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Ottawa design, engineering and manufacturing firm president says if manufacturers don't focus on R&D they won't survive

November 15, 2010 at 1:59 pm by Mary Scianna

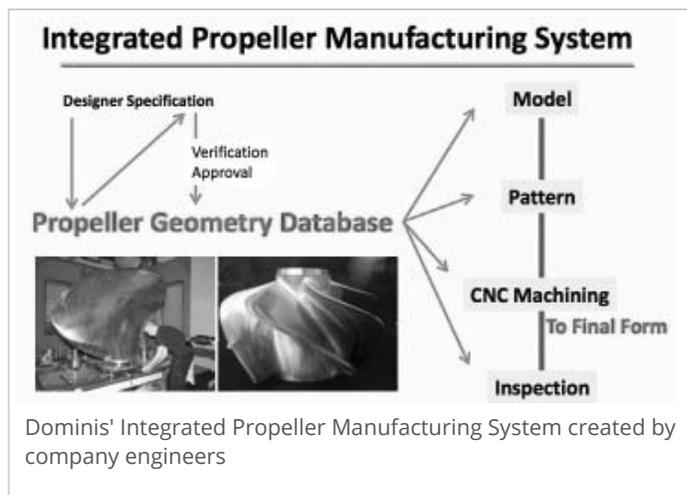
While many Canadian manufacturers are looking to diversify their customer mix, one Ottawa, ON, manufacturing and engineering firm has done the opposite by carving out a specialty field in propeller and impeller manufacturing.

What's unique about this approach is that company founder and president Bodo Gospodnetic started the company 25 years ago with this objective and has been successful from the beginning.

The company recently announced completion of a set of water jet impellers for Wärtsillä Defense Inc., in support of the its US Navy program.

The key to success for Dominis? R&D.

"Very few companies are capable of machining an impeller that is 2 m in diameter," says Gospodnetic. "Many have tried, but failed. GE can do it, but that's it and the facility that does it is in Europe. We can do it because we are active in R&D. We develop our own software, our own tooling and our own processing to machine these large parts and this gives us the edge over other companies."



Manufacturing impellers and propellers requires that large parts be machined to complex curved shapes with high precision. The technology to do this economically has been developed by Dominis Engineering, an Ottawa-based company which spun out of the Ship Research Laboratory of the National Research Council. The ongoing development of Dominis' IPMS (Integrated Propeller Manufacturing System) keeps the Company at the forefront of this field and allows it to bring in contracts from around the world.

To create its large impellers and propellers (weight 2.4 tonnes and measuring 2 m in diameter), primarily for the US Navy, Dominis uses five, five axis Toshiba machine tools. The five axis machines are a rotary-on-rotary table system. Parts of the impellers recently completed were machined using a 3+2 axis approach, while part edges were machined using five axis simultaneously machining.

The shop uses five tonne cranes and specially designed workholding and fixtures (engineered and manufactured in-house) to handle the large, heavy parts.

"The trick to making these parts is in the programming to cut and machine them," adds Gospodnetic. "We have four engineers that handle the design, programming and testing (using Vericut NV verification and machine simulation software) and when the program is ready, it's sent to the shop where three licensed machinists and other employees manufactured the products."

He adds that the propeller is a critical component of a ship's water jet propulsion system.

"The completion of these impellers is an important achievement for Dominis and demonstrates that we are a leading player in sophisticated machining of large and complex components. Impellers and propellers are strategically important components and we are proud to have developed capabilities which are internationally competitive."

In addition to marine propulsion systems, Dominis has the capabilities to manufacture components for hydro-electric turbines, power systems and large compressors. Ongoing development of software systems and specialized tooling is the core of the Company's business.

Gospodnetic's says he wants to maintain the company's leading position and to develop new applications for its basic technology.

"Support from NRC's IRAP and Industry Canada has been key to the Company and has positioned us for growth in new products and markets." said Mr. Gospodnetic.

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