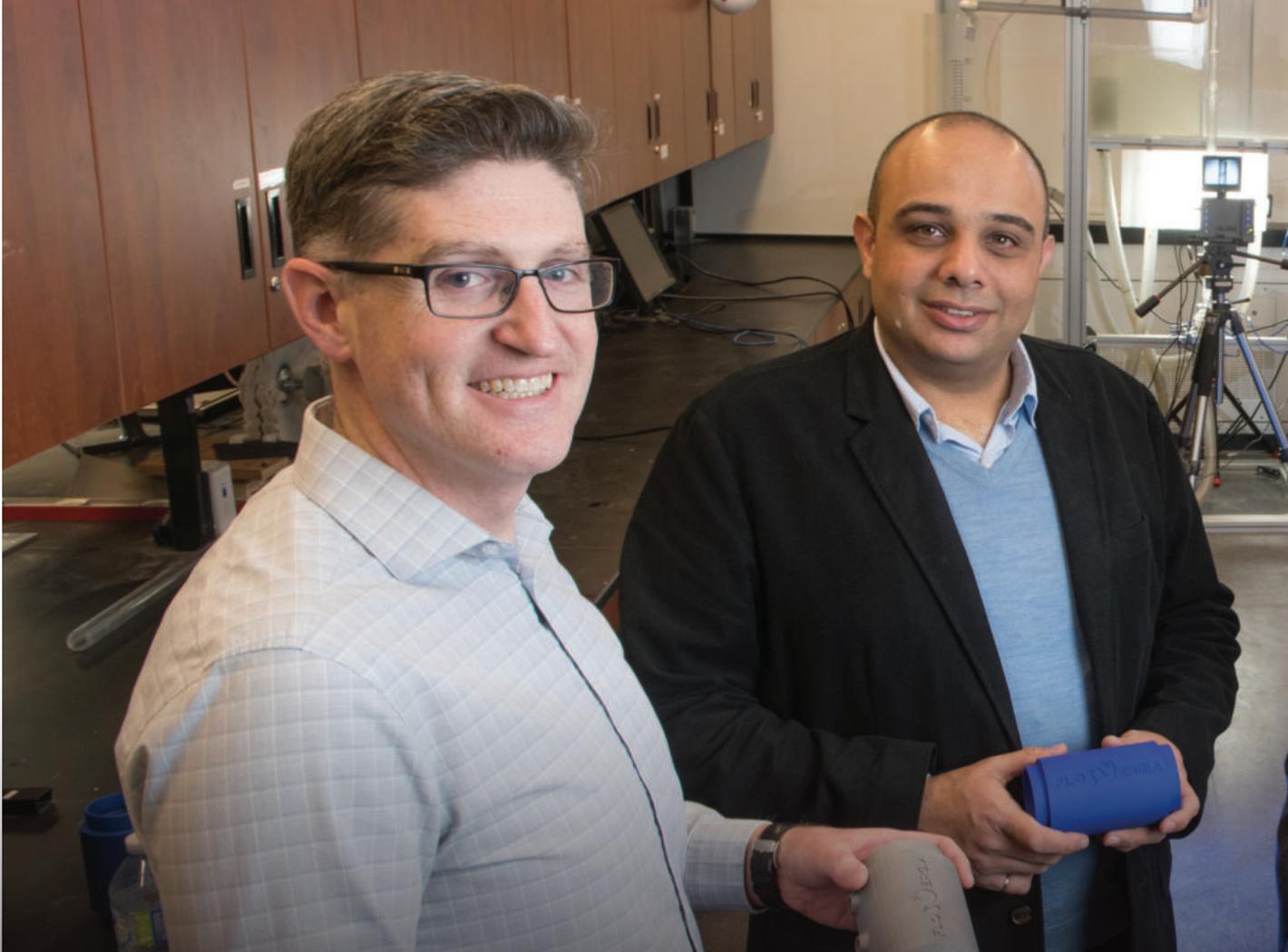
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READY, SET, ECO!

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PUMPING OUT SOLUTIONS

Mohawk's AMIC guides FloNergia from prototype to production

Not only did Mohawk's Additive Manufacturing Innovation Centre (AMIC) help a start-up produce a commercial-level prototype of its water pumps, it linked the company with a manufacturer to get its product to market.

FloNergia, which produces pumps for the aquaculture and hydroponic markets, commercializes research at the University of Guelph.

The researchers had experimented with 3D printing, but when it came to testing the most cost-effective additive manufacturing method and materials to produce the pumps, FloNergia turned to Mohawk.

"We had the expertise, software and printers they needed," said Jeff McIsaac, AMIC General Manager.

Additive manufacturing, or 3D printing, allows the unit to be built as one.

"It's better mechanically, it's lower cost and there is no assembly required," said McIsaac.

AMIC modified the pump design to suit 3D printing, and tested various metals and plastics, eventually guiding FloNergia to a form of printing and a type of plastic that is UV stable, prints quickly, and doesn't require any post-printing processing.



Left to right: Jeffrey McIsaac, Mohawk AMIC General Manager, Sherif Abdou, Chief Operating Officer, FloNergia, Wael H. Ahmed. Ph.D. Engineering, University of Guelph

From there, a production-ready prototype was built.

Fish farms and hydroponic operations traditionally have separate water circulation and aeration systems. FloNergia's airlift pumps use air injection to supply circulation and aeration in a single device. That cuts energy consumption by 50 to 70 per cent and FloNergia's technology improves water flow, oxygenation, and quality, says Sherif Abdou, Chief Operating Officer.

"They have extensive knowledge of additive manufacturing," he says of AMIC. "That is not our expertise. They have the facilities to test and create samples. That's been very valuable to us."

For McIsaac, another key outcome was introducing FloNergia to additive manufacturer Anubis 3D, another AMIC partner.

"It was great to be able to facilitate that and solve

another challenge for a partner. We know Anubis can provide what they need."

AMIC employs five full-time staff and has 10 to 20 projects underway at any given time, with 10 students assigned to two or three.

"That's the best part of the lab, that students get to work directly with our industrial partners in a hands-on way," said McIsaac. "They are deeply involved with design, using the software and printers, and then with production and dealing with suppliers."

Mechanical engineering technologist student Addison Wood worked on the FloNergia project, helping to modify the design and testing 3D printing methods. His time in the lab has led to a full-time job offer with a steel company investing in additive manufacturing.

"It was a fantastic experience for me to work with clients right through the process." ■■■