



True to FORM

Toronto tool and broach maker's gamble on a new grinding technology pays off

BY NATE HENDLEY

PHOTOS BY RON NG

In late October 2003, representatives from Toronto-based **True Broach & Tool Manufacturing** travelled to the Exposition Mondiale de la Machine Outil (EMO) metalworking trade fair in Milan, Italy. The firm had a very specific goal in mind—to investigate a new **Walter AG Helitronic Vision** computer numerical control (CNC) five-axis tool grinder.

"We flew over there specifically to see that machine, because they were unveiling it at that particular show," recalls sales manager Roberto Vitulano.

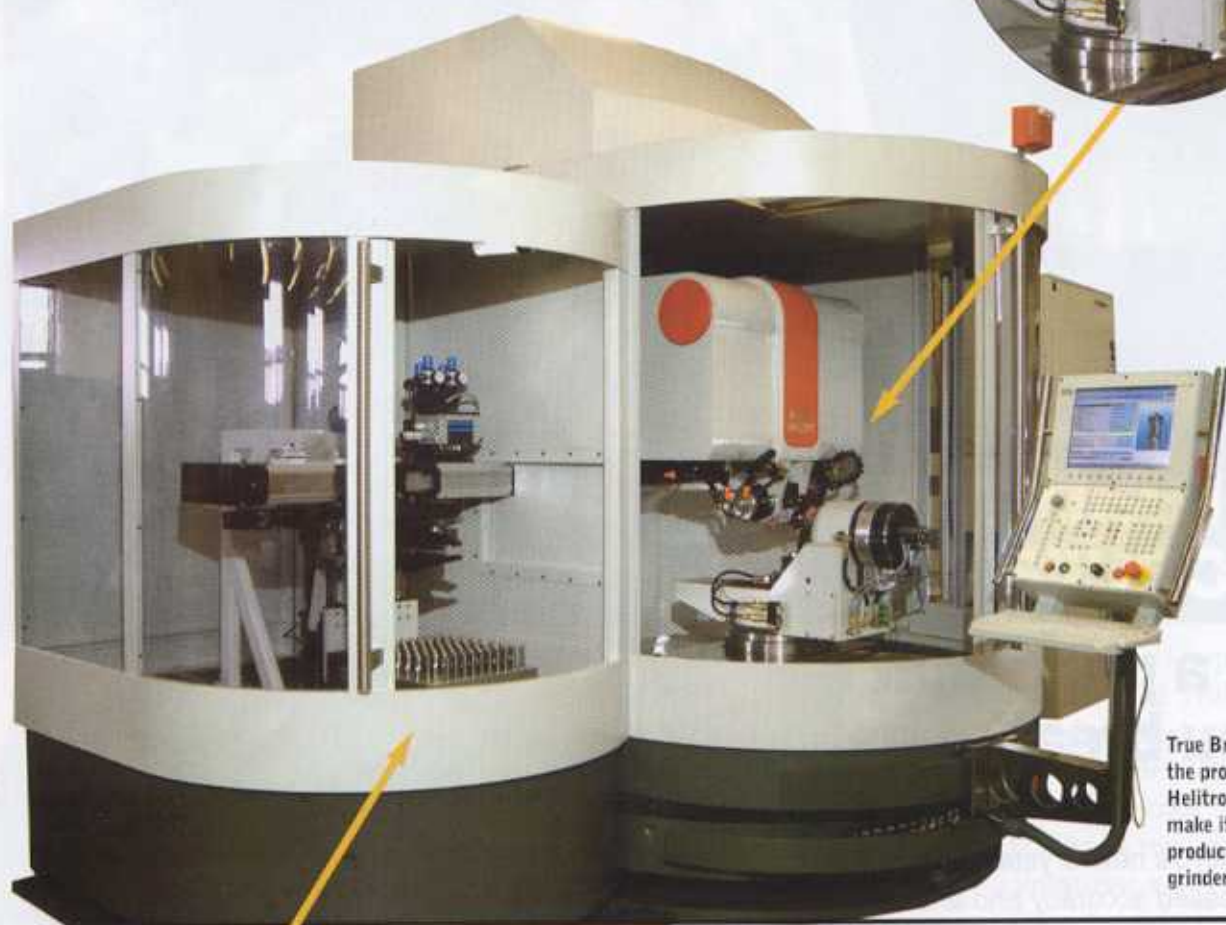
Founded two decades ago by Roberto's father, Frank Vitulano (who still runs the place), True Broach & Tool employs a dozen people. Situated in northwestern Toronto, the firm manufactures broaches and cutting tools for the automotive and aerospace industries.

When they made their trip to Milan, True Broach already possessed one Walter Helitronic machine—a power grinder purchased around the turn of the millennium.

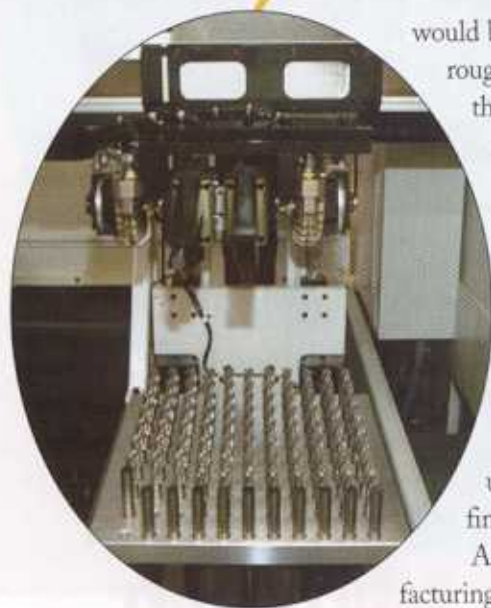
Acquiring a Helitronic Vision grinder

GRINDING

"[The Vision grinder] would allow us to produce cutting tools a lot faster and more efficiently, with superior surface finish—this would give us an edge over our competition."



True Broach personnel feel the properties of their new Helitronic Vision grinder make it 30 per cent more productive than other grinders at the plant



would be a big step, however; besides the price tag (the Helitronic Vision grinder costs roughly \$US300,000—about \$400,000 in Canadian funds), there was the fact that the machine was brand new. No one in North America owned a Walter Helitronic Vision grinder at the time; there weren't any firms True Broach & Tool could turn to for advice on the pro's and con's of the machine.

With this in mind, the Vitulano's gave the Vision grinder a thorough inspection in Milan.

"We spent a lot of time going over the machine—the features, the technology—and how it could benefit our company," states Roberto. "We decided it was in our best interest to go ahead and buy the machine."

This decision was largely based on the "the increase in productivity promised by the technology," he continues. "[The Vision grinder] would allow us to produce cutting tools a lot faster and more efficiently, with superior surface finish – this would give us an edge over our competition."

According to Ed Sinkora, marketing manager at Walter's North American manufacturing facility in Fredericksburg, Va., the main benefit of the Helitronic Vision grinder



is "its ability to achieve near-mirror surface finishes without sacrificing extremely fast cycle times."

Speedy cycle times makes the machine "up to 30 per cent more productive," than previous Walter grinders, he adds.

In addition to being fast, the Helitronic Vision offers greater accuracy: "Tool accuracies are in the +/-5 micron range," states Sinkora. "These benefits are achieved by combining features like linear motors in all linear axes, direct motors in the rotary axes, an 'acceleration proof' mineral casting, etc. All combined with our extremely rigid patented 3D gantry design."

A CANADIAN FIRST

Convinced of the benefits of the machine, True Broach & Tool became the first Canadian company to place an order with Walter AG for a Helitronic Vision CNC grinder. The deal was inked during the Milan show.

"We knew the reputation of Walter grinders," says Frank. "We felt comfortable buying a new product from them."

Based in Tübingen, Germany, Walter AG was founded in 1919. The company introduced the world's first fully automatic grinding machine in 1953 and the first CNC controlled grinding machine in 1976. Walter has been making Helitronic machines since the mid-1990's.

Helitronic, explains Sinkora is "an invented term, combining 'heli' from the word 'helical' - most tools ground on the machine are helical [i.e. spiral] and 'tronic' from 'electronic' - in the sense that CNC makes tool grinding electronic."

The True Broach staff didn't lug their new toy home with them when they returned from the EMO show - the Helitronic Vision grinder is a massive machine weighing around 9,000 kilograms. Instead, Walter AG shipped the machine in parts, from Europe to Fredericksburg, to be assembled according to North American specifications.

In 2004, Roberto and one other operator went to Fredericksburg to be trained on how to use the Helitronic Vision grinder. Later that same year, Walter officials delivered the Helitronic Vision grinder to True Broach & Tool in Toronto. Walter reps installed the machine, and then had an applications engineer do a week of refresher training with True Broach staff.

After that, "we were on our own," laughs Roberto.

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Roberto, left, and Frank Vitulano of True Broach and Tool Manufacturing in Toronto. They are the first manufacturers in Canada to purchase and install a five-axis Walter AG Helitronic Vision CNC grinder.

Vision grinder features an orange and white metallic surface, transparent screen, computer console and a sleek, space-age look. It looks jarringly out of place next to the company's older, conventional grinding and broaching machines.

The machine's futuristic appearance is backed some impressive technical features, such as a rigid grinding spindle with a 100-mm diameter and a 30 kW motor that allows for spindle speeds of up to 12,000 revs/min. The Helitronic Vision grinder also has a 6,400 kg mineral cast bed, resulting in good rigidity, damping and thermal expansion properties.

The Helitronic Vision can take HSS and carbide tools ranging from three mm to 320 mm in diameter and up to 370 mm long for length/contour grinding and up to 300 mm for length/face grinding.

In addition, the Vision features a new HMC 600 control system with Helitronic *Tool Studio* programming software. The Tool Studio program is exclusive to the Helitronic Vision grinder and a Walter Helitronic erosion machine called the Diamond.

Roberto insists that the Helitronic Vision grinder is relatively easy to operate.

"The functionality of the machine is identical [to the Power grinder]. You plug in and go," says Roberto. "There was a bit of a learning curve with the new machine but it was much less steep than we had with the [Power grinder]."

This makes sense, as the Helitronic Vision is essentially a high-end upgrade of the Helitronic Power.

Sinkora describes the latter as "the world's most popular CNC tool grinder...its patented 3D gantry design proved itself in virtually every application."

When it came time to upgrade, Walter AG decided to improve upon the Power grinder "rather than create an entirely new machine," says Sinkora.

"The Vision uses the same axis layout [as the Power] but the changes were significant enough to warrant a new name (and) model," he adds.

Sinkora says Walter AG isn't planning on coming up

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with a replacement for the Helitronic Vision grinder any time soon.

True Broach & Tool still uses their Power grinder, primarily to service existing tools. The Helitronic Vision serves an entirely different function.

"All of our new tools are manufactured on our Vision. That's all the machine does," says Roberto. "Standard tools or high-end tools or specials—they're all done on the Vision—whether it be small runs or large production runs."

Staffers at True Broach & Tool say they haven't encountered many technical problems with their Vision grinder.

"It was expected that there would be some bugs to iron out," states Roberto.

With Walter AG providing strong technical support, none of these bugs proved insurmountable, however.

Staffers at True Broach & Tool say they've already noticed an improvement in productivity, even though the Vision

grinder has only been running for a few months.

The Helitronic Vision grinder is roughly "20 to 30 per cent" more productive than the Power grinder, estimates Frank.

He hesitates to say how much the new machine has boosted his bottom line.

Like his father, Roberto downplays the significance of being the first Canadian shop to purchase the Helitronic Vision grinder.

"We are willing to be the pioneers," he says. "Walter will give us help if needed."

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