

H O T R U N N E R T E C H N O L O G Y

synflow®

Leading the drive for the maximum process control.



elevate your process

 **Synventive**
molding solutions
 A business of BARNES GROUP INC

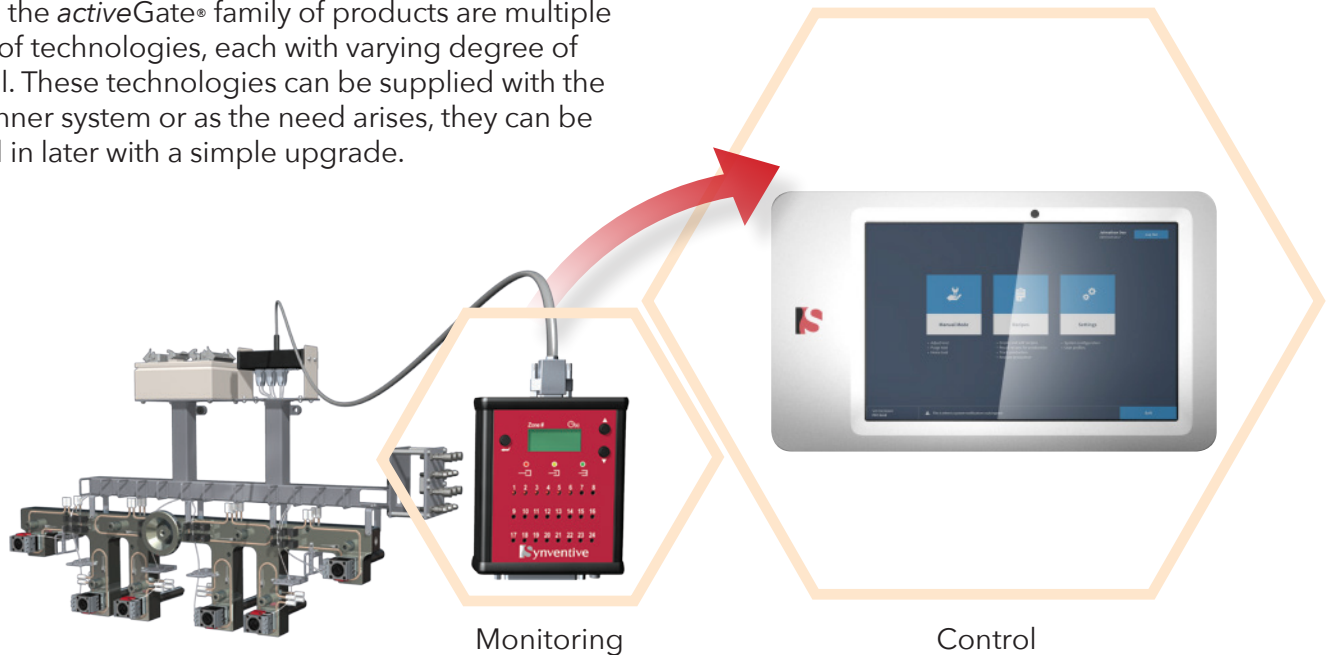
Simple upgrade path from SVG+

Synventive has a rich history in developing industry-leading hot runner control advancements. From our very first Dynamic Feed offering 20 years ago to our current selection of *activeGate*® tool-based molding technologies, we provide unrivaled control over the molding process. This enables consistent production of higher quality parts, previously unattainable with traditional hot runner systems.

Within the *activeGate*® family of products are multiple levels of technologies, each with varying degree of control. These technologies can be supplied with the hot runner system or as the need arises, they can be added in later with a simple upgrade.

activeGate® allows for a low initial cost investment. Should additional control be needed, *synflow* can be easily added after initial mold sampling.

Upgrade to improve part quality



***activeGate*® technologies are designed to facilitate perfect surface quality, stability and repeatability of injected molded parts allowing for:**

- Higher quality part surface finishes
- Balance control
- Decreased scrap
- Faster mold start-ups

synflow the latest process

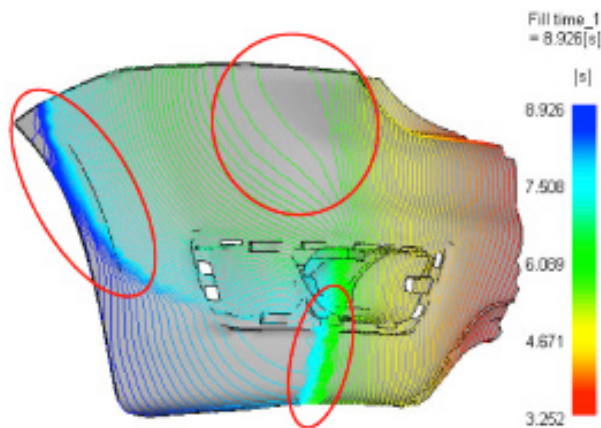
With traditional valve gate hot runner systems, the valve pins opened and closed at a maximum, uncontrolled speed. The inability to control the flow results in melt front stagnation and accelerations, which in turn may cause visible part surface defects.

To address these quality issues our original synflow offered two-speed pin control. Surface defects were eliminated by allowing the user to individually define the opening velocity of each valve pin, and the amount of opening stroke in which the velocity will be controlled.

The next generation synflow brings more advanced features which allow molders to quickly and easily define the complete molding parameters for a specific application.

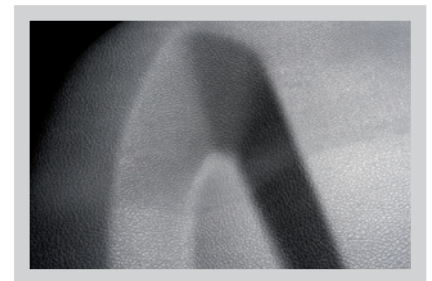
Molders can now slow the opening of the pin for a set distance and hold at that position until closing or facilitate multiple moves within a cycle.

Any SVG+ systems, which are supplied with pin position sensors, can be easily upgraded to synflow. A mold that has separate open and close connections for each actuator can be tested without modifications to the tool. Simply connect the external equipment to validate the added control.

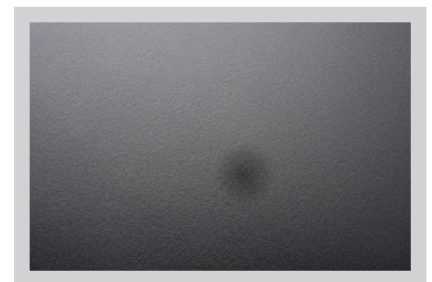


synflow Features:

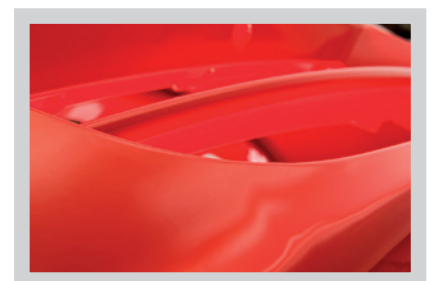
- No connection to the injection molding machine necessary
- Test on the actual tool without committing to additional equipment
- Same controls equipment can be used on multiple systems
- Pin sequencing is still done through current process simplifying use for machine operator
- New software platform designed for ease of use
- Ability to stop the pin mid-stroke to independently regulate filling or packing of each nozzle
- Ability to program alternating moves allows for prefilling of cold runner or differential packing



Melt Acceleration Line or Gloss Line



Gloss Marks

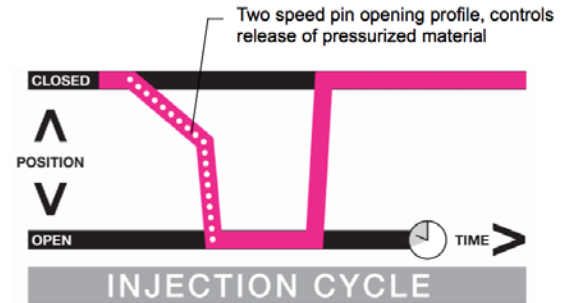
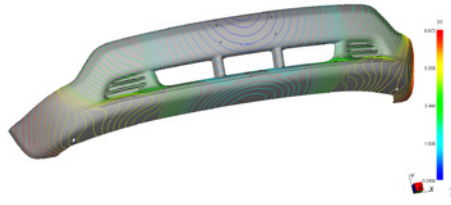


Reflection Marks

control advancement is here. **NOW**

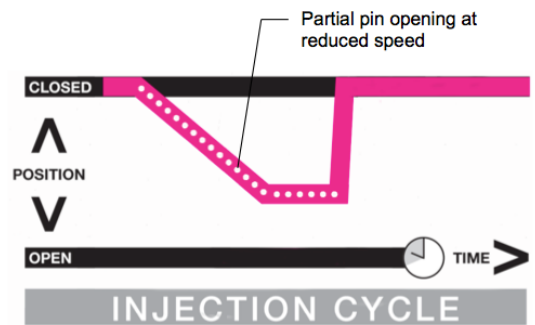
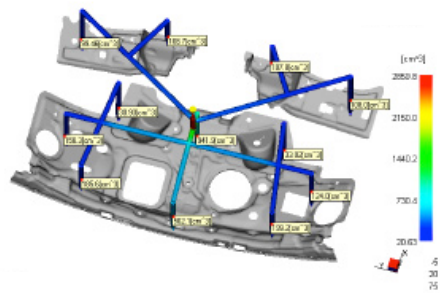
Melt Acceleration Line Reduction

Reduced initial pin opening velocity to eliminate sequencing defects. Pin returns to full speed once predefined stroke is reached.



Balance Control

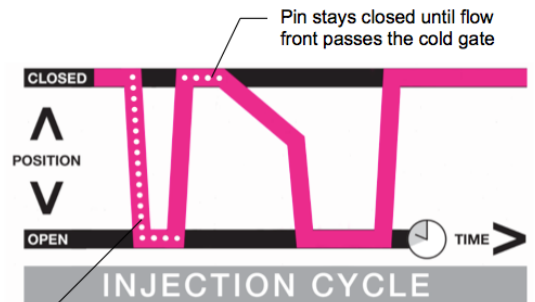
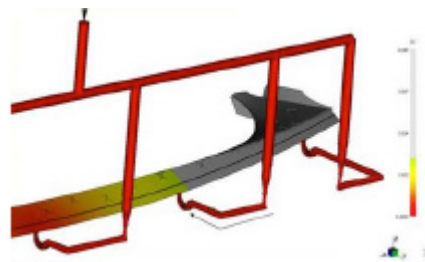
Pin is opened at a controlled speed to a set stroke and held at that position until it closes.



If the hydraulic sequencer is capable of multiple moves, synflow can be programmed to perform varying control on alternating moves

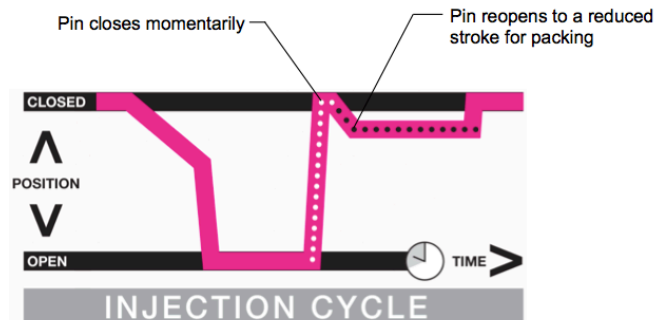
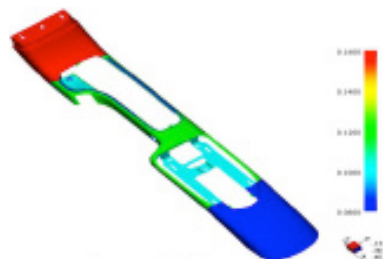
PreFill Runner Control

On initial opening, pin speed is not controlled enabling unrestricted pre-filling of cold runner.



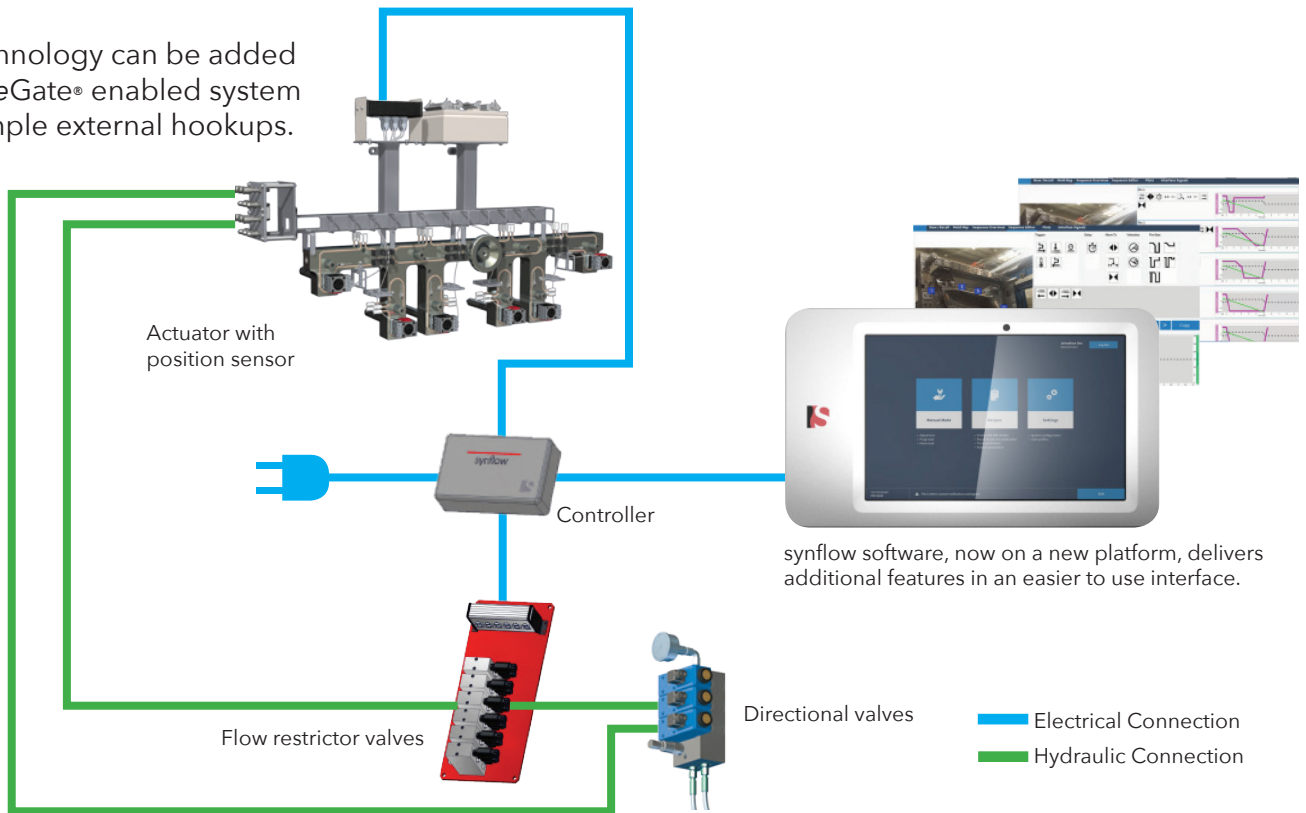
Differential Pack Control

Pin momentarily closes at transfer and then reopens to a reduced stroke to provide a lower pack pressure to individual nozzles.



synflow Components

synflow technology can be added to any *activeGate*® enabled system through simple external hookups.



Frequently Asked Questions

Can I use synflow without installing an interface on my injection molding machine?

Yes, the synflow controller does not need to communicate with the molding machine or sequencer in order to perform its functions.

Does my current sequencer need the ability to open and close the pins multiple times in a single cycle in order to program multiple moves?

Yes, the synflow controller does not move the pin, it controls the speed of a movement or can hold the pin in place.

If I plumb the synflow valves between the directional stack and the tool can I leave them there when I run other tools?

Yes, when the synflow controller is turned off or not connected, the valves are in a pass-through state and will have no impact on the process.

Will my application benefit from synflow?

Every application is unique, please consult Synventive for a thorough review to ensure synflow suitability.

Determined... driven... totally focused on our customers.

Through ongoing collaboration with customers, we're focused on one objective: to develop the most effective hot runner solution for the specific application, giving customers precision-control over injection molding and ensuring reliable, trouble-free operation. Partner with us and your business can rely on 45+ years of experience, industry-leading technology, backed by unprecedented support for your projects.

Synventive has manufacturing operations in North America, Europe and Asia, each with its own manufacturing, design, and research and development departments.

In 26 countries - Worldwide
www.synventive.com



North America

Synventive Molding Solutions Inc.
 10 Centennial Drive
 Peabody, MA 01960, USA
 Tel.: +1 978 750 8065
 Fax: +1 978 646 3600
 E-Mail: info@synventive.com

Europe

Synventive Molding Solutions GmbH
 Heimrodstr. 10
 64625 Bensheim, Germany
 Tel.: +49 (0)6251/9332-0
 Fax: +49 (0)6251/9332-90
 E-Mail: infohrde@synventive.com

Asia

Synventive Molding Solutions (Suzhou) Co.Ltd.
 12B Gang Tian Industrial Square
 Suzhou Industrial Park, China 215021
 Tel.: +86 5126283 8870
 Fax: +86 5126283 8890
 E-Mail: infohrcn@synventive.com

MOLDING SOLUTIONS

Molding Solutions, a strategic business unit of Barnes Group Inc., provides high quality hot runners, molds and control systems to demanding global customers in the injection molding industry.

