



*According to Mike Blackburn, president of Miltera, using and/or recommending the “absolute best” tooling, such as Rego-Fix tool holders, proves to be more cost effective for the shop’s customers over the long run.*

## MILTERA MACHINING RESEARCH CORP.

# More than Manufacturing: Prototyping and Beyond

**M**ike Blackburn refers to his 20-person shop as an “enabler.” That’s because he and his team at Miltera Machining Research Corp. in Cambridge, Ontario, Canada, develop and prove out manufacturing processes, then provide turnkey production solutions that enable customers to overcome demanding and ultra-precision, part-making challenges.

The goal is to optimize every aspect of the shop, from programming and part setup to actual machining operations—in particular, toolholding—all of which customers can then replicate on their own shop floors. This “more-than-manufacturing” business model has been Miltera’s strategy since the shop’s inception 15 years ago.

“Early on, we realized that there was a real need for a manufacturing company that could provide more than just part machining, and, as of now, we are a bit of everything,” Blackburn

explained. “While we focus on rapid prototyping and short-run production, we do so with the vision of moving that production into our customers’ facilities.”

The process typically begins when manufacturers contact Miltera to develop prototypes. Customers test the prototypes, then have Miltera make any necessary changes and run the initial production. Projects span across industries, with an emphasis on aerospace, medical, motorsports, and consumer electronics.

## Quality is in the Eye of the Toolholder

Miltera’s automated facility encompasses more than 30,000 sq ft [2,787 sq m]. Capabilities include five-axis machining, multi-axis turning, electrical-discharge machining, grinding, and sub-micron inspection.

Customer projects, according to Blackburn, typically include one or more of the following key aspects. First, they involve

complex part geometries, such as free-form contoured surfaces requiring full five-axis milling. Second, they require very tight tolerances that push the limits of machines and tooling, and require high-end metrology equipment for validation. Third, they use challenging materials that can include everything from high-temp alloys to difficult-to-cut aluminums to other exotic materials.

To optimize a customer's production process, Miltera tests with top-end machines, workholding, and tooling systems, according to Blackburn. This includes forging key partnerships with quality suppliers. One of the first companies to team up with Miltera was Rego-Fix, which now supplies holders for all of the shop's rotating tools. Founded in Switzerland in 1950, the family owned company's North American headquarters is in Whitestown, Ind.

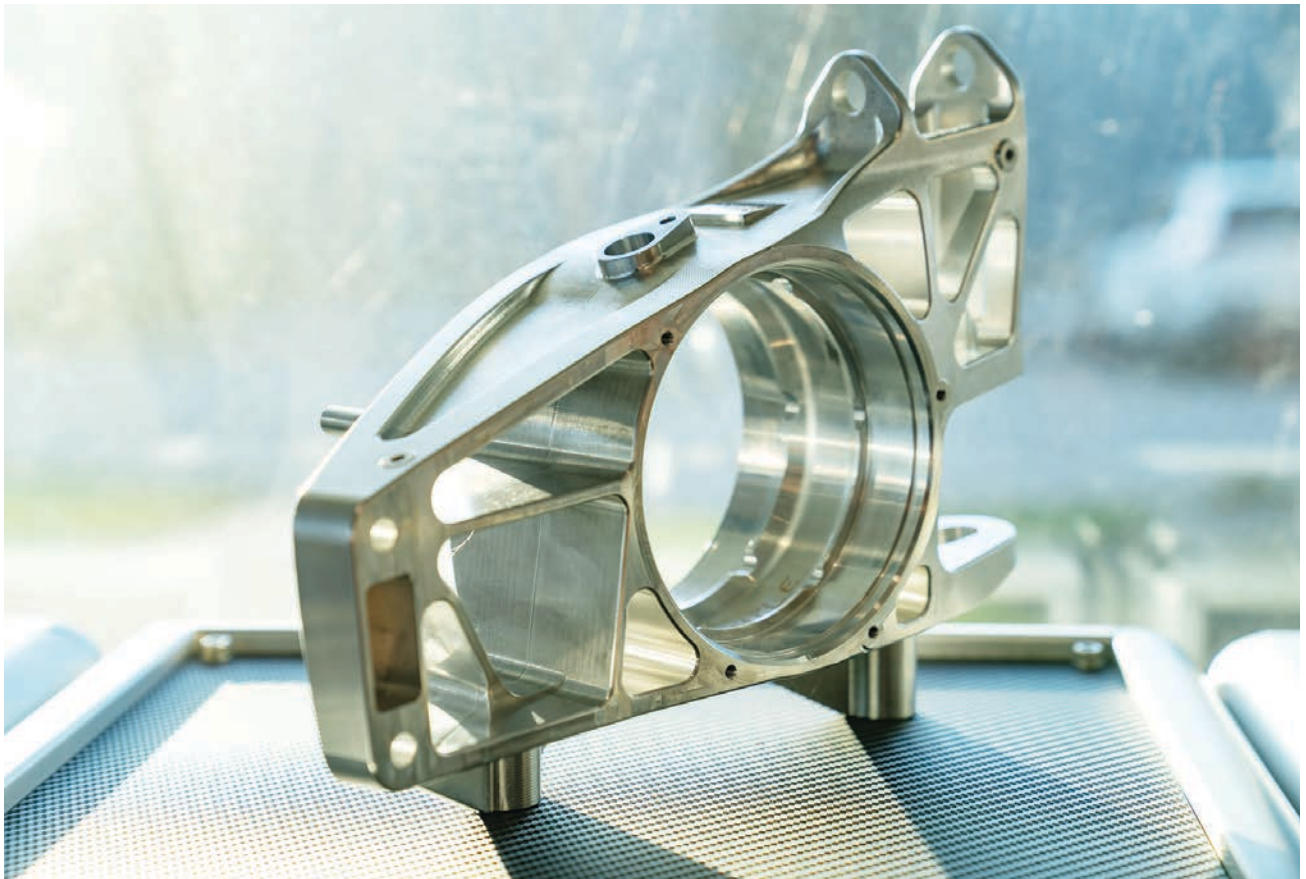
"Although some machine-tool OEMs and tooling vendors also offer such part process development, it's tough for them to run small-lot production over an extended period of time to prove out the process completely and provide the inspection reports to

substantiate it," Blackburn said, noting that customers are stuck with the added time and cost to troubleshoot the system and work out all the kinks if the process is done at their facility. "We, on the other hand, are positioned to produce the parts until a customer is ready to implement the process, meaning they have all the machines and systems in place and can be up and running with a proven process right away."

### **Added Flexibility**

For customers with dual-sourcing requirements, Miltera can serve as a backup supplier because the shop developed the part process. This eliminates lost production if a customer's line is down for maintenance or any other reason; it also provides extra capacity to meet a spike in demand.

"'You know how to make our parts, and we need you to make some more,' is usually the requests we get," Blackburn explained. "And we can do so just to hold them over until their operations are back to normal."



***Miltera customer projects often involve complex part geometries, tight tolerances, and challenging exotic materials, all requiring precision machines and equally precise tooling such as that from Rego-Fix.***

Miltera constantly pushes the limits in terms of its manufacturing processes, and that requires high-end machines and tooling. “If we use subpar machines or tooling, we’ll never be able to solve our customers’ problems,” Blackburn acknowledged. “Any weak link in the production equipment chain will jeopardize an entire project. When it comes to the tooling link, we rely on the Rego-Fix powRgrip tool holding system, not only for its precision but also for its ease of use.”

Unlike clamping systems that rely on heat or hydraulics, powRgrip uses the mechanical properties of the toolholder’s material to generate sufficient gripping force, with TIR (total indicator runout) of less than 0.0001” ( $\leq 3 \mu\text{m}$ ) and length adjustment repeatability of less than 0.0004” (10  $\mu\text{m}$ ). Tools are ready to use immediately, with no wait time, loss of accuracy, or shortened tool life.

“We can’t have toolholders running out and causing vibration, especially when we’re machining at high spindle speeds,” Blackburn said. “Time and time again, we’ve seen that using and/or recommending the absolute best tooling proves to be more cost effective for our customers in the long run,” Blackburn said. This usually means a bit higher initial cost, but they avoid all the problems and shortcomings of lower-quality tooling and get a longer working life out of their holders.”

## The Need for Speed

High-speed machining often provides a solution to manufacturing challenges. To this end, Miltera has five milling machines with spindle speeds ranging from 20,000 rpm to 42,000 rpm. The shop hasn’t had to replace a machine tool spindle, which Blackburn attributes to the quality of the machines, as well as the precision and balance of its powRgrip toolholders.

“The higher the spindle rpm, the more it magnifies even the slightest flaws or inaccuracies in a toolholder,” Blackburn said. “That’s not the case with powRgrip. We’ve done a lot of testing with other holder brands, and it’s surprising how many of them experience serious runout as well as inconsistent performance, especially at the higher spindle speeds. PowRgrip holder performance is consistent and repeatable from holder to holder.”

Another benefit, according to Blackburn, is powRgrip’s flexibility—one holder allows for a range of cutter diameters to reduce tooling inventory. Plus, the holders give users the option of running with or without coolant-through capability, or they can run coolant flush on the outside of a tool.



**Rego-Fix powRgrip toolholders provide gripping force with TIR of less than 0.0001” ( $\leq 3 \mu\text{m}$ ) and length adjustment repeatability of less than 0.0004” (10  $\mu\text{m}$ ).**

“On the machine tool side, customers will often decide on type and brand. But when it comes to all the other aspects, such as toolholding, that is completely in our control,” Blackburn said. “We will dictate exactly what types and brands they need to use for process success, and powRgrip is that system.”

## Room to Grow

The challenges created by new customers, projects, and markets are vast and evolving. Miltera’s current customers continue to want more, Blackburn noted, and the shop will grow to provide high-end solutions as needed. This further expands the company’s knowledge base, which he claimed will put it leaps and bounds beyond competitors.

Customers look to Miltera for recommendations, Blackburn said. “Time and time again for every application we’ve done and will do, powRgrip has and will provide the highest accuracy, performance, and tool life for our customers.”

For more information on Miltera visit [www.miltera.com](http://www.miltera.com) or call 519-725-2554. For more information on Rego-Fix visit <https://regousa.com> or call 317-870-5959.