



PAYING A PREMIUM

Quebec manufacturer Usinage DDR rejects the job shop status quo in favour of automation

THE PROBLEM

The need to increase production output without increasing labour costs

THE SOLUTION

Invest heavily in high quality automated machine tools

Usinage de Précision. That's French for precision machining. The term does a good job of describing Usinage D. D. R. president Daniel Nimijean's business model, but it could just as well have been Hautement Automatisé (highly automated) or L'état de L'art (state of the art). What better way to describe a shop that's evolved from a manual mill and lathe to vertical machining centres to a three-machine Makino FMS (flexible manufacturing system), all in twelve years?

Hip-hop to high-tech

As a teenager, Nimijean worked retail sales at a "hip-hop" store owned by a friend. Like so many other things, he was good at it, but along the way he decided to pursue a career in manufacturing. He went to trade school, took a job as a machinist and then a manufacturer's representative for a few years, and eventually went into business for himself. He started with \$13,000 in his pocket.



The Makino FMS with three a51nx horizontal machining centres and the MMC2 system with the MAS-A5 cell controller keep DDR competitive.



Daniel Nimijean purchased his first Makino a51nx machining centre five years ago and says he was amazed by the productivity gains. He purchased another two a51nx machines shortly after, along with the MMC2 (Makino Machining Complex) with MAS (Makino Advanced System-A5) cell controller.



Samples of products machined in DDR's shop on the Makino machines. DDR has built a reputation for manufacturing quality parts competitively for the aerospace and medical sectors.

Today he owns one of the most advanced machine shops in Quebec supporting a wide variety of aerospace and medical customers. His equipment list includes Makino PS65 and PS95 vertical machining centres, two Makino twin pallet S33-APC vertical machining centres, a Tsugami twin spindle, live tool lathe, and the flagship of the company, a Makino FMS with three a51nx horizontal machining centres and MMC2 cell controller.

“The big game changer for us was the Makino S33-APC VMC with a pallet changer,” he says. “I bought it right in the middle of the recession and everyone thought I was crazy, but I remember we were doing a series of camera housings on one of our old machining centres. We moved it to the new machine and our cycle time went from half an hour to just six minutes, with no one there to babysit the machine. That was my first experience with automation. It transformed my entire business.”

Taking it sideways

It wasn't long before Nimijean changed his game even further. Five years ago, he bought his first Makino a51nx, and was amazed at the productivity gains. He bought a second machine the following year, and a third horizontal shortly after that. And last year, he added the MMC2 (Makino Machining Complex) with MAS (Makino Advanced System-A5) cell controller.

Today, Usinage DDR has five machinists working on its 3,252 sq m (35,000 sq ft) production floor. They setup jobs and manage low volume production during the day and turn the machines loose at night on

production work, which to Nimijean means several thousand pieces per lot. He doesn't have an exact figure for spindle uptime, but says, “it's high. I'm getting at least 5,000 hours a year per machine, maybe more.”

Keeping the spindles running is important to any shop, but according to Nimijean, the Makino machines bring something much more valuable to the table: flexibility.

“The minute we brought the cell controller in, it took us from a regular job shop to the next level of manufacturing,” he says. “I can accept high volume orders now without worrying whether the machine will be tied up for weeks at a time. And if a customer calls and says they need a rush order by tomorrow, it's not a problem—we just plug it into the cell controller and go home. The parts will be waiting for us in the morning.”

All the other stuff

There's more to his success than the machines. Usinage D.D.R. has invested heavily in its tooling and other supporting technology. Each horizontal has tool life management, in-process probing, and remote management capabilities. Offline presetting is an established practice, with “around 1000 toolholders, ready to go” at any given time. The FMS holds 36 four-sided pallets, which Nimijean says is like having 144 machines setup at one time. Every horizontal has an identical tool library, so that parts and part programs can be moved to any available machine. And his CAD/CAM systems and other production software is “always current, and under support.” He adds

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that he'd like to install vending machines for automated tool dispensing but can't find anyone in the province to support them.

He's also invested heavily in fabrication equipment. Three years ago, Nimijean purchased a sheet metal shop, GTCA Metals, and has since upgraded it with robotic press brakes, CNC laser cutters, and is awaiting delivery of an Amada punch/laser combo machine with an automated material handling tower and its own nitrogen generator. Together with two in-house welding stations, powder coating and silk-screening, and a brand-new Timesaver, there's little that these sister companies can't produce.

Bringing it home

"If you want to take work back from China—something we do regularly—you must invest in technology," he says. "I look around at shops that operate the same way they did twenty years ago, who penny-pinch on tooling and take hours to setup jobs, and wonder why they continue buying their commodity brand vertical machining centres and two axis lathes. Those shops might survive, but they're never going to be truly successful until they jettison their old ways of thinking."

Nimijean's not done. Once the Amada is installed, he's looking at adding a fourth Makino a51nx to the FMS, this one with a 218-tool robotic tool matrix and a third load/unload station. When asked about the challenges that come with this level of technology, never mind straddling the fence between machining and fabrication, he says he's been blessed with great people since the beginning, one of whom taught him most of what he knows about machining.

He's also thankful for the support he receives from Makino and its area distributor, Single Source Technologies (SST) Canada. "It helps to have a sharp team behind you. Frank Morelli at SST has been great to work with, and the folks at Makino have been super as well. Their customer support and service are amazing. They have tons of engineers available who know everything you need to know—if there's any sort of issue, you call them and they'll help you out. It's that simple. For me, trying to save money by buying lower quality equipment and tooling is a complete waste of time. You need to invest in the best available and establish a good relationship with the right company. I've found that with Makino. I'll never switch." SMT



Daniel Nimijean says the Makino machines and the FMS have been game changers for DDR.

THE MAKINO a51nx HMC MACHINE:

Pallet Size:	400 x 400 (15.75 x 15.75)
X Axis Travel:	559 (22)
Y Axis Travel:	640 (25.2)
Z Axis Travel:	640 (25.2)
Rapid Traverse:	60 m/min (2,362 ipm)
Max Spindle RPM:	14,000 (20,000 opt.)
Tool Capacity:	60 tools (optional 40, 134, 219, 313)
Chip to Chip:	2.2 sec.
Tool to Tool:	0.9 sec.



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