

# Hot Runners

Performance, application flexibility and reliability



FROM CONFIGURABLE PRONTO SYSTEMS TO CHALLENGING CUSTOM STACK AND MULTI-MATERIAL SYSTEMS, HUSKY HAS A SOLUTION FOR YOUR APPLICATION.

Our commitment to development has led to new technologies that help reduce our customers' operating costs. UltraFlow melt mixing homogenizes the melt, improving part quality and color change time. And new advances in nozzle tip design and materials provide wider operating windows and longer service life.

Two dedicated hot runner manufacturing facilities, in Dudelange, Luxembourg and Vermont, U.S.A., provide competitive lead times to our global customers. Our service and sales network, serving over 100 countries with dedicated Husky personnel, ensures consistent support during mold design, build, start-up and operation.

**HUSKY**

*Keeping our customers in the lead*

# PRODUCTS

OUR HOT RUNNERS ARE AVAILABLE AS COMPLETE HOT HALVES OR AS MANIFOLD SYSTEMS. WE OFFER SINGLE-SOURCE RESPONSIBILITY TO SIMPLIFY COMMUNICATION AND ENSURE RELIABLE OPERATION.

## COMPLETE HOT RUNNER SYSTEMS

Every hot runner we build is optimized for its specific application. Our systems include:

- High cavitation systems (up to 144-drop valve gates)
- Stack systems up to 2 x 96 drops
- Multi-material systems
- Sequentially valve gated systems
- Non-symmetrical and family mold hot runners
- Pronto standard systems for fast delivery and reduced cost
- Three-year leakproof guarantee
- Full testing prior to shipment



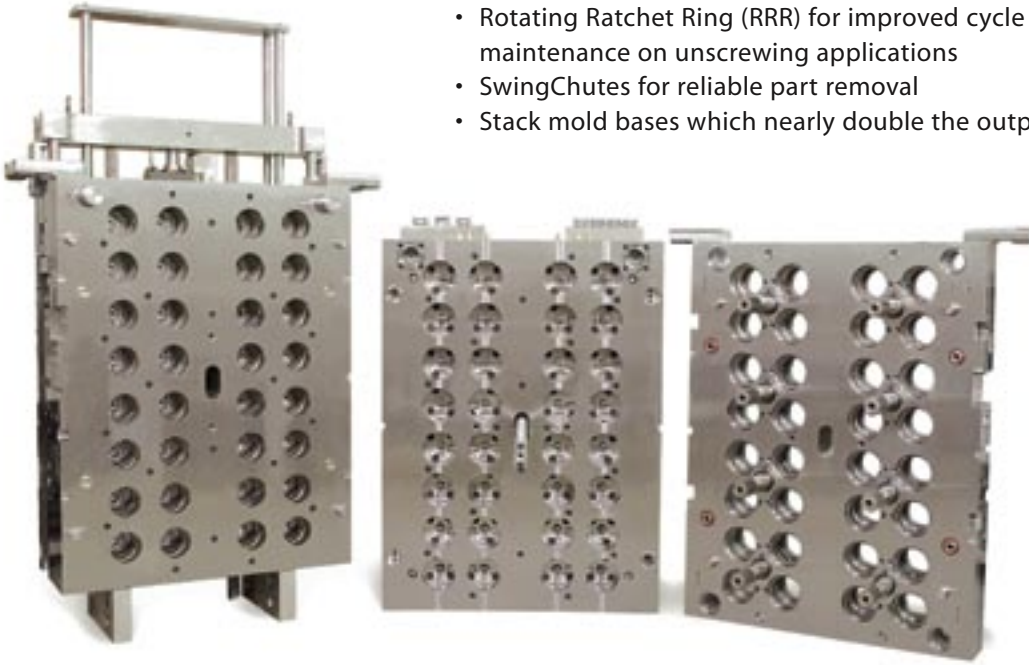
Every hot runner we build is optimized by selecting from a wide range of standard components and configurations.

## MOLD BASES

Our custom mold bases improve output and extend mold life.

Mold base technologies include:

- Rotating Ratchet Ring (RRR) for improved cycle times and reduced maintenance on unscrewing applications
- SwingChutes for reliable part removal
- Stack mold bases which nearly double the output per machine



## TEMPERATURE CONTROLLERS

Our temperature controllers deliver precise temperature control for low and high cavitation hot runners. Features include:

- Consistent part quality with PID<sup>2</sup> control
- Extended heater life with voltage proportioning
- Easy-to-use operator interface
- System diagnostics with Mold Doctor software

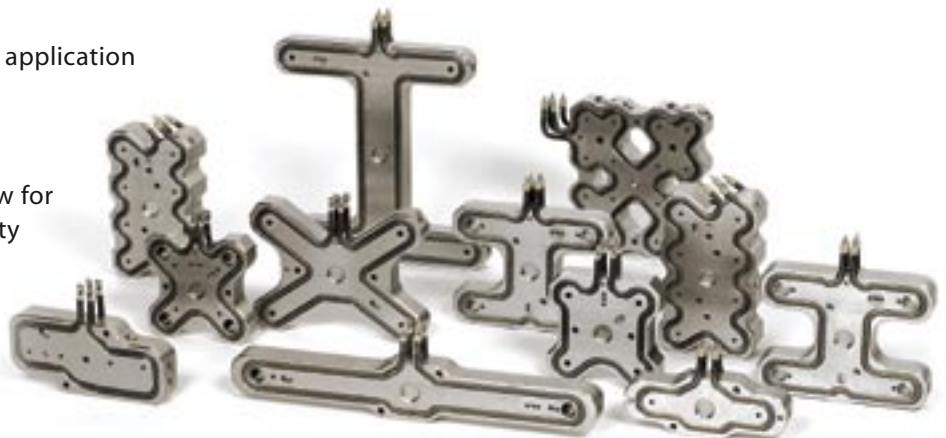


## MANIFOLD SYSTEMS

Manifold systems offer the flexibility of integrating key components into your mold design.

Manifold systems include:

- Manifold design optimized for its specific application
- Fully assembled and finished manifold
- Ultra nozzle assemblies
- Electrical components
- Design guidelines and drawings that allow for easy installation at the moldmaker's facility

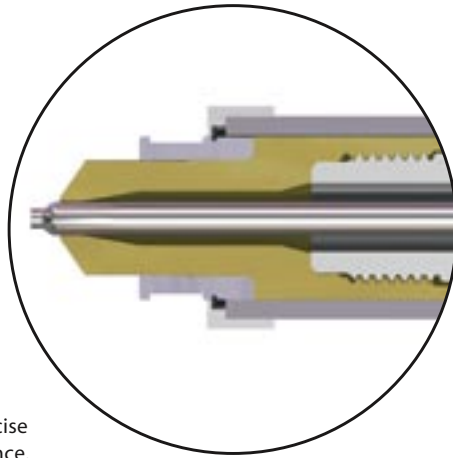


# THE ULTRA ADVANTAGE

## OVER FIVE MILLION CYCLES

The UltraGuide nozzle tip utilizes a composite of a thermally conductive, and a tough wear-resistant material.

- The thermally conductive material provides easy start-up and a wide operating window when processing olefins or engineering grade resins
- The wear-resistant component of the tip has run over five million cycles without wear on the valve stem or gate
- A wear-resistant tip insert is also available for abrasive materials using hot tips

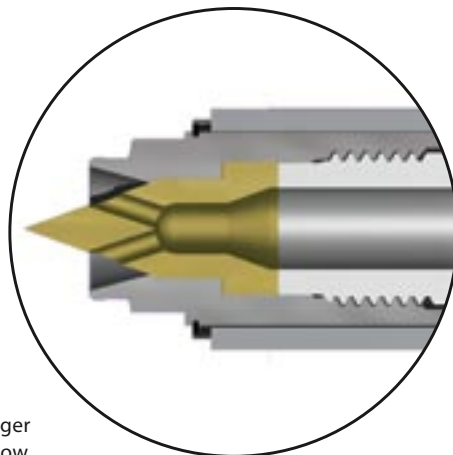


Advanced metallurgy combined with precise guidance delivers high wear resistance.

## WIDER OPERATING WINDOW

The thermal design of the Ultra nozzle and tip provides up to three times the temperature operating window compared to conventional designs. This wider operating window can provide:

- No stringing or freeze-off over a wide temperature range
- Faster cycle times
- Reduced heat load



Ultra tip provides up to three times larger temperature operating window.



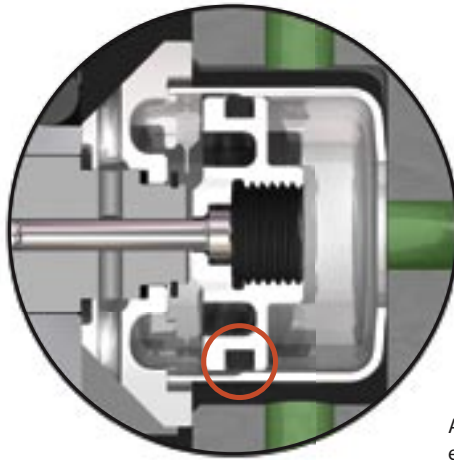
Every component of a Husky hot runner is thermally and mechanically optimized to assure reliable operation. Valve gate stack shown on top and thermal tip stack shown below.



### SIMPLIFIED OPERATION DELIVERS IMPROVED RELIABILITY

Ultra nozzles make valve gating simple. Key features of the Ultra valve gate's actuation are:

- A single o-ring operating in the cooled backing plate more than doubles seal life and maintenance interval
- Ability to valve gate higher temperature materials such as PEEK and Polysulfone (PSU)
- Large airflow access holes allow for fast valve stem actuation times providing better part quality and consistency
- Valve stems are easily replaceable in the machine

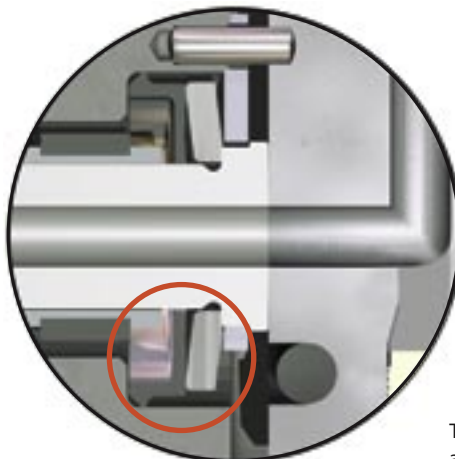


A single o-ring operates in a cooled backing plate, extending seal life and maintenance intervals.

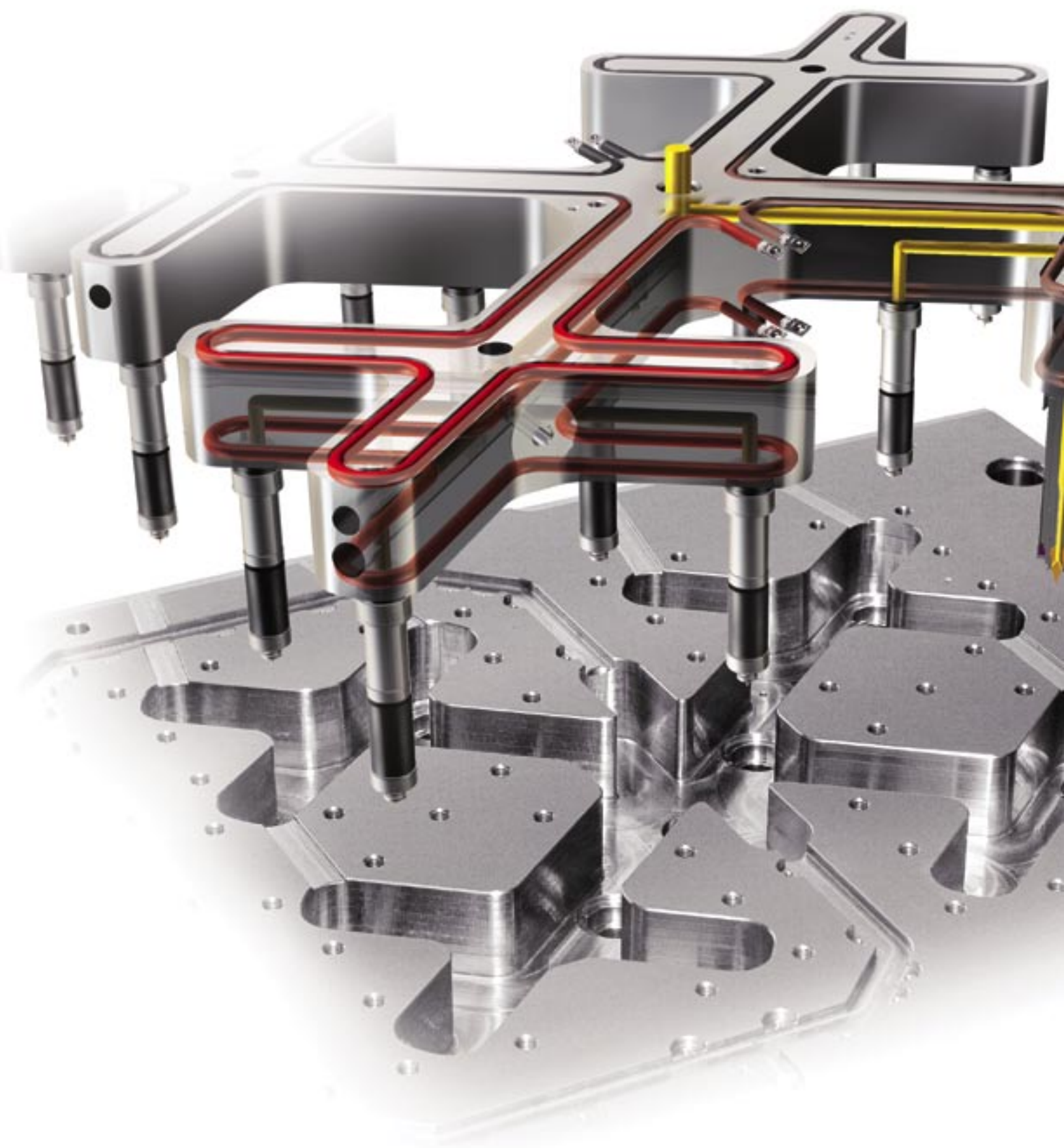
### GUARANTEED LEAKPROOF

All Ultra nozzles feature the UltraSeal spring to preload the nozzle to the manifold. UltraSeal prevents leakage at start-up, even if the hot runner is not at proper operating temperature. We guarantee it for three years on complete systems. UltraSeal also:

- Protects the system from damage caused by overheating
- Assures reliable operation within an operating window of up to  $\pm 100\text{ C}^\circ$  ( $\pm 180\text{ F}^\circ$ )



The UltraSeal spring preloads the nozzle against the manifold, making it leakproof.



OUR HOT RUNNER SYSTEMS ARE DESIGNED WITH FACTORY OPERATING COSTS IN MIND. OUR DESIGN PRINCIPLES FOCUS ON PART-TO-PART CONSISTENCY, REDUCED MOLD MAINTENANCE, AND UPTIME.

## OPTIMIZED AND BALANCED MELT CHANNELS

Every Husky hot runner undergoes melt flow analysis to confirm equal pressure distribution to each drop. Shear rate, residence time, and system pressure drop ensure balanced part filling and reduce the risk of material damage. Manifolds with more than four drops feature level changes for improved balance. Tests have shown that introducing level changes can improve balance by more than 10%. This means better part-to-part consistency.

## THERMAL LAYOUT

Our manifold heater layouts follow rigid design guidelines based on thermal FEA analysis to ensure thermal balance. Heat loss is reduced by minimizing the contact of thermally conductive materials with the plates. The manifold and backing plate are cooled to reduce potential mold wear caused by temperature variances.

## MINIMIZED PLATE DEFLECTION

Husky's designers use guidelines that were developed using FEA models to minimize plate and mold deflection, reducing mold wear. Integrated pillars and contoured pockets reduce the potential for plate deflection. Studies have proven that a contoured pocket design provides up to four times less deflection than open pocket designs.

## IN-MACHINE MAINTENANCE

The simplicity of our system design allows in-machine maintenance for key components: nozzle tips, heaters, valve stems, and o-rings.



Maintenance can be completed in 20% of the time required on the workbench.



# ULTRA SOLUTIONS

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## MEDICAL DEVICE

### *Critical gate quality, on every part*

A medical molder needed excellent gate quality to prevent puncturing gloves while handling an umbilical cord cutter. And they needed it fast.

**Solution:** A Pronto 4-drop valve-gated hot runner was delivered in four weeks, consistently providing gates with no standing vestige.



## TAMPER-EVIDENT BEVERAGE CLOSURE

### *Cavity-to-cavity balance*

A high-output closure system needed excellent gates and cavity-to-cavity balance with no stringing.

**Solution:** A 2 x 64-drop Ultra 500 HT stack system produces 1 100 parts per minute in a 24/7 operation, to the exacting standards of the food industry.



## AUTOMOTIVE GRILL

### *Structural integrity and no flow-lines*

Our customer needed a system for molding a 1.6 kg (3.5 lb) automotive component with the ability to control resin flow during fill.

**Solution:** A 15-drop Ultra 1000 VX hot runner with sequential gating allows the cavity to be filled with each valve gate individually controlled.



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[www.husky.ca](http://www.husky.ca)  
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## **HUSKY**

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Printed in Canada. October 2004