Beyond Autoparts

Industrial Design consultation program helps Ontario automotive OEM supplier evolve and grow business.

By Arlene Gould

As the Chatham / Kent region of southern Ontario emerges from the economic downturn, many local manufacturers are facing a big challenge and a big opportunity—unused capacity.

On the upside, these manufacturers are highly skilled and practiced at addressing the rigorous demands of their customers (primarily OEM part and assembly suppliers to tier-one automotive manufacturers). On the downside, there is less automotive production and so, even if they have retained their valued customer base, it is risky to depend on this sector alone for future business. It is time for these companies to look beyond their core business and to ask the burning question: What else can we make?

This is precisely the type of challenge that Ontario's Design Advisory Service (DAS - designed and operated by DIAC, the Design Industry Advisory Committee), has been created to address. The DAS is supported by the National Research Council's Industrial Research Assistance Program (IRAP) and is now in its second year of assisting SMEs (Small-to-Medium-sized Enterprises) to use design to innovate strategically.

Nu-Co Plastics, a small manufacturer located in the picturesque town of Blenheim, Ontario, was an early recipient of DAS insights. Nu-Co is a plastic moulding plant focused on supplying auto sector parts produced using technically challenging resins. The company was purchased in 2005 by Rob Van Alphen. a former dentist and lecturer in dentistry who switched careers because of eyesight problems. Van Alphen had no previous experience with plastic moulding prior to purchasing the company, but, over the past five years, he has demonstrated an ability to solve tricky problems that other manufacturers have declined to take on.

Proven Track Record

Van Alphen's penchant for innovation is reflected in his tooling solution for a translucent, injection-moulded brake fluid reservoir used in trucks. He redesigned the tooling so that the mounting and connection features of the reservoir could be rotated in the tooling, allowing purpose-built parts for a variety of specific makes and models to be produced from one configurable cavity. This cost-effective solution allows Nu-Co to provide parts for many truck makers from the same tool.

Although most of Nu-Co's current clients are automotive and heavy truck supplier companies, Van Alphen has also re-engineered a metal fastening system that produces plastic fasteners for industry. The system attaches insulating shielding to piping so that it can be manufactured using injection moulded plastic parts. Van Alphen re-designed the parts for plastic moulding, then built and debugged the tools.

Nu-Co also has a unique capability that sets the company apart from other small manufacturers in the region: it operates a custom-built low-pressure urethane foam moulding line. The line was created for a client who invested in its development so that Nu-Co could apply sound-dampening material to a specific part. This part is not run on a continuous basis, so downtime represents a significant opportunity to serve other purposes.

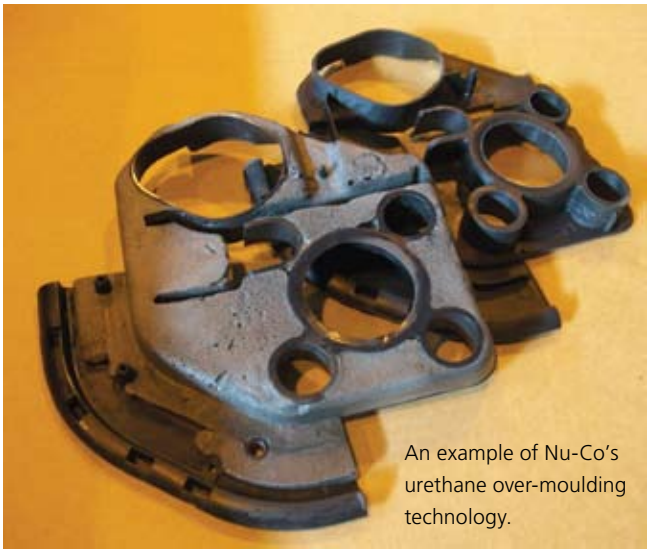
Nu-Co Plastics president Rob Van Alphen demonstrating the company's custom-built urethane foam moulding line.

At this point in time, Van Alphen recognizes that the company needs to think about diversifying. Nu-Co currently has just ten employees, but the dedicated and efficient staff includes highly experienced machine operators and material handlers.

"Our business is pretty stable" he says "and we managed to weather the storm, but we know it is risky to have all our eggs in one basket."

Changing Course

Prior to DAS input, his approach to innovation was largely focused on "me too" product ideas. These were parts that the company could make better or faster with its existing equipment and know-how, but not ideas that would provide a sustainable source of competitive advantage since most were essentially commodity parts that could be produced as easily, more cheaply and in higher volumes, off shore.



An example of Nu-Co's urethane over-moulding technology.

The DAS opportunity was brought to Van Alphen by his IRAP Industrial Technology Advisor (ITA), Millan Yeung, and a project was initiated in October, 2009. In an introductory meeting with the DAS team, Van Alphen had the opportunity to discuss new projects he was contemplating and to demonstrate the capabilities of his moulding plant.

The DAS team then conducted a Design Audit for Nu-Co, exploring the strengths and challenges of the company in the context of the current economic and competitive environment and identifying opportunities to apply design strategically. The design audit formed the basis for a design brief for Nu-Co and a one-week strategic design project. Van Alphen was then introduced to Scott Grant, ACIDO, an accredited industrial designer and principal in the firm designforce who is highly experienced in plastic injection-moulding processes.

Grant met with Van Alphen, toured the plant and spent one week of consulting time researching potential opportunities for Nu-Co and developing a design report discussing target markets and products areas that would be a good fit with Nu-Co's resources and expertise. Rather than rely on commodity products with high volumes and low margins, Grant recommended targeting lower-volume markets with more sophisticated and innovative products offering both higher margins and the potential to create intellectual property, thereby offering security by occupying market niches that face less direct competition.

This was a good fit with the strategic direction identified early on by the DAS as a way for Nu-Co to free itself from its current constraints. By developing a low volume, original and innovative product that could be branded and supplied to a specific market sector, Van Alphen would gain control over his company's future and transition Nu-Co from being a supplier to Original Equipment Manufacturers (OEMs) to becoming an Original Brand Manufacturer (OBM).

"One of the clear strategies that came out of our research," says Grant, "is that niche market products, carefully targeted at specific aspects of the medical and dental industries, could incorporate parts made using Nu-Co's urethane over-moulding technology." Given Van Alphen's previous healthcare practitioner background and current technical strengths, developing designs for these markets would seem a natural fit."

Design Diagnostic

The application of industrial design methodology to make something better, smaller, less costly or more aesthetically pleasing is always tempting. Decoupled from strategic intent, the traditional approach to design sees its tactical application as a way for manufacturers (domestically and internationally) to develop and offer new products, frequently without much research and often with only modest results.

The DAS process recommends a more strategic approach: to leapfrog over existing products in a specific market category and to use disruptive design to rethink the category and introduce radical rather than incremental innovation. This is the process that Canada, and particularly Ontario as the country's manufacturing base, should adopt to establish competitive advantage in the volatile manufacturing sector worldwide. Design is a game changer, but only if the creative problem-solving abilities of designers are applied at a higher level rather than used as a superficial add-on to existing products.

In Nu-Co's case, the design diagnostic involved an analysis of the company's unique capabilities in injection moulding and problem solving relative to the competitor market and pointed towards target markets with the best potential for this particular manufacturer. The process led Van Alphen to focus his future business strategy on a product area that is a good fit with his scientific background, the skills of his production team and the resources of his plant.

Now that he has been through the DAS process and reviewed the final report and recommendations, Van Alphen recognizes that this strategic approach to design is radically different.

"Before, I would have come up with an idea and gone straight to making a part," admits Van Alphen. Having worked with the DAS team and built a good relationship with Grant, he realizes that he was missing the critical first step: early-stage strategic design research.

"It seems so obvious, once you have been told. It's good to stop and look at the bigger picture. It is a whole new mindset" he says. "The way we look at things has definitely changed due to this process." DE

www.diac.on.ca

Arlene Gould is the strategic director for the Design Industry Advisory Committee (DIAC) and the Association of Chartered Industrial Designers of Ontario (ACIDO).