



“When I send people to your seminars, what kind of increase in knowledge, skills and performance should I expect to see when they are back at work?”

Systematic Molding for Mold Builders and Tooling Engineers Classroom Session

After successfully completing our Systematic Molding for Mold Builders and Tooling Engineers course your employee will be able to:

- Explain the economic impact of making rejects, blocking cavities, cycle time variation, and other problems often associated with injection molding.
- Discuss and validate part design considerations, including:
 - Thin wall to thick wall or inconsistent wall of part
 - Long flow fronts
 - Draft
 - Part details
 - Parting Line and Line of Draw
 - Radius and square corners
 - Cooling from the mold’s point of view and from the part’s point of view
 - Sensor installation and strategies for sensor installation
- Explain the characteristics and the advantages of DECOUPLED MOLDINGSM over traditional molding.
- Explain the advantages of DECOUPLED MOLDINGSM over traditional molding, using the general principles of polymer behavior, as well as demonstrating the processing improvements with data.
- Explain the main components and advantages of Individual Cavity Control systems.
- Identify mold performance requirements and actual machine performance and select the best machine
- Perform the initial machine qualification tests listed below, after practicing a few times with a coach^{*}: Load Sensitivity, Pressure Response, Injection Speed Linearity, Dynamic Check Ring Repeatability Test, and Clamp / Mold Deflection Study.
- Develop a basic DECOUPLED, machine independent process, after practicing with a coach^{*}.
- Collect and interpret DECOUPLED III graphical process data from an instrumented process.
- Perform a 30/30 melt test.
- Perform a shear-rate viscosity study for any mold / material combination to determine the optimal injection speed (plastic flow rate).
 - Use a shear rate viscosity curve to help determine an injection speed.
 - Use same curve to help validate gate sizing.
 - Apply least pressure curve to also help with machine selection.

^{*} In the Systematic Molding class, the RJG instructor demonstrates how to do this at the machine. The training participants do not practice on their own. Therefore, it is likely that the training participant would need on-the-job coaching before he or she would be able to demonstrate the new skills on his or her own. Two days of on-machine practice is provided in our Workshop and 7 days of on-machine practice is provided in our Master Molder II course.



- Trouble-shoot more effectively by using a scientific and systematic approach, including:
 - Consider and explain the four plastic variables when trouble-shooting;
 - Consider and explain the cause and effect relationships between the machine, process, mold, and material;
 - Identify changes to machines, molds, processes and material handling that address root causes of problems;
 - Consider and explain the non-Newtonian behavior of plastic and its impact on the injection molding process and part quality;
 - Consider and explain how polymer behavior can be influenced;
 - Make more decisions based on data (i.e., less guesswork); and
 - Come up with fewer “band-aid” fixes and more concrete, lasting solutions.
- Explain the purpose and key steps of a rigorous mold tryout.
- Explain how using a process template in DECOUPLED III molding can improve quality, reduce scrap and reduce labor.

Rigorous Mold Tryout Lab

The purpose of the Rigorous Mold Tryout Lab is to observe the rigorous mold try-out steps and techniques at the machine. Whereas the demonstrations in the classroom portion are performed by the instructor with usually 10 or 12 participants seated in the classroom, the demos in the lab are performed by one of the participants with up to 4-6 participants at the machine. By giving the trainees a second opportunity to see the scientific molding practices, this time up close, we help improve the likelihood that they will be able to completely understand and perform the new practices listed below.

- Perform a 30/30 melt test.
- Perform a shear-rate viscosity study for any mold / material combination to determine the optimal injection speed (plastic flow rate).
- Perform a machine capability test, fill time/load sensitivity to determine if a given molding machine is capable of repeating an optimized cycle, or requires tuning.
- Perform a gate seal study to determine optimal hold time.
- Perform a dynamic check ring repeatability test.
- Perform a injection speed linearity test.
- Perform a pressure loss and pressure response test.
- Identify the cavity balance at all injection speeds.
- Build and document a robust DECOUPLED III process that can be repeated on any properly sized, production capable injection molding machine.**

** Similar to the classroom portion of training, not all trainees will not have the opportunity to practice building a process on their own. Therefore, they will need on-the-job coaching before they would be able to build the process on their own.



How Training Impacts Business

If given appropriate support on-the-job, these new knowledge and skills should lead to:

- Improved mold quality
- Reduced or eliminated new mold start-up runs and costs
- Reduced part variability and scrap
- Optimized cycle times
- Reduced time spent on trouble-shooting
- As a mold-builder, provide more value to the customer/molder by challenging molds in the build process, adjusting the build and delivering a mold that is “ready-to-go.”

If you do not see these kinds of abilities or operational improvements, please call us. Ultimately, our goal is to improve employee and operational performance. Sometimes employee knowledge and skills may increase, but that increase is not translated into improved performance. Additional coaching may be required, operating procedures adjusted, new performance expectations established, or other changes implemented. If you do not see our training lead to improved performance, we want to know about it and find a way to make it happen. Please contact us and we will do an assessment over the phone, free-of-charge, and, depending on the needs, an on-site assessment.