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I am Tony Keller, welcome to Headline. Today we're talking to **Successful Canadian Exporters you've likely never heard of.**

Inside every airplane, there are thousands of rotating turbines and manufacturers around the world call upon one Montreal-based company for help with these. That company doesn't make turbines but it makes the robotic machines that help them make the turbines. Right now, its customers are split between North America and Europe, but is looking to expand in Singapore and in Russia. Here to tell us about his company, Eric Beauregard, President and CEO of AV&R Vision & Robotics, joining us from Montreal.

Tony Keller :
- Eric, very good to have you with us today. In simple terms that anyone can understand what exactly does your company do?

Eric Beauregard:
- AV&R is a small engineering company based in the Old City of Montreal, specialising in automation for the Aerospace Industry, particularly in the gas turbine industry, so what you see as the engine components of an airplane.

Tony Keller:
- And did I explain correctly at the beginning that you don't make turbines but you do something that is integral to the manufacture of turbines?

Eric Beauregard:
- You're right. Our customers are manufacturers of rotating components, so what we're providing them is mostly automation devices that help them to sustain or to manufacture those critical components to a high level of quality and to a very high level of specifications, to be able to have the most efficient jet engine possible.

Tony Keller:
- You're in Montreal; is part of the reason you're in Montreal because there is an aerospace echo system there with Bombardier, Pratt & Whitney Canada and CAE… companies like that. Is that important to you?

Eric Beauregard:
- Yes, you're right! The echo system is very important. Never the less, since we're a niche player, we don't have a lot of customers in Canada. But the fact that Montreal is renowned worldwide as a hub helps us a lot in our international business.

Tony Keller:
- And as well, there is an interesting opportunity in Singapore, what are you doing there?

Eric Beauregard:
- Singapore is a hub; it's an Asian hub for all the Maintenance and Repair Overhaul (MRO) engines. So most of the key players - the Rolls-Royce, Pratt & Whitney, GE Aviation, Honeywell - they have joint ventures established in Singapore. This is a nice place to be, culturally not so different than North America and business-wise very friendly, so it's a nice place also for us to establish our Asian subsidiary. Right now, we're establishing some partnerships over there through some agents and some customers. We already have one equipment installed there, but the demand is incredible and is growing really fast.

Tony Keller:
- How does that relate back to the operation in Canada? Is there a sort of exchange of not just information but also manufacturing, things being manufactured in Canada sent to the Asian facility?

Eric Beauregard:
- Everything we do as a company is export our robotic systems, so we don't manufacture anything over there, but as for our customer's point of view what they do is joint ventures, so they build components over there, they repair components over there that come from all over the world. Most of the engines are dismantled in different countries and some components, mostly the rotating components, are shipped into their overall facility in Singapore and rebuilt as new to be shipped back to the worldwide facility to be installed in refurbished engines, where they need to fly.

Tony Keller:
- How many employees do you have and how many of those employees are in Canada?

Eric Beauregard:
- AV&R currently has 63 employees, 100% of which are in Canada. Right now, we have one place of business and it's Canada. Five years ago, we were 23, so it's a quite big growth and on that, we have 45 engineers, so you can see we're really an engineering company.

Tony Keller:
- Your plans for growth, do they involve different geographies; we mentioned obviously Russia and Singapore or even different technologies or industries focusing beyond aviation?

Eric Beauregard:
- It's a coincidence you're talking to me about that, this morning I was meeting with our lawyers in Singapore; we're looking to expand our business both in Asia and in Europe. We're on a verge to finish a growing strategy in North America; we're looking right now into a merge/acquisition that may happen very soon. But the next step would be either Europe or Asia and Singapore could be a very good place to be if we want to penetrate the Asian market and it's a good platform to go to Hong Kong or to China and it's not as much different as business-wise than us.

Tony Keller:
- Alright Eric, it's been a fascinating conversation, thanks for joining us today.

Eric Beauregard:
- It was my pleasure, thank you!

Tony Keller:
- That has been Eric Beauregard, President and CEO of AV&R Vision & Robotics joining us from Montreal.

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SQUEEZE PLAY

Aerospace OEMs tightening manufacturing supply chain

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SHOP REPORT | Aerospace

SQUEEZE PLAY

Aerospace OEMs tightening manufacturing supply chain

BY TIM WILSON

CHANGES ARE AFOOT in the aerospace sector, and many metalworking shops in Canada are in a good position to benefit. The recent problems with the Boeing 787 Dreamliner have resulted in an industry-wide push to shorten the supply chain, and technological advances are supporting Canadian shops delivering to precise design specifications.

"British Columbia is part of the Northwest hub, and Boeing wants its supply chain in proximity," says Steve Archer, director of business development at Avcorp Industries Inc., Delta, BC. "Companies in Japan and other parts of Asia are now compelled to look at collaboration with local suppliers in the Pacific Northwest, which is providing opportunities for Western Canadian companies."

There is room for growth in the BC lower mainland for companies like Avcorp that serve the nearby Boeing assembly plants in the Puget Sound area. And Avcorp, which also designs and builds airframe structures for Bombardier and Cessna, sees the trend as creating overall opportunity for aerospace manufacturers in the eastern part of the country, too.

"If you look at Bombardier in the east, it is also tightening its supply chain," says Archer. "Mitsubishi Heavy Industries moved its tooling from Nagoya, Japan to Mississauga, ON. This is greenfield. It is an automated, lean plant for wing assembly."

EMC's Purchasing Co-op Takes Flight

Canada's Excellence in Manufacturing Consortium (EMC) has a Purchasing Co-op that is gaining traction with manufacturers–including those in the aerospace sector.

"The EMC Purchasing Co-op is the first of its kind for Canadian manufacturers," says Jason Bates,field service advisor-team leader membership development at EMC. "It is a 100 per cent member owned organization, a true co-op in that members work together on purchases to achieve cost savings through rebates and improved supply chains."

Bates says aerospace manufacturers can take advantage of most of the program, with specific opportunity in the areas of maintenance, repair, and operations (MRO).

"Areas such as welding, industrial gases and supplies, freight, and courier would apply to aerospace," says Bates. "And perhaps even some industry-specific materials, such as high-end adhesives."

Of specific interest to aerospace job shops is EMC's intention to expand the program to include steel and packaging. The organization also has an energy purchasing group that has been popular with some aerospace companies.

"I know of a large aerospace manufacturer that is participating in the program and saving significant dollars," says Al Diggins, EMC's president and general manager. "A company can have a study done and hedge for heavy usage periods; it is a very friendly, manufacturer-centric contract."

Diggins says the program–available in Ontario and Alberta where the markets are deregulated–has grown substantially and is still generating significant interest.

"We could now be considered a small utility in Ontario," he says.

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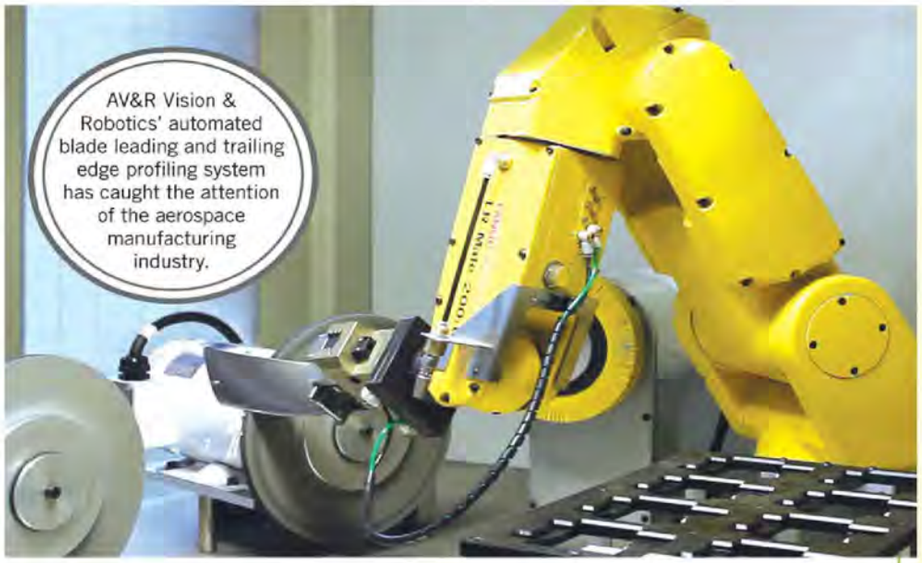

AV&R Vision & Robotics' automated blade leading and trailing edge profiling system has caught the attention of the aerospace manufacturing industry.

Pushing the envelope

This is happening in the context of combined total demand nearly outstripping the capacity of the larger Boeing and Airbus global supply chain. But it is also a vote of confidence in Canadian industry and its ability to build parts with increasingly rigorous precision requirements.

"The more precise the jet engine parts can be, the better the engines are," says Eric Beauregard, CEO of AV&R Vision & Robotics in Montreal, which is setting a new standard with its metallic robotic finishing solution (see sidebar on right).

"When we asked around to elaborate our profiling solution, the precision looked for was ± 50 microns," says Beauregard. "But something interesting happened when we presented our solution: the required precision was modified to ± 37.5 microns."

In effect, the designers who impose production precision specifications changed their requests to reflect AV&R's capabilities.

"Moreover, these days we are starting to hear the designers talk about precision levels of as low as ± 25 microns," says Beauregard.

The ongoing pressure to make parts as precise as possible should

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Precisely Canadian

Montreal-headquartered AV&R Vision & Robotics has developed an automated blade leading and trailing edge profiling system specifically for aerospace manufacturing–and it has caught the attention of those in the industry. It won SME's Innovations That Could Change the Way You Manufacture 2012 Award, and was chosen as a finalist of Aviation Week's Innovation Challenge in the Power & Propulsion category.

"AV&R had already developed robotic finishing systems for aerospace, but when we really niched our activities we looked for a common and recurrent need from our customers, a need which existing technologies couldn't answer," says Eric Beauregard, AV&R's CEO. "That is how we started the development of our automated blade profiling system."

AV&R says the system includes all the required technologies to create high precision elliptical profiles on leading and trailing edges of compressor blades' airfoils. These are used on blades in jet engines–mostly nickel based, in titanium and aluminium–at a tolerance of ± 37.5 microns.

"This beats the precision obtained manually," says Beauregard. "It enhances ergonomics and safety while increasing repeatability and quality of production. At the end of the day, jet engines including blades with precise profiles, make less noise and have lower fuel consumption and higher performance."

AV&R's software provides adaptability to the robotic system, allowing for repeatable results even if the parts coming in are not identical. Inspection results are as precise as other systems currently in use, but much faster. The platform also includes an auto-teaching capability, which allows for new products to be quickly added into the system.

"Typical customers of these systems are OEMs and their supply chain," says Beauregard. "However, the MRO Industry will start to need these systems too since retrofit programs are being elaborated to increase repaired engines' performance, leading to new precision tolerances."

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provide a solid boost to Canadian job shops feeding the aerospace sector, given that the drive to increased precision enhances Canada's long-term competitiveness, something that is now backstopped by a market-driven incentive to keep the supply chain close to home.

At the ready

"Our aerospace manufacturers are good at what they do," says Al Diggins, president and general manager, Excellence in Manufacturing Consortium (EMC), and co-CEO of the Canadian Manufacturing Network. "They can hold their own with the high tech requirements."

Diggins says that 17 per cent of EMC's membership is in the aerospace sector, and they are among the consortium's most active members, with aerospace being a bright spot on Canada's manufacturing landscape in part because it is backed by strong global demand. Boeing, for example, now has a record sold backlog of more than 4,000 airplanes worth nearly US $310 billion.

"The demand for these airplanes is driven by sustained economic growth in China, the Asia Pacific Region and the Middle East, coupled with the replacement of a large number of aging aircraft in North America and Europe," says Archer from Avcorp. "At the same time, Airbus is experiencing an increase in demand for new aircraft."

And though the use of composites is on the rise, the increasing price of petroleum means resins and fibers are more expensive, too, which argues for the continued use and relevance of precision-tested lightweight and high strength metal alloys. There will be special demand for long bed aluminum and hard metal complex machining in multi-axis environments, with those machine shops that can deliver to advanced specs likely in good shape for years to come.

"With airplane production rates set to increase 40 per cent over the next three years, Boeing will spend more than US $30 billion per year globally with its suppliers," says Archer.

To produce those airplanes Boeing and Airbus depend heavily on thousands of suppliers from all over the world. However, a more streamlined supply chain is a necessity for OEMs to reduce production risk and meet demand. That puts Canada in a sweet spot, with strong incentives to build competitiveness in the sector. SMT

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Support for Aerospace Manufacturing

Canada boasts the world's fifth largest aerospace industry and the sector generates more than $22 billion, exporting 80 per cent of its output. With investments of more than $2 billion, the aerospace industry is the second largest R&D investor in the country, according to figures from the Aerospace Industires Association of Canada (AIAC).

The Federal government recognizes the sector's contributions to the economy and in the recent Federal Budget 2013, committed more than $1 billion dollars to support it. It has committed close to $1 billion over five years for the permanent Strategic Aerospace and Defence Initiative (SADI). There is also the new Aerospace Technology Demonstration Program, which will be funded to the tune of $110 million over four years, beginning in 2014–15 and another $55 million per year on an ongoing basis.

SADI has played a significant role in aerospace manufacturing since it was established in 2007. Project highlights include:

- $7.7 million to ASCO Aerospace Canada, Delta, BC, to support innovative manufacturing technologies to produce aircraft bulkheads and specialized metal components.
- $43.4 million to Bristol Aerospace Ltd., Winnipeg, MB, to support new processes for composite manufacturing and complex assemblies that incorporate both composite and metallic components.
- $300 million to Pratt and Whitney Canada, Longueuil, QC, to support research leading to lighter aircraft engines with more power, better fuel consumption and improved durability.