

# SUCCESS STORY



**COFA** CARREFOUR QUÉBÉCOIS  
DE LA FABRICATION ADDITIVE

## INJECTION MOULDING, BLOW MOULDING AND/OR ADDITIVE MANUFACTURING: CHOOSING THE RIGHT TECHNOLOGY TO BETTER RESPOND TO THE INDUSTRY'S NEEDS

Born from a desire to promote the growth of Camoplast Polymer Solutions division, Quebec-based Exo-s specializes in the design, engineering and manufacturing of plastic parts for various sectors, including the automotive industry. With the development of new cars and technologies, the automotive sector is constantly seeking innovation. Companies must therefore adapt quickly in order to remain competitive. It is in this context that Exo-s has integrated additive manufacturing into its operations and become a leading North American player in the industry.

### ADDRESSING CHALLENGES BY INTEGRATING ADDITIVE MANUFACTURING

The formative processes of injection molding and extrusion blow moulding present a particular set of challenges for companies in the automotive industry:

- Considerable tooling investments are required for parts that can only be produced in very low volumes;
- Part performance is limited by mould and process-related constraints;
- Beyond the fact that the mould's design is relatively time consuming, once produced, modifications are complex and expensive.

The inclusion of additive manufacturing in its service offer allows Exo-s to provide customers with interesting solutions while mitigating key vectors that disrupt the traditional manufacturing flow. Additive manufacturing provides access to end-use parts, without the need to invest in tooling, along with a revolutionary design freedom that allows complexity at no extra cost, as well as a digital inventory that allows multiple design iterations, even after the process has begun.

3D printed part



Exo-s considers additive manufacturing for the automotive industry as a new tool in their service portfolio. All manufacturing processes have intrinsic advantages and disadvantages. By using them in a complementary way, the company can achieve performances never seen before, primarily in terms of productivity and plastic parts geometry. The result is a win-win technology for customers, manufacturers and end users alike.

### TRUE VERTICAL INTEGRATION

Exo-s has become an industry leader through its role as a manufacturer that can provide additive manufacturing, as well as injection and blow moulding. Using additive manufacturing as an integrated tool for end-use parts is very different from prototyping. Exo-s has adapted a complete range of 3D-printing services that go far beyond manufacturing. It covers every link in the value chain, including design, pre-production, production, post-production, quality management, and certification. Thus, the company can provide customers with complete and fully adapted solutions.

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*The company's value-added is found in its internal product development expertise. Exo-s has developed an additive manufacturing training strategy for the entire workforce that uses this technology. Its internal training program includes examination and certification for operations employees, while external training services are used for specialized employees (e.g., quality, engineering, design/simulation, or health and safety teams).*

## CREATING VALUE THROUGH ADDITIVE MANUFACTURING

For Exo-s, the integration of additive manufacturing ensures additional value for its development projects with customers, including:

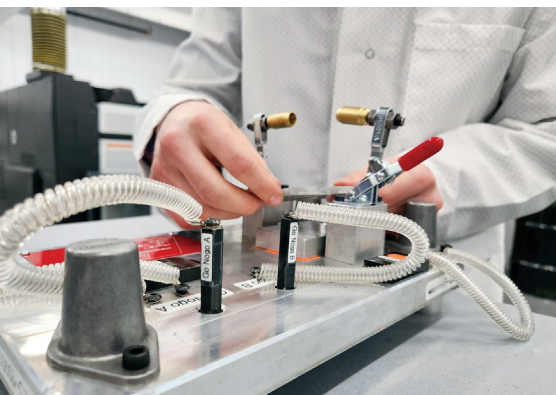
- Performance gains, since additive manufacturing can improve the geometry and functionality of parts at no extra cost;
- Mitigation of risks, since additive manufacturing helps bypass some of the risks involved in injection or blow moulding projects (e.g., engineering changes, tooling maintenance, inventory management, design constraints, etc.);
- Financial gains, since customers save money and projects become more profitable with lower volumes and very high complexity.

One example involves a project conducted by Exo-s and a major US car manufacturer, in which additive manufacturing was used to develop a highly efficient manufacturing strategy. A manual transmission version for a high-end vehicle had to be brought to market for a niche segment of end users. With very low production volumes, an injection mould would have been difficult to amortize and counter-productive due to the time constraints involved. With additive manufacturing, however, Exo-s helped the customer transition from design to final product without the need for expensive tooling investments.

Another project involved enhanced design freedom and parts validation through additive manufacturing. The design freedom provided by additive manufacturing was combined with Exo-s' extensive knowledge of automotive tanks to create a unique product made up of a single body. This not only led to a significant reduction in secondary tooling costs, but it also improved manufacturing efficiency. In addition, Exo-s carried out a comprehensive series of validation tests, including leakage, dimensional, roughness, creep, tensile and cleanliness tests. This helped the company develop advanced expertise for this specific application.

## BETTER SERVICE FOR THE AUTOMOTIVE SECTOR

The integration of additive manufacturing into its technological solutions has enabled Exo-s to position itself as a leading partner in the development and production of automotive parts. Through this technology, the company can provide customers with optimized solutions while creating significant gains in terms of product performance and manufacturing agility, propelling future generations of vehicles toward new horizons.



MJF production laboratory at Exo-s