

# **Design and Control of a New VARTM Resin Injection Line**

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## **ABSTRACT**

Improving control of the resin flow and resulting flow front within a mold during VARTM will be an important development for significant improvements to molded part quality. Additionally, current methods, like extending injection times to minimize dry spot formation, result in excessive resin waste as well as increased cycle times.

To improve process controllability during VARTM, a new and innovative resin injection line was designed and tested. The injection line, which consists of individual segments each independently operated, allows for the control of resin flow to different locations within the mold. Several generations of prototypes have been used to demonstrate that a simple vacuum-based actuation technique for each line segment provides the most cost effective configuration that meets the performance requirements. Current research is focusing on the most appropriate controller design for this new injection method.

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