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# Fine Grinding

## John Manley on the state of the sector

By Nate Hendley

**M**achine Tool Systems Inc. of Toronto claims to be Canada's first speciality distributorship focused on grinding and finishing equipment. The company was founded in 1998 by John Manley, a University of Toronto engineering graduate and former salesman for United Grinding, one of the biggest names in the business. Manley also served as president of the Canadian Machine Tool Distributors Association (CMTDA) from early 2008 to late 2011.

MTS offers camshaft & crankshaft, centerless, cylindrical, creep feed, gear, optical, profile, punch, surface and tool & cutter grinders and carries machines from Wasino, Schaudt, Blohm, Kapp Niles, Studer and Walter, among others. The company also sells turnkey abrasive and filtration solutions.

Canadian Metalworking recently sat down with Manley to get his sense on the state of the grinding machine industry.

### **WHAT TRENDS HAVE YOU NOTICED IN THE GRINDING MACHINE SECTOR?**

One of the big things is automation. Everybody's seeing that. That's why they're buying CNC machines.

The most important thing is what I refer to as asset utilization. You go out and spend a quarter or half or a million dollars on a machine tool and that quarter-million dollar asset better not sit idle after you leave at five o'clock at night until you come in at eight in the morning.

I think grinding was the last frontier for automation. People used to buy a surface grinder, run it when they needed to. Might only be a couple hours a day ... now they realize that [grinder] can't sit idle.

Automation has to be user-friendly. You want to have a variety of employees that can walk up [to the grinder] and the man-machine interface is easy enough for them to use.

### **IS THE WHOLE GRINDING INDUSTRY MOVING TO A CNC MODEL?**

Personal safety regulations in Canada are almost forcing people to leave manual ... what parts are being ground? Carbide, nickel alloys—nasty heavy metals. You don't want to breathe that as an operator. As a director of the company, do you want to have [your employees] breathing in carcinogens? Now you've got to process the coolant, got to process the mist, get rid

of the particulate in the air. The only way to do that is to fully enclose the machine and ventilate it. When you have a manual machine, the second you try to enclose it, the operator can't see the process as well. More importantly, he can't hear the process, because in grinding, when the grinding wheel approaches the workpiece ... you need to look at the sparks, need to hear the contact.

[Grinding requires] constant monitoring of the process. You can almost call it closed loop machining. To do that, you need an operator who is looking and listening to the process. So what do we do on a CNC when we enclose it? We put in acoustical sensors like a man's ears ... you partner that with a probing system



Machine Tool Systems Inc.'s founder, John Manley.

[for the visual aspect]. So really today, we're able to do closed loop grinding.

This is what I offer to clients when they're evaluating different brands of grinders. I tell them, don't get overwhelmed by the software, the pictures, the graphics, the mechanics of the machine. All of that is for naught if you don't have a closed loop system.

### **WILL THERE STILL BE A NEED FOR MANUAL GRINDING IN THE NEAR FUTURE?**

The need is [based on] grandfathered operations. You've got a machine that's 40 – 50 years old. I've got an operator who has 40 years experience under his belt. There's no way I can teach an old dog new tricks.

Trouble comes when you have to move that machine to a kaizen cell or somewhere else in the plant. Or if you build a new plant or did an upgrade to your plant. Anything that's changed in the process, you are legally bound to do a health and safety review on it.

I had a client last week who had two older machines ... that didn't pass health and safety anymore. So they looked at upgrading them. By the time they evaluated everything necessary they just said, this isn't worth it. So they just bought two new machines from me for a quarter-million dollars each, surface grinders. Not only

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“It's not hard to see a half-a-million to a million dollar investment. That's becoming more of a trend—more sophisticated machines.”

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are they going to be up to code now, they're going to be way more productive. Four or five operators can now run [the grinder] because it's not dependant on one old man's skill set.

### **ARE YOU CONCERNED GRINDING OPERATIONS WILL GO OFF-SHORE? THAT MANUFACTURERS WILL FARM OUT GRINDING WORK TO CHINA OR ELSEWHERE?**

Your magazine interviewed me [back in 1998]. We had an article on “Why are you specializing in grinding?” because I had a background in EDM and mill/turn as well. But I saw a real niche, a trend in the industry that's really come to fruition. And the trend is, when you look at raw parts, castings and stampings, one of the differentiators on where you make that part globally isn't necessarily skill, because it's just a casting or a forging or a stamping, it's

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“I think grinding was the last frontier for automation.”

the labour content. Do you make the part in Canada or Scandinavia where you have some of the highest labour costs in the world or do you pour that casting or forge that part in the lowest labour cost [countries] of the world, where ever they happen to be? When I was interviewed [in 1998] it was Korea. Now it's China. Tomorrow it may be somewhere in Africa. It's just a matter of where is the lowest labour content in the world? And that's quickly changing in China. Over the last decade, labour costs [in China have] tripled. If you take China out of the equation, we're still going to be facing, whether it's South America or the Caribbean, somewhere else in the world [that has lower cost labour than Canada].

[Complex parts and processes] are just not being done in third world countries. You need highly skilled operators, highly skilled management and a highly skilled supply base [when] you're bringing higher precision parts to the table.

This is what's happened with people who have gone

to some of these Third World countries. They get there and all of a sudden they have a wake-up call. I [have] a million dollar machine but how am I going to support it? And that becomes a big issue.

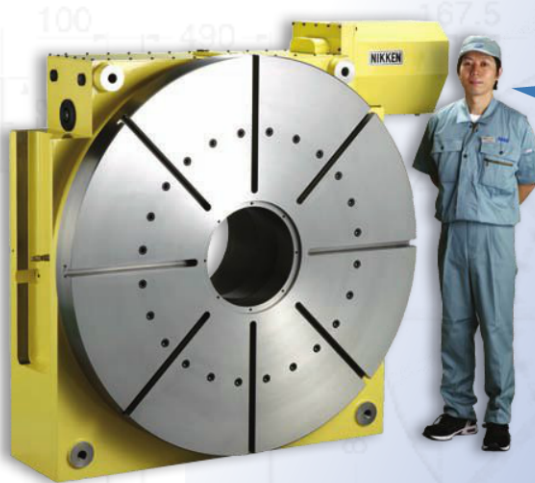
### IS THERE A TREND TOWARDS MULTIPLE-AXIS GRINDERS?

Absolutely. I'm already seeing that myself. I look at the machines I was selling 10 years ago— let's take a surface grinder as an example. I could bring in a basic \$60 – 80,000 surface grinder and we'd do okay with those ... today I don't even have a grinder at that price in my mix. Let's take a Wasino CNC surface grinder—we're starting at maybe mid-100s for that. When you get into more sophisticated grinders, where you get fifth-axis capability, pallet changers, tool changers, automatic wheel changers, it's not hard to see a half-a-million to a million dollar investment. That's becoming more of a trend—more sophisticated machines.

As they get more sophisticated ... you have a machine that you don't just use two hours a day or eight hours a day. You might be able to put different parts through the same machine and it's also more automated. You can [use it for] three shifts seven days a week. So if you spend twice as much on a machine, who cares?



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**IN OTHER WORDS, THE LIGHT'S OUT MODEL IS GOING TO BECOME MORE COMMON?**

Absolutely. In the old days, you would run [a grinder] for 10 – 20 years until its death. You can still do that, but the utilization of it is going to change in years three to five, because the software and more so, the hardware that runs the software, the computers, are changing so fast and the whole man-machine interface is changing so fast, and the requirement of the machine is changing so fast ... in years three to five, you're doing moderate utilization of the machine's capabilities, but in years five to 10, you're going to really scale back what you're using it for in the shop.

So in the case of tool grinding, if you have a seven or eight year old Walter grinder, today you're probably just using it to make basic end mills and drills and resharpers and that's okay. It's still giving you a long payback on the machine. But if you're getting into the more complex form tools and variable geometry tools, you're probably going to use a newer model machine to do that. So, you have to get your payback faster ... hence, you're going to automate the machine and run it in multiple shifts.

**WHERE DO YOU SEE THE GRINDING MACHINE SECTOR IN THE NEXT COUPLE YEARS?**

It's going to continue to get more and more sophisticated ... abrasives are getting highly sophisticated as well. We've moved from what used to be conventional abrasives—aluminum oxide wheels like a nail file—to super abrasive wheels where you have vitrified CBN and vitrified diamond.

**IS THERE ANY PARTICULAR GRINDER THAT'S 'HOT' RIGHT NOW, IN TERMS OF SALES?**

I would say the Studer CNC cylindrical grinder is very popular and the Walter CNC tool grinder.

**DO YOU HAVE ANY ADVICE FOR YOUNG MACHINISTS?**

I would say for young machinists, look at grinding. The challenge is, where do you find it? The schools aren't teaching grinding ... how are we going to graduate kids with experience with grinding if they don't get their hands dirty?

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**4. Which of the following do you plan to purchase within the next 12 months? MACHINE TOOLS**

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