

**HUSKY<sup>®</sup>**

# HOT RUNNER AND CONTROLLER TRAINING COURSES 2024



# HUSKY'S TRAINING LOCATIONS



HUSKY Facility



Customer Location  
(upon request)

Contact Us

## AMERICAS

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Bolton, Ontario,  
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Tel (802) 859-8000  
Fax (802) 859-8499



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Tel (352) 52 1151  
Fax (352) 52 6010

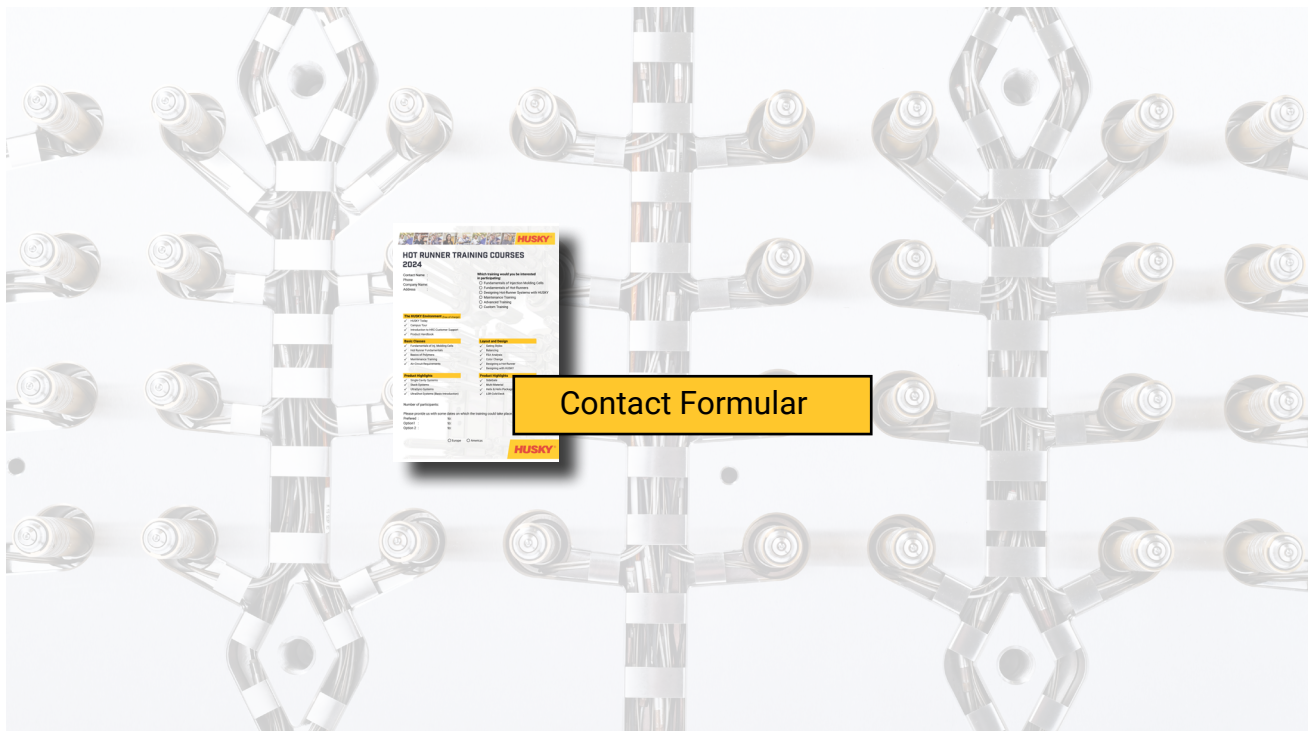




# LIST OF AVAILABLE COURSES

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• Foundations & Fundamentals of Injection Molding Cells .....	4
• Foundations & Fundamentals of Hot-Runners .....	5
• Designing with HUSKY Hot-Runner Systems .....	6
• Maintenance-Training .....	7
• Advanced-Training .....	8
• Custom-Training .....	10
• Training Content-Description .....	12



## Course duration:

Depending on the training selected, the duration varies between 1 and 4 days. Please refer to the detailed Training-Description for further information.

Customizing training courses is always possible.

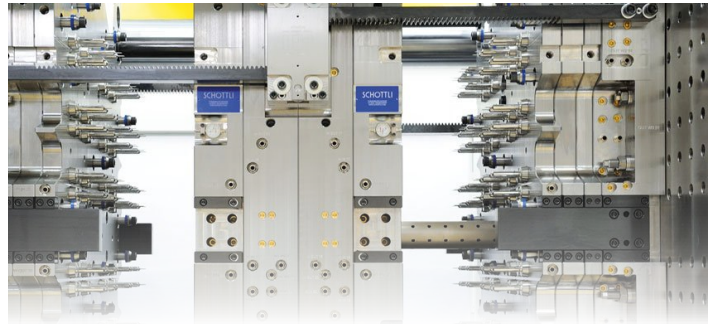
## Number of Participants:

We always want to deliver an efficient training experience to our students. Therefore, we try to limit the number of students joining the training session.

## Practical Lessons:

Even, if the training sessions are mainly theory-based, the practical part is important and makes it more interactive for the students.

Most of the training can be delivered in several languages like English, German, French. Other language requirements must be verified prior to training scheduling.



## Recommended Audience:

Machine Operators, Mold-Maintenance- & Assembly-Teams

## Number of Participants:

Minimum number of participants: 3

Maximum number of participants: 5

## Course Content

This training course provides fundamental knowledge about Injection Molding Cells and their operation.

- Equipment-Interface identification and process flow understanding
- Mold startup & Injection-Molding-Process
- Fundamentals of Polymers
- Hot-Runner fundamentals
- Air supply configuration and maintenance
- Mold Controller setting overview



## Training objectives

By the end of this training the participants:

- Can install and startup the mold
- Understand Hot-Runner Technology
- Will have basic knowledge of polymers
- Are aware of the requirements for air treatment

**Note:** Participants require to wear their own safety shoes. Additional PPE will be provided as required when the training is done at a Husky facility.

**Course Duration:** 4 days

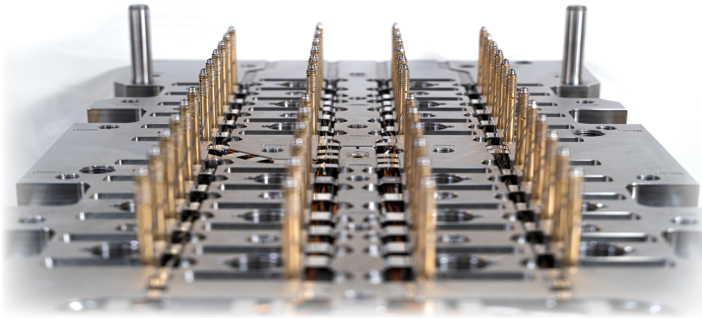
## Inclusive Services:

- Refreshments provided \*
- Lunch \*
- Training Certificate

\* at HUSKY-Facility







## Recommended Audience:

Machine Operators, Mold Makers, Engineers

## Number of Participants:

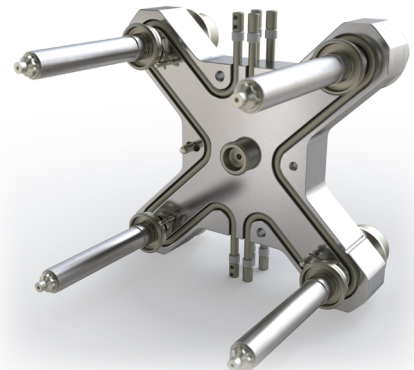
Minimum number of participants: 5

Maximum number of participants: 8

## Course Content

This training course provides fundamental knowledge about the use of Hot-Runners and their operation.

- Hot-Runner fundamentals
- Single-Cavity-Systems for prototypes
- Nozzle-Technology and part-gating techniques
- Air supply configuration and maintenance
- Introduction to "HUSKY Customer Support" capabilities



## Training objectives

By the end of this training the participants:

- Understand Hot-Runner Technology and their benefits
- Can differentiate the Nozzle Technologies and understand part-gating techniques
- Are aware of the requirements for air treatment
- Understand the capabilities of HUSKY to support on custom solutions for Hot-Runners

**Course Duration:** 2 days

## Inclusive Services:

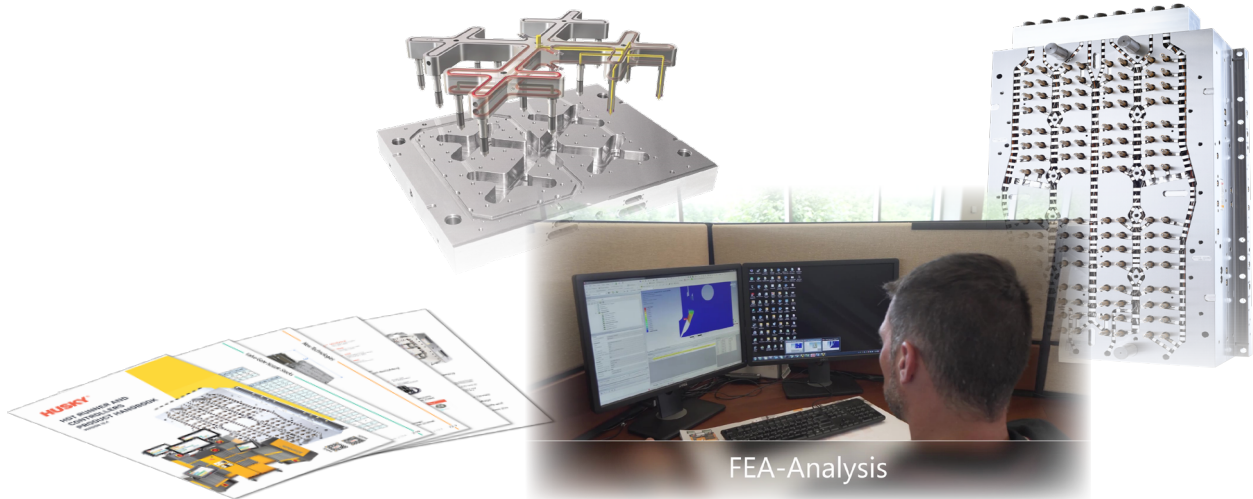
- Refreshments provided \*
- Lunch \*
- Training Certificate

\* at HUSKY-Facility



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## Recommended Audience:

Mold Design Engineers

## Background / Knowledge:

Designer with CAD experience (3D)

## Number of Participants:

Minimum number of participants: 5

Maximum number of participants: 8

## Course Content

This training course provides insights into the layouts, rules and calculations required to engineer a well performing Hot-Runner-System.

- HUSKY's FEA Capabilities
- CAD and drawing package delivered by HUSKY and required supporting documents
- Introduction to HUSKY's design process and project handling
- Nozzle-Technology and part-gating techniques
- Air supply configuration and maintenance
- Introduction to "HUSKY Customer Support" capabilities

## Training objectives

By the end of this training the participants:

- Gained understanding of the required FEA results to optimize the design.
- Can differentiate the Nozzle Technologies and understand part-gating techniques
- Are aware of the requirements for air treatment
- Understand the capabilities of HUSKY, to support on custom solutions for Hot-Runners

**Course Duration:** 2 days

## Inclusive Services:

- Refreshments provided \*
- Lunch \*
- Training Certificate

\* at HUSKY-Facility



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**Recommended Audience:**

Maintenance Technicians, Machine Operators

**Number of Participants:**

Minimum number of participants: 5

Maximum number of participants: 8

**Background / Knowledge:**

Basic Mechanical and Electrical knowledge.

**Course Content**

This training course explains how to service and maintain HUSKY Hot-Runner Systems. The course contains practical and theoretical sessions including:

- Component identification and function explanation
- How to perform maintenance of a Hot-Runner
- Introduction to preventive maintenance
- Set-up and troubleshoot an Altanium Controller

**Training objectives**

By the end of this training the participants will be able to:

- Identify the function of the Hot-Runner and it's components
- Assemble, disassemble and maintain a HUSKY Hot-Runner-System
- Visually inspect the components
- Inspect the System by checking against engineering drawings and specifications
- Set-up and troubleshoot an Altanium Controller

**Note:**

Participants require to wear their own safety shoes. Additional PPE will be provided as required when the training is done at a Husky facility.

**Course Duration:** 1.5 days

**Inclusive Services:**

- Refreshments provided \*
- Lunch \*
- Training Certificate



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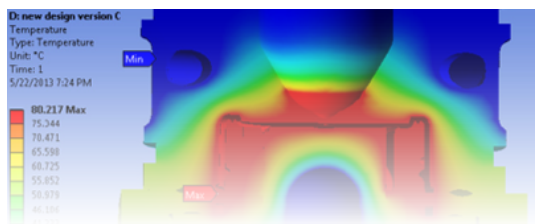
\* at HUSKY-Facility



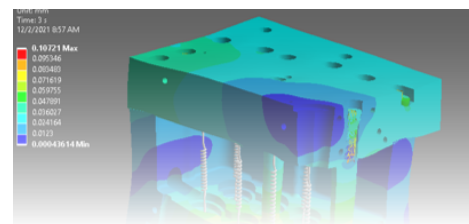
## FEA Analysis



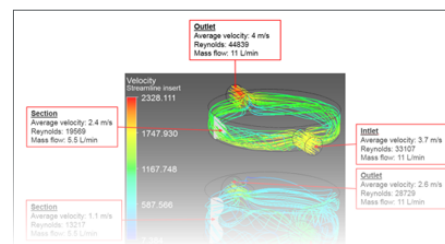
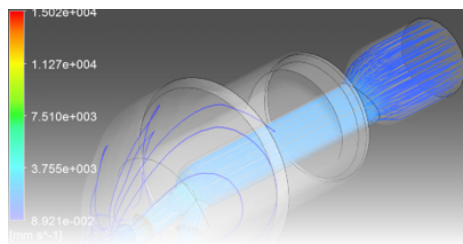
### Thermal FEA



### Structural FEA



### Fluid Flow Analysis



### Recommended Audience:

Mold Design Engineers, Mold-Makers,  
Machine Operators, Project Engineers, ...

### Number of Participants:

Minimum number of participants: 5  
Maximum number of participants: 10

### Course Content

This course focuses on all the essential points for initial construction and design of Hot-Runner systems. The course includes everything from the concept to the finished Hot-Runner system.

- HUSKY's FEA Capabilities
- Nozzle-Technology and part-gating techniques
- Best-practice for Balancing & Color-Change
- Introduction to HUSKY's design process and project handling
- Overview of HUSKY's advanced Hot-Runner technologies (Stack Molds, Side Gate, Multi-Material, UltraSync, UltraShot Systems)
- Air supply configuration and maintenance
- Introduction to "HUSKY Customer Support" capabilities



## Training objectives

By the end of this training the participants:

- Gained understanding of the required CAE analyses to optimize the design.
- Can differentiate the Nozzle Technologies and understand part-gating techniques
- Will be familiar with the features and benefits of the advanced HUSKY Hot-Runner technologies.
- Are aware of the requirements for air treatment
- Understand the needed signals to safely control the UltraSync-E System.
- Know how to safely connect the controller to the motors and IMM
- Understand the capabilities of HUSKY, to support with custom solutions for Hot-Runners

**Course Duration:** 3.5 days

## Inclusive Services:

- Refreshments provided
- Lunch
- Training Certificate



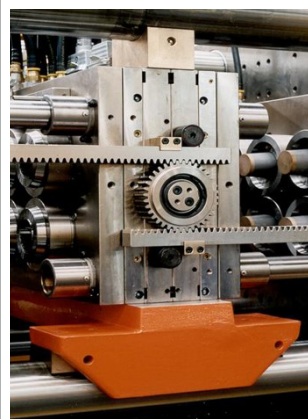
## Technology



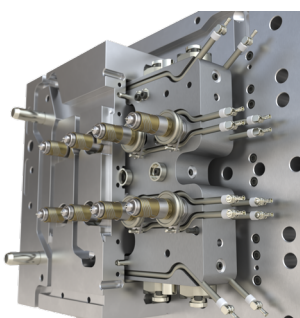
SideGate



UltraSync



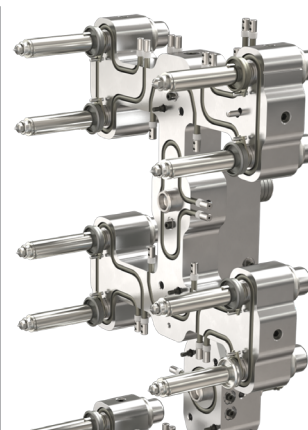
Stack



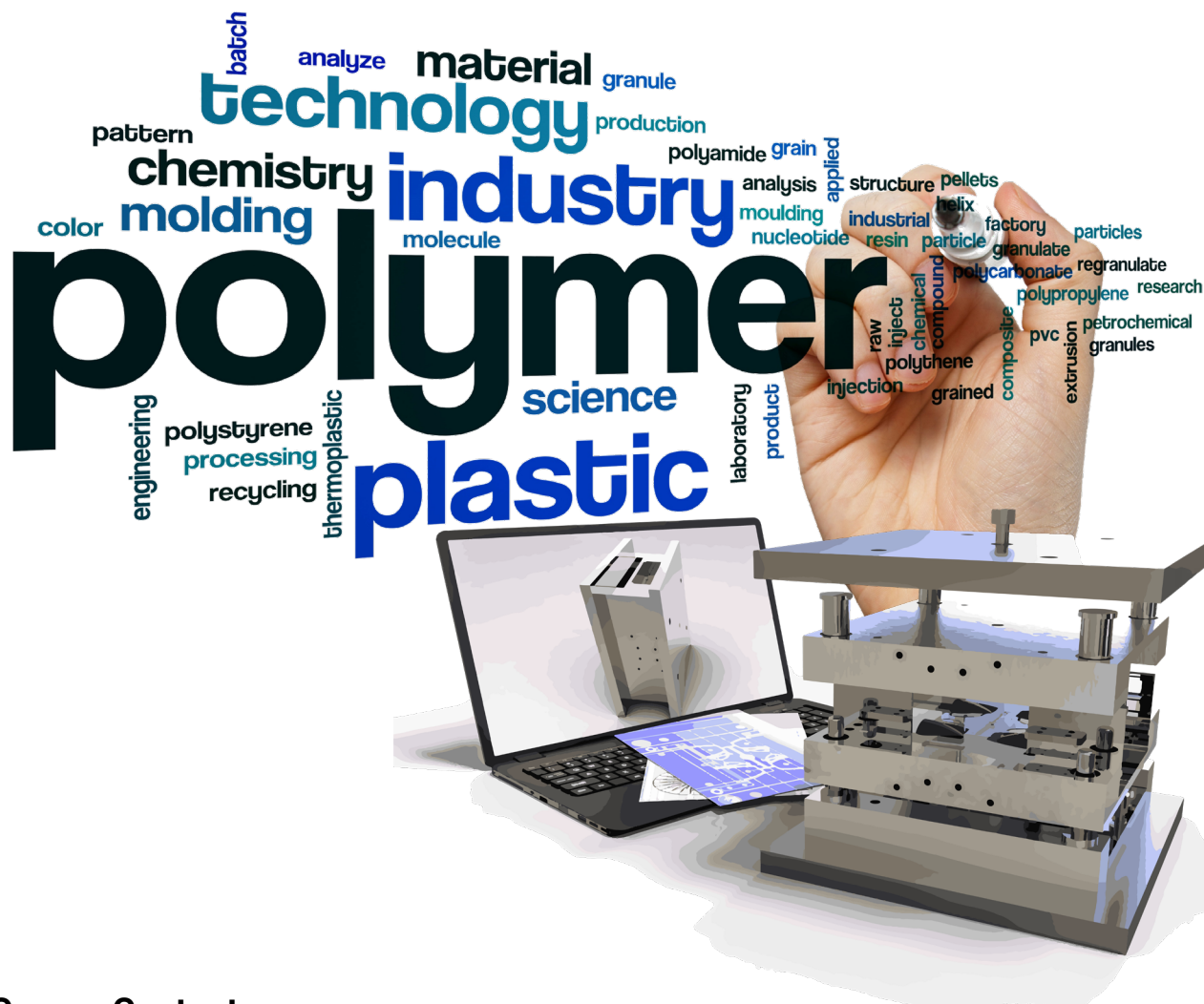
UltraShot



UltraShot



UltraMelt



### Course Content

This course can be tailored to your individual needs and requirements by electing the topics that are relevant to you.

The program includes practical as well as theoretical exercises and ranges from the basic knowledge of injection molding to the design and layout of hot runner systems.

### Note:

Participants require to wear their own safety shoes. Additional PPE will be provided as required when the training is done at a Husky facility.

**Course Duration:** depends on the choice of seminars

### Inclusive Services:

- Refreshments provided \*
- Lunch \*
- Training Certificate



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\* Training Location: at HUSKY





## Sessions available:

	Location (if restricted)	Practical Part [h]	Theoretical Part [h]	Course Duration [h]
The HUSKY Environment (free of charge)				
<input checked="" type="checkbox"/> HUSKY Today	HUSKY-Facility			0.5
<input type="checkbox"/> Campus Tour				1.5
<input checked="" type="checkbox"/> Introduction to HRC-Customer Support				0.5
<input checked="" type="checkbox"/> Product Handbook				0.5
Basic Classes				
<input type="checkbox"/> Basics of Injection Molding	HUSKY-Facility	16		16
<input type="checkbox"/> Hot-Runner Fundamentals			2	2
<input type="checkbox"/> Basics of Polymers			4	4
<input type="checkbox"/> Maintenance Training Hot-Runner-H	HUSKY-Facility	4		4
<input type="checkbox"/> Maintenance Training Hot-Runner-C	Customer Location	*		
<input type="checkbox"/> Air-Circuit Requirements			0.5	0.5
Layout and Design				
<input type="checkbox"/> Gating Styles			3	3
<input type="checkbox"/> Balancing			1	1
<input type="checkbox"/> FEA Analysis			2	2
<input type="checkbox"/> Color Change			1	1
<input type="checkbox"/> Designing a Hot-Runner			2	2
<input type="checkbox"/> Designing with HUSKY				
Product Highlights				
<input type="checkbox"/> Single-Cavity Systems			0.5	0.5
<input type="checkbox"/> Stack-Systems			2	2
<input type="checkbox"/> UltraSync-Systems			1.5	1.5
<input type="checkbox"/> UltraShot-Systems (Basic-Introduction)			1.5	1.5
<input type="checkbox"/> UltraShot-Systems (Advanced)**	UNDER CONSTRUCTION		8	8
<input type="checkbox"/> UltraShot-Systems (Maintenance)				
<input type="checkbox"/> SideGate			1.5	1.5
<input type="checkbox"/> Multi-Material			2	2
<input type="checkbox"/> Helix & Helix Packaging			1	1
<input type="checkbox"/> LSR-Cold Deck			1	1
Controller Technology				
<input type="checkbox"/> Heat setup	UNDER CONSTRUCTION		3.5	5
<input type="checkbox"/> UltraSync-E			2	4
<input type="checkbox"/> Servo Control (ASC) Setup			3	6

\* Duration to be verified based on the System provided by the customer.

\*\* Training will be customized based on customer requirements.



## **Campus Tour**

We offer detailed tours of our advanced manufacturing facilities.

## **Basics of Injection Molding**

provides the basic knowledge required to install a mold in the injection molding machine as well as the knowledge required for preparation and startup.

## **Hot Runner Fundamentals**

covers the pros and cons of the different distribution concepts (hot-runner vs. cold-runner) and how they affect the efficiency of the system. It also goes into hot runner details including gating methods, manifold pitch layouts, actuation options, design customizations, etc.

## **Basic of Polymers**

mediates basic knowledge about the polymer, the microscopical structure, the additives and fillers used in the industry.

We focus on the microscopic structure of the polymer in order to understand the macroscopic behavior

## **Hot Runner Maintenance Training-H /-C**

provides the necessary knowledge and skills to maintain and service HUSKY hot runner systems. This is a hands-on training and requires you to wear your own safety shoes. Additional PPE will be provided as required when the training is done at a Husky facility.

## **Air-Circuit Requirements**

The required quality of the compressed air used is often underestimated. Poorly prepared compressed air can have a significant impact on the quality and production process of the part to be manufactured in the long term.

In this training, the requirements for the compressed air are explained.

## **Gating Styles**

In this course, HUSKY's thermal and mechanical gating solutions will be discussed and the impact to plastic part quality will be reviewed. In addition, the setup and operation of the HUSKY hot runner nozzles will be explained.

## **Balancing**

The objective of this training is to learn about the factors that influence the balancing of a hot runner manifold system, the methods of balancing testing, and the influence of the temperature control device.





## **FEA Analysis**

will provide insight into the required thermal, structural and fluid simulations that HUSKY uses to engineer a high performance hot runner.

## **Color Change**

In this training course, we would like to address the topic of color change and provide assistance in order to carry out an optimized color change with the correct design of the system and the installed components.

## **Designing a Hot-Runner**

provides you with insights into our engineering procedures to design a high performance, reliable, yet easy to maintain hot runner system.

## **Designing with HUSKY**

provides an overview of the Drawing-Package and 3D-Data provided by HUSKY, the possibilities for Data-Exchange and how this data can be further processed.

## **Single Cavity Systems**

This seminar covers the topic of single nozzles and highlights the differences between ETO (Engineering to Order) and CTO (Configure to Order).

## **Stack-Systems**

Part of this training session is to:

- Discuss reasons for the existence of stack molds
- Show the existing variants, their structure and operation.
- Present nozzle technologies available as stack molds.
- Discuss the connection to the IMM.

## **UltraSync-Systems**

During this training, the impact of an individually closed valve gate system to the plate-activated valve gate will be discussed and the qualitative differences on the part will be highlighted. The various factors influencing the process, such as the cavity pressure curves, the reaction time of the valve stems, their closing speed and closing profile, will also be compared.



## TRAINING CONTENT-DESCRIPTION (CONTINUATION)

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### UltraShot-Systems

A combination of a hot runner melt delivery system with integrated injectors offers enormous advantages in terms of manufacturable part geometries and high-pressure applications while maintaining material properties.

This technology improves injection control, reduces compressible melt volume, reduces required runner channel size (lower residence time) & reduces pressure loss during injection. Companies using the UltraShot technology see a major reduction in scrap rate plus higher performance and improved part quality.

This seminar is for anyone looking to learn more about this technology.

### SideGate-Systems

this product, which was specially developed for direct side control, is explained in detail at this seminar.

Design, integration, maintenance and available variants as well as compatibility with the resins to be processed will be covered.

### Multi-Material

Several injection units per mold are nothing unusual for us! During this seminar, we will address this topic and share our experience in this area, common applications and Husky's internal design process for these systems.

### Ultra Helix

Is an introduction to Ultra-Helix technology where a permanent Valve-Stem-Guidance guarantees best gate quality and service life. As well discussed is their easy integration into the tool.

There are different application specific solutions based on the Helix-Technology available and they will be explained during this training session.

### LSR-Cold-Deck

deals with the topic of liquid silicone injection molding and the Cold-Deck system specially developed by us for this purpose.

## NOTES

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# HUSKY®

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