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Growth in the Works

Calgary shop believes big moves make sense while you're still small • **BY ANDREW BROOKS**

SULLIVAN MACHINE WORKS is an ISO9001:2015 certified manufacturing company that produces tight tolerance components, mostly for aerospace and engineering companies. Now based in Calgary, AB, the company was founded in 2014 in BC by two long-time friends who first met playing t-ball when they were five years old–Noah Wesche and Aaron Christensen. Wesche is president and Christensen is vice president of operations and corporate culture. These days Sullivan has five employees, but growth is on the horizon.

For a shop its size, Sullivan's ISO certification alone sets it apart. But that's not the only thing that gives it the kind of business profile much larger shops might envy. For one thing, Sullivan is exceptionally highly automated; two weeks before *Shop Metalworking Technology* spoke with Wesche and Christensen, the company acquired a brand new Matsuura MX-520 five axis VMC with PC4 pallet changer from Elliott Matsuura Canada. Sullivan is also extremely IT-savvy. Wesche and Christensen recently installed an ODOO ERP software suite and they're now building their own software application programming interfaces (APIs) to link the ERP back end to the machines on the shop floor.

But when you consider how difficult implementing ERP and automating the shop floor can be for large, complex firms, maybe Sullivan is on the right track by making the big moves while it's still small and can turn on a dime. "When we did the ISO audit there were only three of us," Christensen says. "So it was a small audit. We're trying to do these things while we're small."

When will Sullivan acquire new space? "As soon as we can," Wesche laughs. "We have right of first refusal on the neighbouring property and

SULLIVAN MACHINE WORKS

- **years in business:** 5
- **location:** Calgary, AB
- **facility size:** 464 sq m (5,000 sq ft)
- **no. of employees:** 5
- **key manufacturing processes:** CNC and manual milling, turning, MRO repair machining, prototyping, heat treating, hardness testing, DFM consulting, fixture and workholding design, CNC maintenance, instrumentation services, CNC custom integration macro, cleaning, finishing

www.sullivanmachineworks.com

IT-savvy Sullivan Machine Works' owners Noah Wesche, left and Aaron Christensen, right with their Nakamura-Tome machine.

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we're also looking at another location out of province."

The neighbouring shop would theoretically double Sullivan's current space, but as Wesche says, once the dividing wall is torn down, the space gain would be closer to three times the current capacity. But the company would have to do a major overhaul of the electrical service to support all the machines the space could accommodate. And while Sullivan digests the recent acquisition of the MX-520, further major expenditures are on hold for the time being.

Of course that doesn't mean things are standing still. Sullivan is currently working on securing AS 9100 certification, a specialized aerospace standard to meet US Department of Defense, NASA and FAA quality requirements.

"There aren't a lot of companies with these certifications that are doing machining in-house," Wesche says. "Also there's the heat treating. Our ovens are small but they're very precise. That allows us to hit the standards for the aerospace work."

Sullivan's heat treatment ovens are AMS Class 2 rated, which means that anywhere within the oven will be within five degrees of the programmed temperature throughout the cycle.

Front and centre on Sullivan's shop floor are its CNC machines. In addition to the new Matsuura MX-520 VMC, a Nakamura-Tome WT-300 eight axis multi-tasking turning centre and a Matsuura MC-550VG three axis VMC round out the CNC lineup. On the manual side Sullivan has a Kent knee style milling machine, a Monarch 10EE toolroom lathe, a Grob vertical band saw and a horizontal band saw.

The drive for increased automation is critical to Sullivan's growth strategy. "We want to be able to run lights out manufacturing," Christensen says. "When you get into automation the chip to chip time goes way down. Setup time becomes null and void because you have a pallet changer; you can do setup while the machine is working and it takes 12 seconds to change a pallet out."

Sullivan Machine Works is an ISO certified company and is now working on obtaining AS9100 certification for the aerospace sector.

In the aerospace industry, additive manufacturing is steadily building a niche, especially for prototyping of new parts and components, but so far Sullivan subcontracts out additive work.

"A lot of the prototyping work still needs to be subtractive manufacturing because of the mill test reports [MTRs]," Wesche says. "A lot of the aircraft parts we do are legacy parts for older aircraft that aren't supported by their OEMs any more. For newer aircraft they're starting to 3D print the parts, but the older stuff still has to be manufactured by the old procedures."

The biggest production run Sullivan ever did was about 4000 parts in a month, but generally the volumes are way smaller, in the 10-100 range. The low-volume, high-mix nature of the work is probably the main challenge right now, Christensen says.

"Complex parts, lower volumes– that's where the MX-520 with its pallet changer really comes into play. It's very difficult when you're building fixtures and doing really low volume runs for prototyping. People will pay for that, but when you get into production runs it's difficult to be competitive, and this is where the automation and diversification really help."

Another challenge: while the oil & gas sector in Alberta has been stable for a couple of years following the collapse in oil prices, the market remains slow and Sullivan's engineering customers who serve the oil patch are behaving cautiously, Christensen says.

"None of the companies want to hold inventory any more. They want just-in-time manufacturing, they want to order 10 pieces instead of 100 at a time. The volumes have gone down to the point that a lot of shops don't even want to try to compete. It's been a learning experience how to be able to be competitive in that environment." SMT