

**HUSKY**<sup>®</sup>

## Hot Runners and Controllers

The World's Most Trusted Hot Runner and Controller Supplier



Husky is a leading global supplier of manufacturing solutions and services for plastics processors. We design, manufacture and integrate the industry's most comprehensive range of injection molding equipment, including machines, molds, hot runners, auxiliaries and integrated systems.

# A Parts First Approach

From the first moment, we try to gain a detailed understanding of your business and technical requirements. This approach reflects our goal of providing melt delivery solutions optimized for each application—helping you bring products to market faster while achieving the highest levels of quality at the lowest part cost. Our value added services include in-depth application review, resin testing, flow simulation, finite element analysis (FEA), 24-hour access for service and parts and local service.

Offering a complete tooling solution our hot runners are available in both hot tip and valve gate configurations and depending on application requirements are available as complete hot halves consisting of a manifold, Ultra nozzles and plates and supported by Altanium controllers.

Our technologies help you minimize waste and increase production efficiencies. By optimizing the entire melt delivery system we can ensure best gate quality, cavity-to-cavity balance and fast color changes.



# Ultra Helix™ Valve Gates

Simply the best gate quality and gate life

For some parts, less than perfect is just not acceptable; you need to mold parts with repeatable, superior quality. With the introduction of, Ultra Helix™, our newest valve gate technology, it is now possible to direct-gate parts with a gate vestige so clean it is often unmeasurable. This level of gate quality lasts for millions of cycles —longer than any other valve gate on the market. When used with UltraSync-E™, Husky's market leading servo-driven valve stem actuation, the best valve gate quality and longevity can be attained. Valve stem velocity profiling with the UltraSync-E™ slows the stem as it enters the gate orifice improving gate quality and reducing wear that can be caused by the shock of the valve stem entering the gate to quickly.

Additionally, Ultra Helix™ valve gate simplifies cold half machining requirements by integrating the precision gate and alignment geometry in the replaceable nozzle tip. Husky does all the work to ensure precision alignment is achieved. Returning the gate orifice to original condition is as simple as replacing a nozzle tip; no mold rework is required.

Ultra Helix™ valve gates were designed using a first-principles approach to understand exactly how gate vestige is formed, and incorporate novel, advanced manufacturing technologies, resulting in a valve gate that:

- Guarantees valve stem to gate orifice alignment, virtually eliminating mechanical wear on these components
- Provides an incredibly consistent thermal profile, providing outstanding cavity balance performance and very wide processing windows
- Simplifies machining for mold integration, saving mold makers time and money and shortening molders validation times

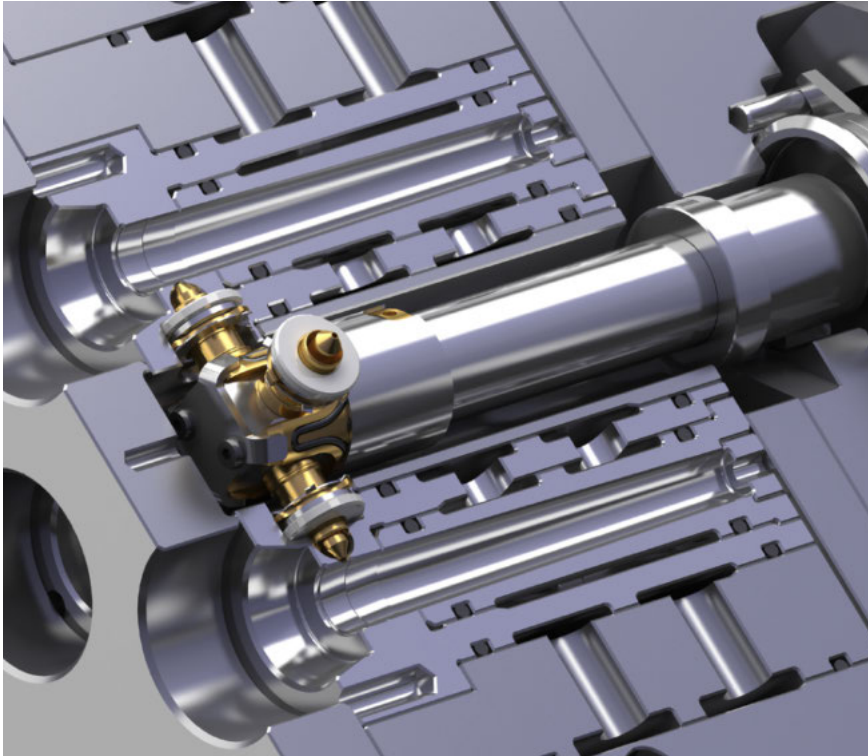


Ultra Helix™ incorporates a new heater design that provides the performance of an integrated heater with the maintenance benefits of Husky's removable heater. The consistency and performance of these heaters decouples short shot balance from individual nozzle heater performance, ensuring that you never have to worry about balance changes when replacing a heater. This new level of heater consistency can significantly reduce mold qualification time and cost.

Ultra Helix™ delivers performance that no other valve gate can beat, with one of a kind, leading-edge hot runner technology. With Ultra Helix™ Valve Gates, you will invest once and mold worry-free, perfect parts for millions of cycles.

# Ultra SideGate™

Direct side-gating made easy



Our Ultra SideGate™ hot runner is designed for molders who need to produce high quality parts for a wide variety of resins where the gate is on a sidewall.

- Allows direct gating of parts that would otherwise require gating with a cold runner
- Provides outstanding gate quality over a wide operating window

- UltraSpring™ technology ensures easy, leakproof start-ups
- Unique design makes it easy to integrate into your mold without compromise
- An ideal solution for deep draw parts, such as pipettes, syringe barrels and other small parts
- Available in multi-tip, angled and inline configurations.

## Introducing our new Ultra SideGate Inline

Our new Ultra SideGate Inline is ideal for part spacing as low as 18 mm. In addition to all of the benefits of our standard Ultra SideGate hot runner, the inline configuration is available with individual temperature tip control providing industry leading balance performance.

## Superior part quality

- Exceptional gate quality is critical, especially in the medical industry where minimal vestige is required. Our Ultra SideGate™ hot runner is capable of producing a gate with minimal vestige on the finished part (~0.05 mm vestige).

## Maximum productivity with minimum footprint

- Our Ultra SideGate™ hot runner optimizes tip-to-tip spacing, as tight as 18 mm
- The nozzle footprint is optimized for maximum mold integrity. This allows for a maximized number of cavities in the mold base.

## Easy installation and maintenance

- Ultra SideGate™ is simple to use and easy to maintain. Nozzle tips are mounted directly into the cavity inserts. This approach eliminates the need for split cavities, reducing mold maintenance and providing direct access to individual tips without the need to disassemble the mold.

## Leakproof operation with UltraSeal™

- Our patented UltraSeal® technology is built into every Ultra SideGate™ nozzle providing consistent leakproof operation that is guaranteed for three years. The Ultra SideGate™ tip-to-housing interface is pre-loaded using springs, allowing for performance across a wider temperature range.

## Flexible tip configurations

- Ultra SideGate™ can support one, two or four tips per nozzle, providing the flexibility to fit your application and molding needs. Ultra SideGate is designed to accommodate a wide variety of resins, including difficult-to-mold resins such as polycarbonate.



# UltraSync-E™ Technology

## 100% valve stem synchronization

Molders producing precision components demand reliable hot runners that can manufacture high quality parts with minimal variability. Our UltraSync-E™ technology offers shot-to-shot and part-to-part consistency through precise stem closing and is ideally suited for clean-room applications.

The superior accuracy of UltraSync-E™ is achieved with 100% synchronization of the valve stems, actuated by a servo motor. The system is configured to provide the right stem force to achieve excellent gate quality.

- Ideal solution for medical, technical and high precision, small parts
- Valve stem velocity profiling has been found to reduce gate wear and extends the life of valve stems and the gate orifice
- Minimum nozzle spacing of 18 mm (0.71")
- UltraSync-E™ technology is compatible with Ultra 350, Ultra 500 and Ultra 750 valve gate hot runner nozzles
- Unique plate actuation mechanism requires limited maintenance—all moving components run on roller bearings

Our UltraSync-E™ hot runner provides the technology to directly impact gate quality

- Easy set-up from a single screen
- Includes a safe start-up program that prohibits stem actuation if the hot runner is not up to set-point temperature
- Eliminates potential damage to the system due to operator error

In addition to the electric actuated UltraSync-E™ hot runner, we also offer hydraulic and pneumatic options.



# UNIFY™ Pre-assembled Manifold System

Out of the crate, into the mold and in production fast

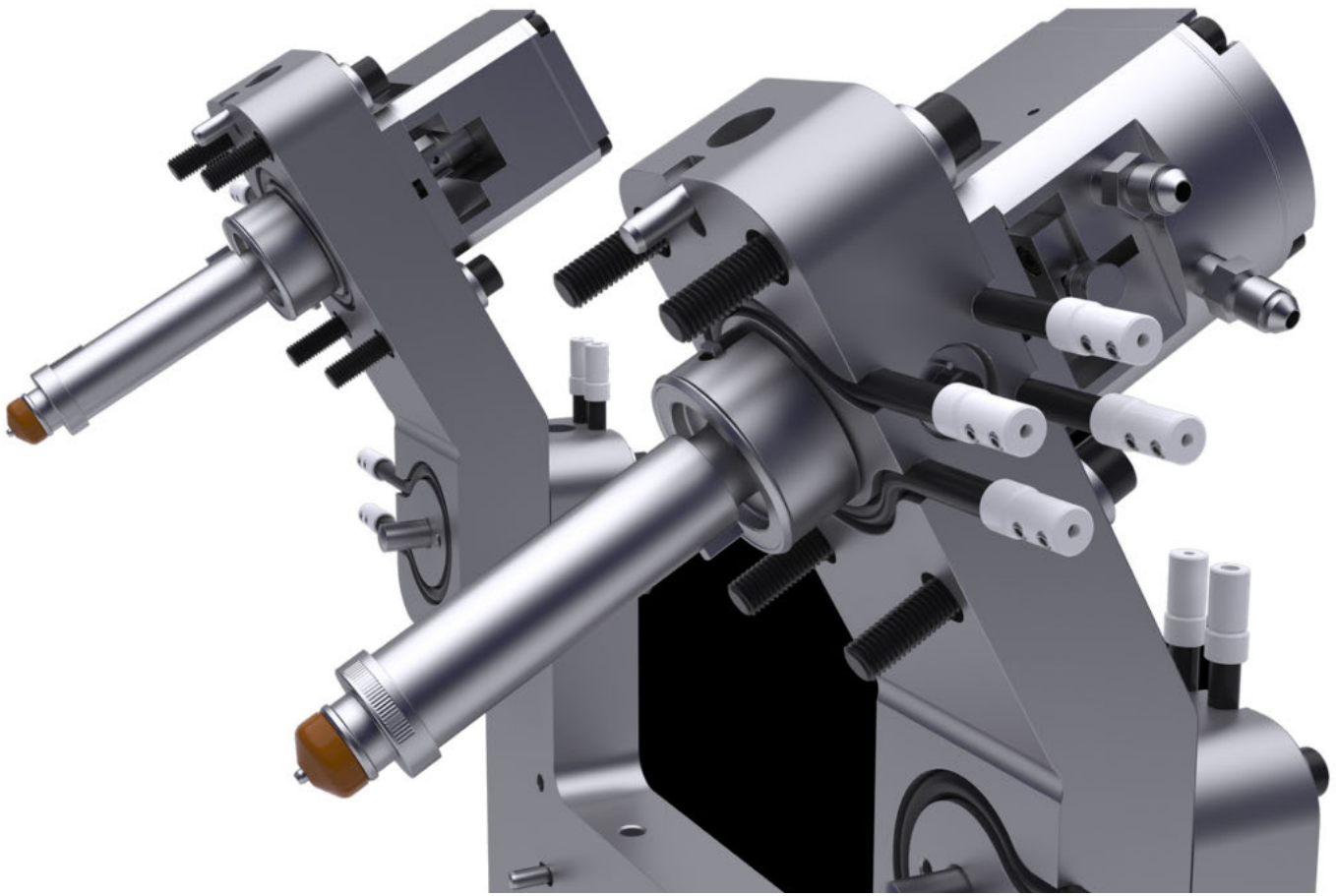
Building on Husky's history of hot runner innovation, our new UNIFY™ manifold system provides a simple, one-step installation of the hot runner manifold into a mold without needing to pre-heat the system, providing customers a flexible system that can save up to 70% installation time. Pre-wired, and pre-assembled with hydraulic valve gate actuators for simple, quick installation into your mold, UNIFY™ manifold systems save you time and effort during installation and provide the same leak-proof performance as all Husky Hot Runners.

- One-step installation is easy, fast and reliable, ensuring the mold is in production as quickly as possible
- Easy maintenance with one-step removal from the mold, saving time and maintenance costs
- Custom rigid frame matches the manifold and mold layout with the highest shape flexibility in the market, minimizing the impact in the mold.
- Proven performance with Husky standard nozzles
- Reduced risk of damage to the tips during installation

## UltraSeal® leakproof technology

UltraSeal® technology prevents leakage at start-up, even if the hot runner is not within its operating window, and comes with a three year leak-proof guarantee. The design allows the nozzles to slide relative to the manifold during installation, aligning themselves to the gates while still providing the leak-proof performance of a screwed in nozzle. The UltraSeal® design keeps the nozzles aligned to the mold gate in cold condition, at operating temperature, and anywhere in between.





## LUCENT™ angled manifold system

Ideal for optical, aesthetic and automotive lighting applications

Our new LUCENT™ hot runner is the perfect technology in an angled manifold configuration, to mold parts with optical or very high aesthetic requirements. It is also ideal for automotive lighting applications. With more than 50 years' experience in hot runners for almost every plastic application in the world, HUSKY presents today LUCENT™.

All HUSKY experience has been used to develop a product that is state of the art in terms of thermal uniformity and melt delivery performances.

The entire hot runner is made of a proprietary steel and a special coating is used in some parts to avoid polycarbonate degradation, thereby preventing the risk

of black spots on crystal clear applications such as lenses and window panels.

The nozzle tip, constructed from four different materials, has excellent thermal insulation and minimum dissipation to the mold. This helps to give the best gate vestige.

Lucent™ includes UltraSeal® technology with a 3 year leakproof warranty.



# Altanium™ Controllers

The injection molding industry's easiest to use, most accurate process controllers

Husky's Altanium™ controllers provide the most accurate temperature control, easier to use servo and valve gate control and best fault recovery solution in the industry. They also feature easy-to-use navigation on full color screens and are available in a variety of configurations that can be implemented in any injection molding environment.

All Altanium™ controllers use Active Reasoning Technology (ART), providing optimized control for greater shot-to-shot and cavity-to-cavity consistency and repeatability. ART delivers tighter control and minimized variability through best-in-class power output delivery, fully isolated thermocouple inputs and industry-leading thermocouple sample rates that ensure the integrity of temperature readings.

The Intelligent Control Card (ICC3) is standard equipment with all Altanium™ controllers. These cards are completely interchangeable across the entire product line and come with a full two™ year warranty.

**Altanium Neo5™ controller**— cost effective, simple to use controller for two to 48 zones

**Altanium Delta5™ controller**— premium performance at an affordable price for up to 128 zones

**Altanium Matrix5™ controller**— high-end feature set with a large user interface for up to 255 zones

## Most Comprehensive Mold Controller Warranty in the Industry

Husky's Altanium™ mold controllers not only provide the most accurate temperature and mold control but now have the best warranty in the industry. All Altanium™ H-series controllers are now covered by a 5-year warranty that includes the interface, H-series control cards and mainframe.

## Altanium Servo Control

Easy to use servo actuation for all of your mold movements

As the industry continues to move away from hydraulics and pneumatics, servos are quickly becoming the new standard for actuating mold movements. Our Altanium Servo Control technology has been tailor made for the molding industry. This dependable and flexible approach to controlling many different aspects of

the mold provides you a solution you can trust. Based on the Altanium Matrix5™ platform, Altanium Servo Control is the first fully integrated servo, valve gate and temperature controller on the market that is globally supported from start-up to production.

Altanium Servo Control is extremely reliable and also provides superior, high precision control that includes:

- Any combination of linear and rotary actuation for up to 6 axes
- Optional integrated temperature control functionality for up to 255 zones,
- UltraSync-E™ servo control in a single interface
- An Altanium Matrix5™, 19" full color, easy-to-use touch screen interface
- Global on-site start-up support
- Compatibility with several brands of motors and actuators including Baumuller, Exlar etc.
- High precision motion control providing multi-step motion profiling and absolute position feedback
- No hydraulic oil means clean actuation and no risk of contamination





## Ultra Advantage

Advanced technologies helping produce better parts at faster cycles

Reliable, high performance hot runners are a critical element of any injection molding system. Our Ultra family of hot runners can help optimize your system to achieve high output, improved balance, fast color change and superior quality parts with lower variability.

Our Ultra family of hot runners provides:

- Wide operating window for maximum processing flexibility
- Easy maintenance and part replacement
- Wide range of gating solutions including for abrasive materials
- Three-year leakproof guarantee

### **UltraGuide®**

UltraGuide® technology pre-aligns valve stem prior to entering the gate area, achieving excellent gate quality.

- Cylindrical shut-off for superior gate quality across a range of operating temperatures
- Thermally conductive tip components for easy start-up and a wide processing window

### **UltraSeal®**

UltraSeal® technology prevents leakage at start-up, even if the hot runner is not within its operating window and comes with a three-year leakproof guarantee.

- Nozzles are pre-loaded to the manifold providing leakproof operation in cold conditions
- Leakproof over a wide range of temperatures above and below the operating temperature (+/- 100C)
- Spring forces optimized to maximize sealing force while minimizing plate deflection to reduce mold wear



Our hot runner refurbishment program is a cost-effective solution to ensure improved productivity and uptime.

## Hot Runners Services

Support for every stage of your hot runner's life

Husky has services to support you for the life of your tool. We can work with you from part and mold design, to production and maintenance—Reducing time to market, improving productivity, minimizing part variability and ensuring our hot runners have the longest life possible.

Husky hot runner services include:

- Application review to identify the best hot runner technology
- Flow simulation and resin testing
- Finite element analysis
- Hot runner refurbishment
- 24/7 spare parts availability and local service support

### Flow Simulation Analysis (FEA)

Our Flow Simulation experts can help you bring quality parts to market faster. Flow simulation models polymer flow through the hot runner and mold cavity

(fill, pack, cool analysis) Additionally, Flow Simulation can be used to analyze the final part (warpage analysis).

Our Flow Simulation Center considers all key aspects of the injection molding process, including:

- Part and mold design
- Number of gates, gate location, gate size, weld line location, fiber orientation and injection pressure
- Defining optimum injection time
- Determining the sequence for sequential valve gating
- Optimizing cooling
- Determining air trap locations

### Hot Runner Refurbishment

Our hot runner refurbishment program is a cost-effective solution to ensure improved productivity and uptime. Refurbishment services range from melt channel cleaning to complete system

reconditioning (including plate replacement). All components are inspected for wear and those that do not meet original specifications are replaced.

- Save up to 40% versus the cost of a new hot runner system
- Renewed warranty for all replacement components
- Rapid turnaround time
- Refurbishment performed by experienced hot runner technicians

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