

SMARTMolding

UD-CCM's SMARTMolding takes the control out of the operator's hands. The system, based on software and hardware components, guides an operator through the material lay-up, infusion and cure process for Vacuum-Assisted Resin Transfer Molding (VARTM). This allows intelligent process control (IPC), repeat manufacturing and full quality assurance/quality control (QA/QC) of the process.

At the material lay-up station, the infusion station includes: valves for on/off flow control of infusion lines, variable vacuum control, tool-mounted sensors, flow rate monitoring and temperature control of heated tooling.

The software enables operator login, automated leak check, automated resin mixing, and automated infusion of large-scale and thick-section composite parts. All process variables and sensor information are stored in the QC database.

A production queue, connected plant-wide through an Intranet, enables the supervisor to add/delete parts into the process and monitor their progress. The IPC system allows plant-wide operation of multiple stations at several locations.

Technician is prompted to put barcoded materials into the mold in the correct order. Information, such as operator, cycle time for each handling step, and barcode information, is stored in a QC database.



Benefits of SMARTMolding Intelligent Process Control & Automation:

- Repeatability
- Scrap Reduction
- Increase Production Rates
- Process Traceability
- Reduction of Touch Labor
- Reduction of Cost

SMARTMolding has been demonstrated in more than 12 development production beta sites including:

- BAE Systems
- Northrup Grummon
- Amtech Corporation

SMARTMolding was developed as part of UD-CCM's Office of Naval Research (ONR) program in conjunction with a DURIP equipment grant.

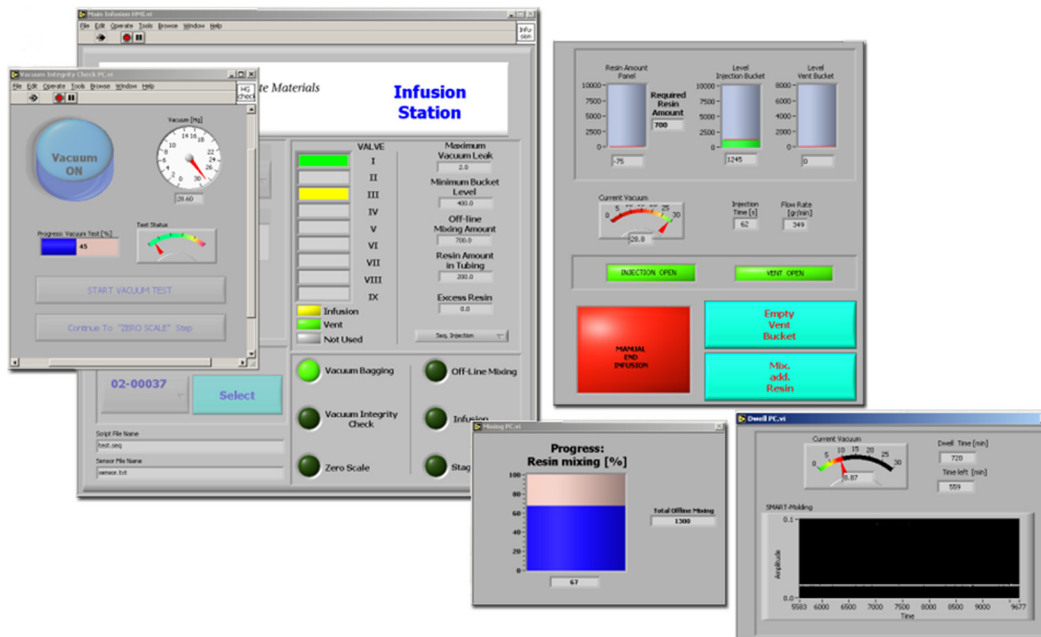
SMARTMolding

- Sensor Development
- Sequential Injection
- Automation
- Design Tools

Beta-Site Technology Transition



A rigorous quality plan reduces / eliminates post-process inspection



Technical Contact:

Dirk Heider, PhD | 302.831.8898 | heider@udel.edu