



# INJECTION MOLDING PRODUCT CATALOGUE





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# About HTS



## HTS Technology Group

HTS Technology Group was created by merging 14 perspective companies with a unique combination of experience, technology and know-how into the only fully vertically integrated industrial component producer in the market.

Together, we design, develop and produce innovative components and solutions for productivity increase, used in mass manufacturing industries, all this by utilizing completely integrated in-house production and R&D.

## Group Overview



## The HTS Difference

### INNOVATIVE TECHNOLOGIES



We utilize four different additive manufacturing technologies, including our proprietary MFT technology. Based on the advanced capabilities of MFT, we produce components with conformal cooling and flow design, achieving mechanical properties comparable to those of a forged tool steel block.

### SUPERIOR PERFORMANCE



iTherm® - our proprietary conformal cooling components have a substantial impact on cooling and material flow, resulting in shorter cycle times, higher cast part quality and subsequently also productivity.

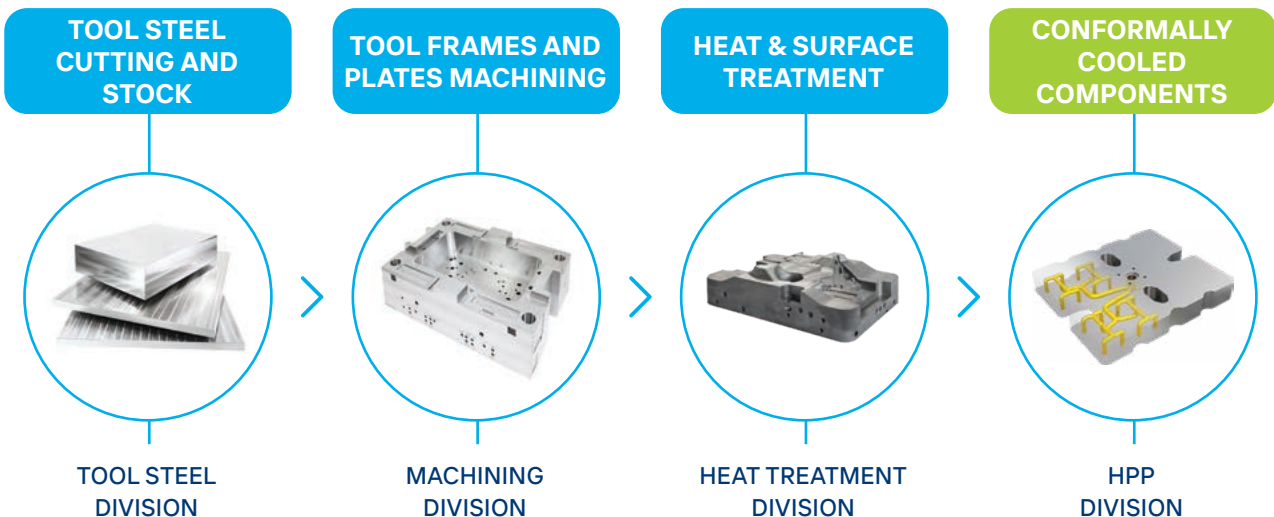
### SOLUTION ORIENTED



Years of experience and R&D of HTS Group companies in combination with leading OEM customer collaboration gives us knowledge and capacity to help you improve your productivity.

## Total process control – from steel to final component

### HTS in-house processes



# Conformal Cooling

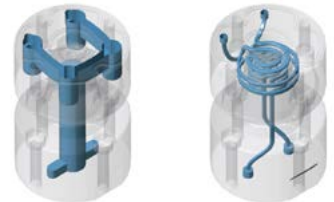


Conformal Cooling is the design and implementation of cooling channels that closely follow the contours of the die or mold cavity. Unlike traditional cooling channels, which are typically straight and drilled into the mold, conformal cooling channels are created using advanced additive manufacturing technologies. This allows the channels to be precisely placed in optimal locations, resulting in more efficient and uniform cooling.



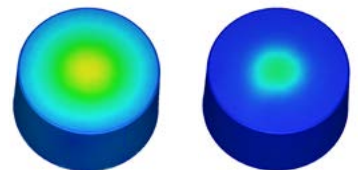
## CHANNELS FREELY DESIGNED

**Cooling channels** are freely designed based on the cooling/heating requirements of the product, without being constrained by the limitations of conventional drilling methods.



## MORE UNIFORM HEAT DISTRIBUTION

Conformally cooled components enable more even heat distribution over the working surface, resulting in more uniform and rapid cooling.



## ZERO LEAKAGE

Conformally cooled components usually feature just two cooling water connectors (IN and OUT), ensuring a leak-proof design.





# ADVANTAGES

## Up to 25% cycle time reduction

Conformal cooling in injection molding optimizes heat dissipation, allowing faster and more uniform cooling of the mold. This accelerates material solidification, significantly shortening the molding cycle and boosting production efficiency.

## Improved part quality

Enhanced cooling control minimizes thermal stresses and reduces defects such as warping and shrinkage. This leads to more consistent part dimensions and superior surface finishes, improving the overall quality and reducing the need for post-production adjustments.





## Taking conformal cooling to the next level

iTherm® by HTS sets a new standard in conformal cooling, taking it to the next level with cutting-edge additive manufacturing technologies and advanced engineering capabilities.

Our proprietary Metal Fusion Technology (MFT), along with other methods like LMD, WAAM and SLM, ensure that iTherm® components deliver superior thermal management and optimized performance.

As the only global producer with four in-house additive manufacturing technologies, HTS Technology Group provides top-of-the-line iTherm® conformally cooled components, that meet even the most stringent application requirements.

With iTherm® by HTS, you benefit from:

- Innovative technologies
- Advanced engineering
- Installation and usage support

# HTS Innovative Technologies



## HTS Additive Technologies

HTS is the leading additive manufacturing solution provider that offers the most comprehensive range of additive manufacturing approaches for tooling & implementation of conformal cooling, enabling the selection of the best technology for any geometry, size, complexity, or material requirement.

### TECHNOLOGY

### MATERIAL INPUT

**MFT**  
METAL FUSION  
TECHNOLOGY

**FORGED PLATES  
& BARS**



**DED**

**LMD**  
LASER METAL  
DEPOSITION

**WAAM**  
WIRE ARC AM

**WIRE**



### Available steels:

1.2343 / H11,  
1.2344 / H13,  
1.2367, 1.2083,  
SITHERM S353R,  
1.2709/MS1, L40,  
Corrax, and more.

### Available dimensions;

from 20 × 20 × 20 mm to  
1.500 × 1.200 × 1.000 mm

**SLM**  
SELECTIVE  
LASER  
MELTING

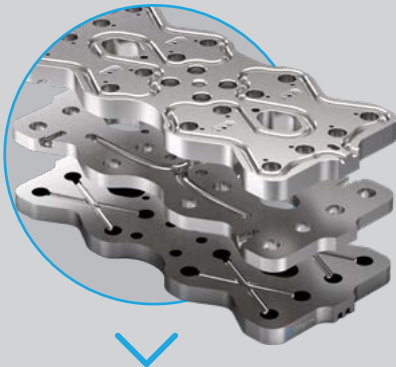
**POWDER**



# MFT technology explained



## 01 CHANNELS MACHINING



### PLATES OF BASE MATERIAL

- Channels are milled into the base material.
- Channel surface can be polished or coated.

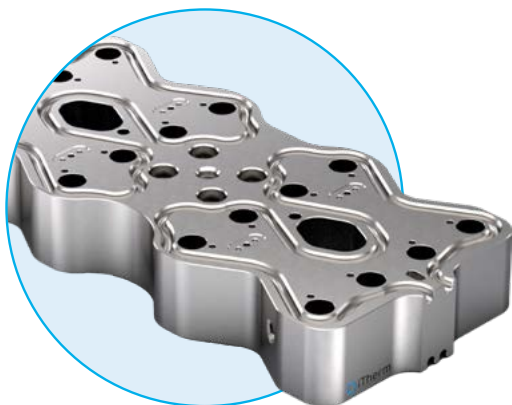
## 02 BONDING



### MFT BONDING

- Base material plates are bonded into one block.
- The tensile strength of the bond equals the one of the base material.

## 03 FINAL SHAPE MACHINING



### FINISHED iTherm<sup>®</sup> COMPONENT

The final fixtures, grooves, and 3D shapes are milled according to the specified tolerances.

# MFT technology advantages



## Optimized configuration for uniform polymer flow and minimized resin retention.

Conformal design allows for the implementation of smooth channels that enable optimal coolant or resin flow.

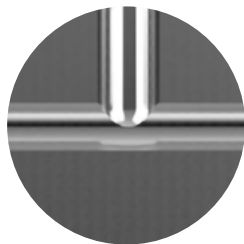
Unlike traditional channels, which are usually straight and drilled into the component plate, conformal design channels are custom-shaped to optimize performance and efficiency.

This tailored approach enhances the flow since channels are designed to accommodate the characteristics of the molded part requirements.

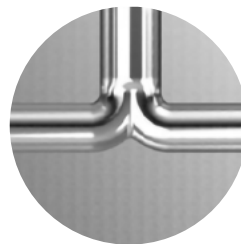


## Channels with smooth transitions

The channels can be precisely and specifically tailored to the exact requirements of the process, with complete design freedom, not constrained by the limitations of conventional drilling methods.



Conventional channel



iTherm® channel



## Bond tensile strength equal to base material

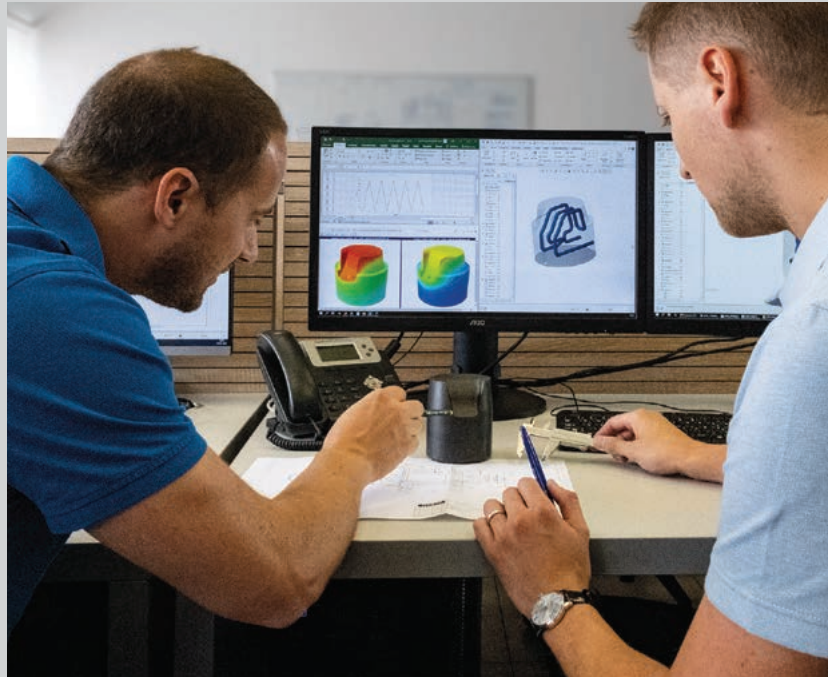
The bond strength created utilizing MFT equals the tensile strength of the base material used. Each bonding surface is meticulously tested with an ultrasonic inspection to ensure perfect bond.

# Advanced engineering support



## EXPERT ENGINEERING TEAM

HTS technical services team and experienced engineers provide the optimal support and solutions for your injection moulding needs.



### 01

#### Advanced Simulation and Analysis

We analyze thermal and structural behaviors and predict component performance under varying conditions using **Moldex 3D and Abaqus software** simulation software

**Moldex3D**

**SIMULIA  
ABAQUS**

### 02

#### Material Selection and Testing

We evaluate different steel grades to determine the best fit for your application, considering factors such as machinability, thermal conductivity, wear resistance, and mechanical properties.

### 03

#### Process Optimization

Our engineers are experts in process optimization, focusing on reducing cycle times, minimizing downtime, and enhancing overall productivity for our customers.

# Installation and Usage Support



## **DEDICATED EXPERT ONSITE SUPPORT**

HTS acts as an integral part of your team, providing dedicated, expert onsite support and collaboration throughout the entire lifespan of your project. At HTS, we ensure you receive comprehensive support and guidance to maximize both the performance of our products and your production performance through each phase of the project, starting before your purchase to installation and setup of components and performance.



## **TRAINING PROGRAM**

Our training program spans the entire process, encompassing everything from fundamental principles to the operation and maintenance of components, as well as specialized knowledge in moulding processes and technologies.



## **Consider us an extension of your team.**

# HTS Injection Moulding

## Range of products

We provide advanced conformal cooling solutions for injection molding applications, encompassing critical components such as mold inserts, gate inserts, sprue bushes, and conformally designed hot runner manifolds, all under the iTherm® product line. The iTherm® components are manufactured using a combination of cutting-edge additive manufacturing technologies, among which, also our proprietary Metal Fusion Technology (MFT).

By utilizing iTherm® in gating systems and mold components, manufacturers benefit from enhanced productivity, improved product quality, increased process stability, and a reduced environmental footprint.

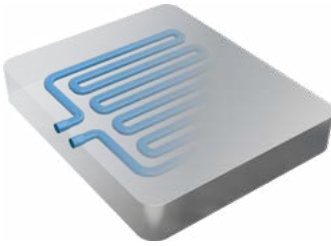
iTherm® innovative components are a direct result of our specialized engineering expertise and extensive research and development efforts. Additionally, we offer advanced simulation support, precision installation services, and tailored training programs to ensure optimal system performance and seamless integration into existing production workflows.

Our injection molding solutions are trusted by leading companies in packaging, cosmetics, medical and automotive sectors.



iTherm® brand stands for ultimate productivity solutions, based on principles of conformal cooling. iTherm® components are made using different additive manufacturing technologies, among which also MFT, our proprietary metal fusion technology.

**MOULD  
INSERT**



**MOULD INSERT  
INDIVIDUAL**



**GATE  
INSERT**



**SPRUE  
BUSH**



**GATE INSERT  
WITH BUSHING**



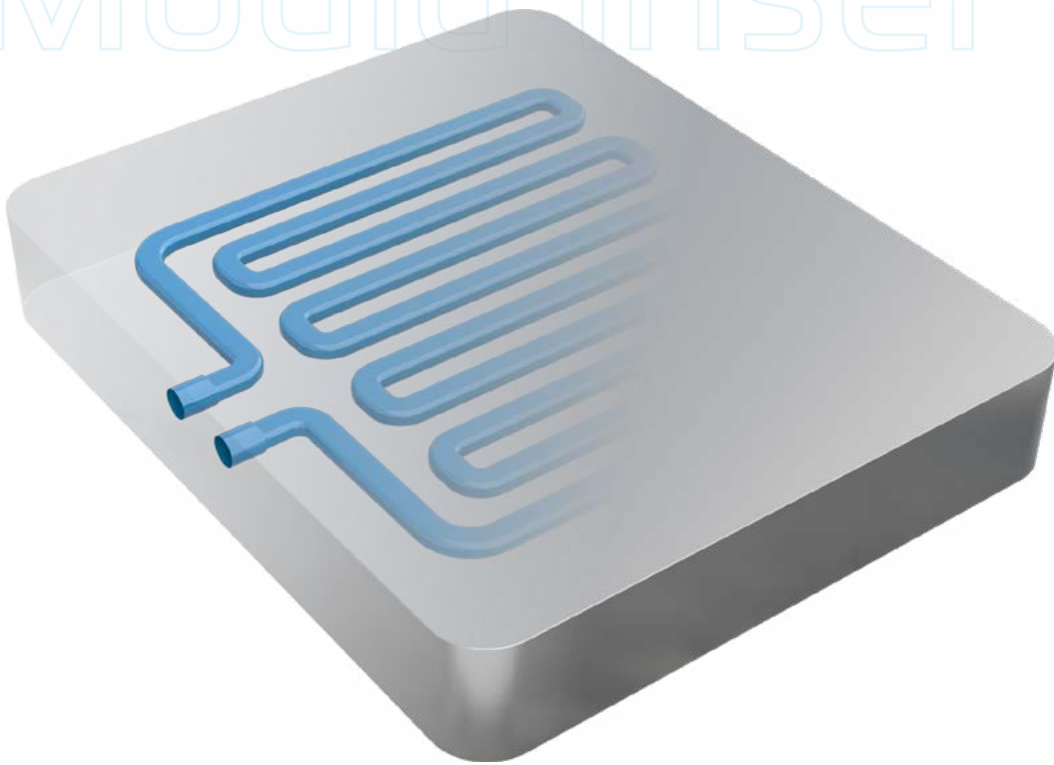
**WATER  
DISTRIBUTION  
PLATE**



# Mould Insert



## Mould Insert



Conformally Cooled



Uniform Heat Distribution



Tool Steel Material



No leakage



Cycle Time Reduction



Lifespan Extension



## iTherm® Mould Insert

- Utilizes a single inlet and outlet, effectively eliminating leakage points and simplifying the cooling circuit.
- The optimized conformal channels ensure consistent temperature homogeneity, enhancing product quality and dimensional stability.
- Increases cooling efficiency, achieving up to a 25% reduction in cycle time, significantly boosting productivity.
- Reduces thermal stress on tooling, extending the service life of the mold and improving overall process stability.

# Technical Specification



## 01

### Material

- iTerm® mold inserts are made using forged tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used (such as SITHERM S140, 1.2709, MS1, L40, M390, Stavax, Tyrax, Mirrax, Corrax).

## 02

### Delivery condition

- Heat treated· Hardness between 38 and 58 HRC
- Machined to final dimension or blank

## 03 Model Types



Round Flat

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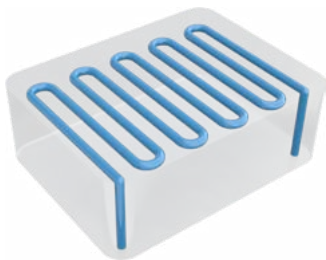
Round Core

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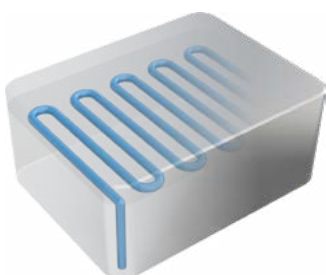
Round Cavity

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Rectangular Flat

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Rectangular Flat  
with extra stock



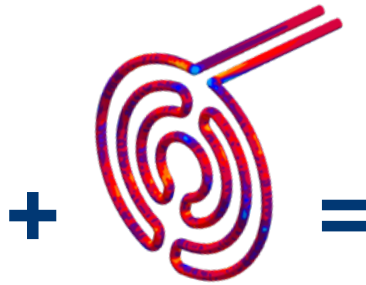
## Round Flat Mould Insert

### 01 Cooling Specification

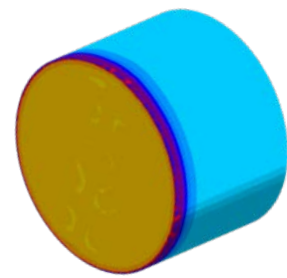
#### DESIGN APPROACH



#### THERMAL ANALYSIS AND SIMULATION



#### ROUND FLAT MOULD INSERT



- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

#### COOLING POWER OPTIONS

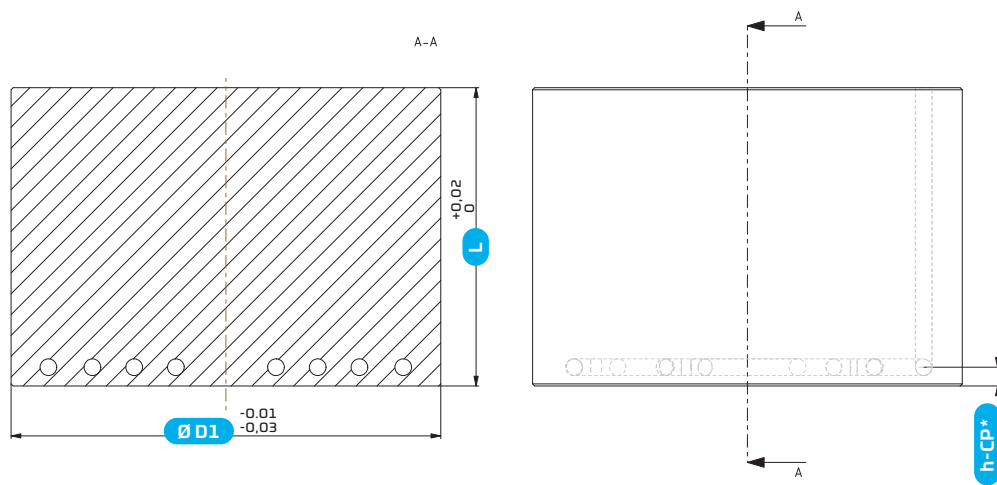
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

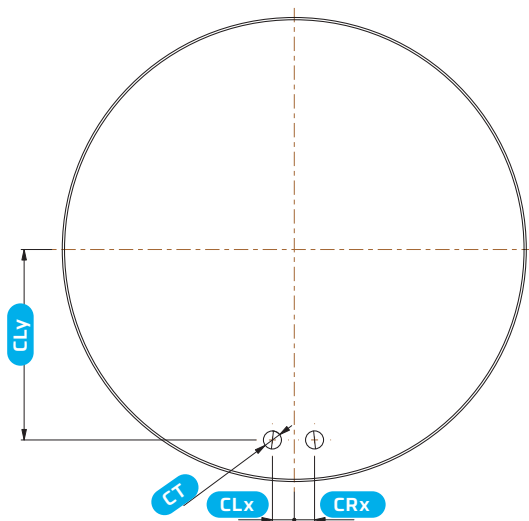


\*The dimension changes based on the cooling power input

Name	D1	L range
20MIRF	55	50-100
22MIRF	58	50-120
26MIRF	65	50-120
32MIRF	70	60-120
38MIRF	79	60-120
44MIRF	84	60-120
50MIRF	92	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20MIRF	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22MIRF	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26MIRF	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32MIRF	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38MIRF	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44MIRF	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50MIRF	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"





## Round Core Mould Insert

### 01 Cooling Specification

#### DESIGN APPROACH



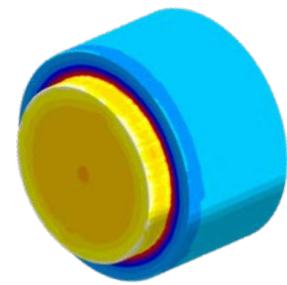
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#### THERMAL ANALYSIS AND SIMULATION



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#### iTherm® ROUND CORE MOULD INSERT



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

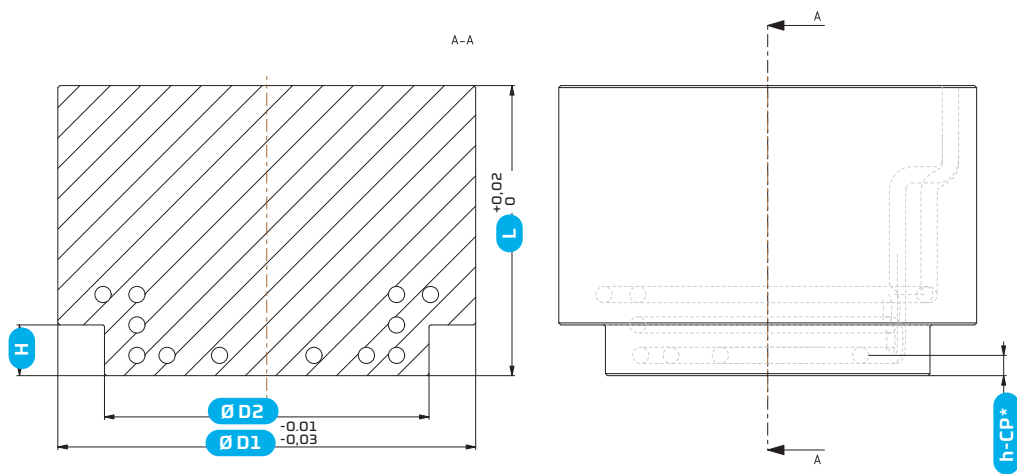
25 W/m<sup>2</sup>

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

# 02

## Dimensional parameters

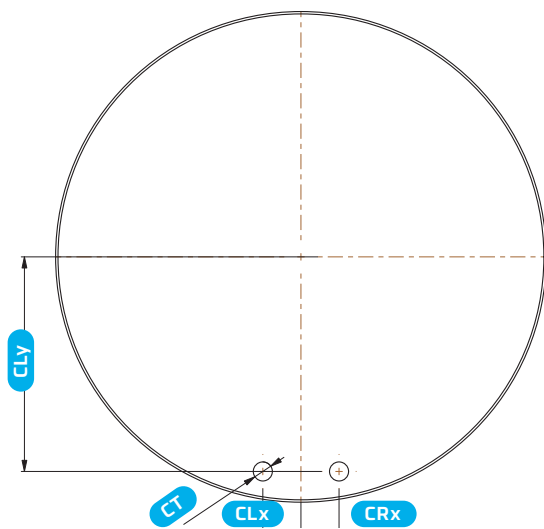


\*The dimension changes based on the cooling power input

Name	D1	D2	H	L range
20MIRC	55	48	5-45	50-100
22MIRC	58	52	5-45	50-120
26MIRC	65	56	5-45	50-120
32MIRC	70	62	5-45	60-120
38MIRC	79	68	5-45	60-120
44MIRC	84	74	5-45	60-120
50MIRC	92	80	5-45	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20MIRC	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22MIRC	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26MIRC	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32MIRC	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38MIRC	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44MIRC	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50MIRC	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



## Round Cavity Mould Insert



### 01 Cooling Specification

#### DESIGN APPROACH



- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

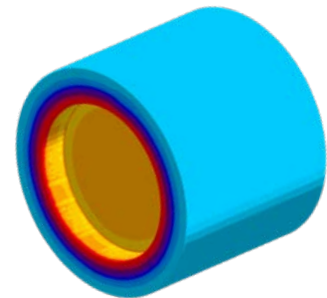
#### THERMAL ANALYSIS AND SIMULATION



- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.



#### ROUND CAVITY MOULD INSERT



#### COOLING POWER OPTIONS

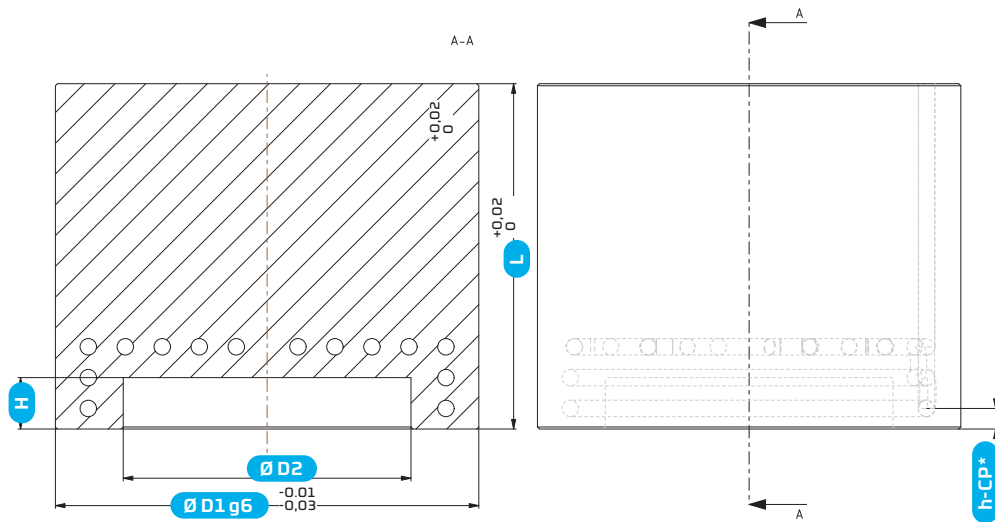
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

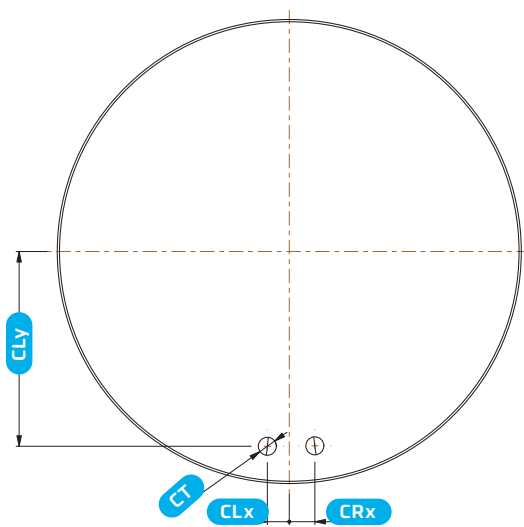


\*The dimension changes based on the cooling power input

Name	D1	D2	H	L range
20MIRC	55	48	5-45	50-100
22MIRC	58	52	5-45	50-120
26MIRC	65	56	5-45	50-120
32MIRC	70	62	5-45	60-120
38MIRC	79	68	5-45	60-120
44BMIRC	84	74	5-45	60-120
50MIRC	92	80	5-45	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20MIRC	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22MIRC	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26MIRC	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32MIRC	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38MIRC	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BMIRC	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50MIRC	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"

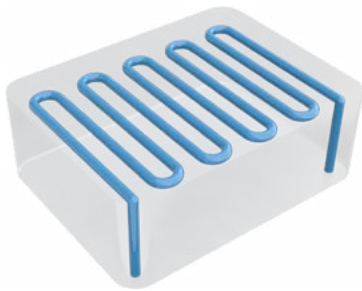




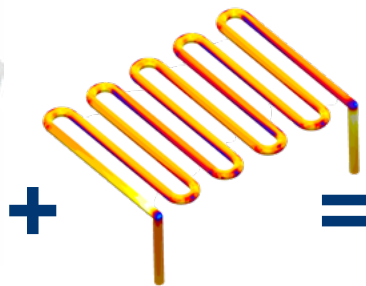
## Rectangular Flat Mould insert

### 01 Cooling Specification

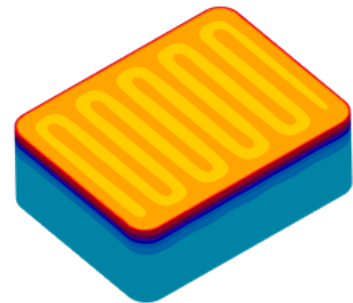
#### DESIGN APPROACH



#### THERMAL ANALYSIS AND SIMULATION



#### RECTANGULAR FLAT MOULD INSERT



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

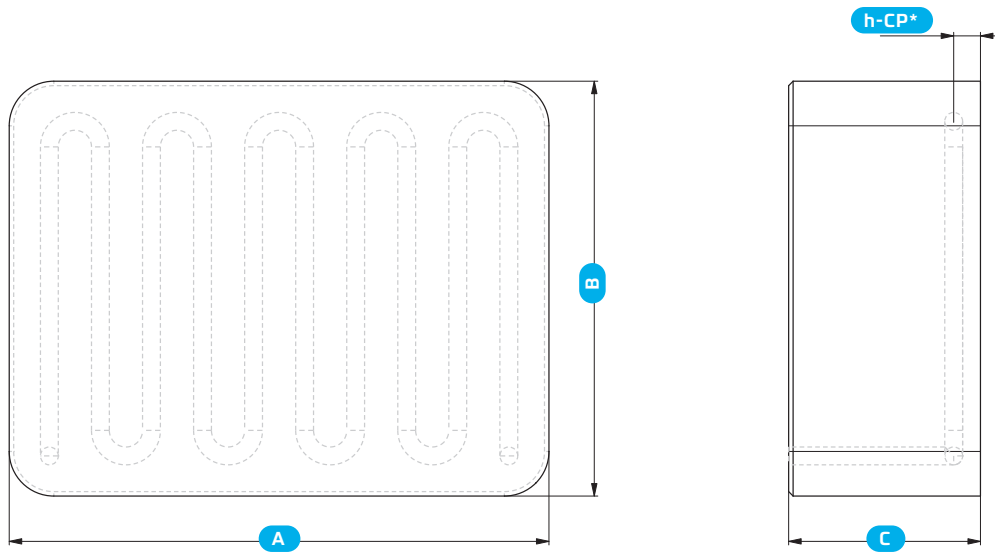
25 W/m<sup>2</sup>

- Optimal cooling of overheated surfaces in the nozzle area.
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# 02

## Dimensional parameters

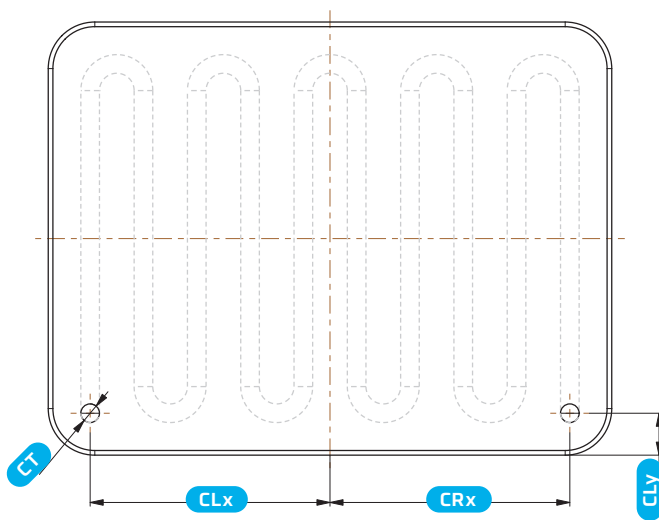


\*The dimension changes based on the cooling power input

Name	A	B	C
20MIRF	40-260	40-260	50-100
22MIRF	40-260	40-260	50-120
26MIRF	40-260	40-260	50-120
32MIRF	40-260	40-260	60-120
38MIRF	40-260	40-260	60-120
44MIRF	40-260	40-260	60-120
50MIRF	40-260	40-260	60-120



## 03 Connection holes



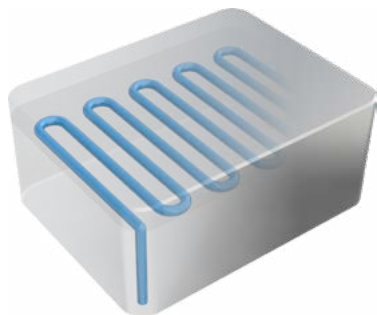
Name	CLx	CRx	CLy	CT
20MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50MIRF	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



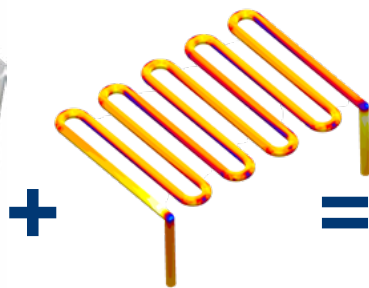
## Rectangular Mould Insert with extra stock

### 01 Cooling Specification

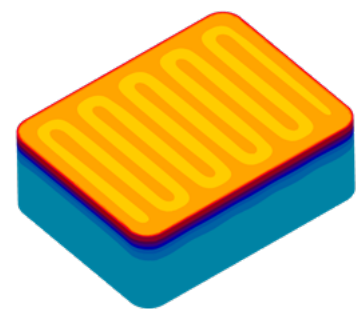
#### DESIGN APPROACH



#### THERMAL ANALYSIS AND SIMULATION



#### RECTANGULAR MOULD INSERT WITH EXTRA STOCK



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

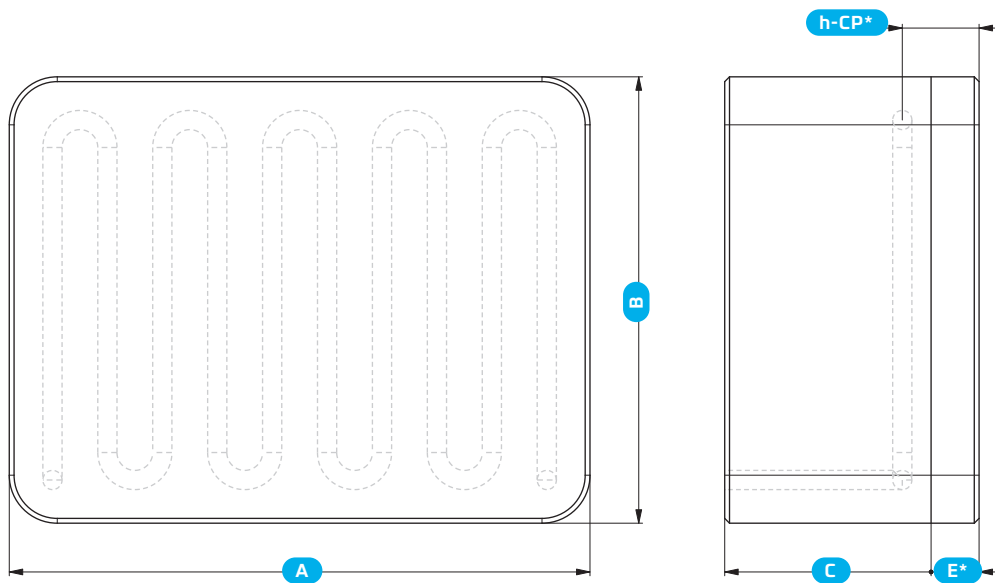
25 W/m<sup>2</sup>

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- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

# 02

## Dimensional parameters



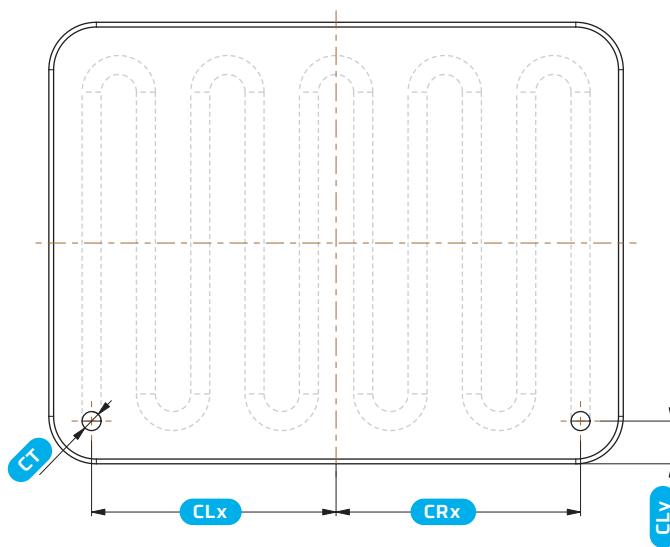
\*The dimension changes based on the cooling power input

\*\* Extra stock customizable to customer requirements

Name	A	B	C
20MIRFE	40-260	40-260	50-100
22MIRFE	40-260	40-260	50-120
26MIRFE	40-260	40-260	50-120
32MIRFE	40-260	40-260	60-120
38MIRFE	40-260	40-260	60-120
44MIRFE	40-260	40-260	60-120
50MIRFE	40-260	40-260	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50MIRFE	0-120	0-120	0-120	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



# Gate Insert with Bushing



## Gate Insert



Conformally Cooled



Uniform Heat Distribution



Tool Steel Material



No leakage



Cycle Time Reduction



Lifespan Extension

## iTherm® Gate Insert with Bushing

- Designed to accommodate gate bushing.
- Ensures better surface quality of the molded part
- On thermal gate systems, it eliminates part defects or blemishes and stringing.
- On valve gate systems it eliminates cold slugs or part defects/blemishes.
- Allows operating the hot runner tip at a higher temperature without impacting part quality or inducing mold sticking.
- Combining the advantages of iTherm® Gate Insert with bushing, you can significantly shorten cycle time, by up to 20%.

# Technical Specification



## 01

### Material

- iTerm® Gate Inserts with bushing are made using forged or rolled tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used (such as SiTHERM® S140, 1.2709, MS1, L40, M390, Stavax, Tyrax, Corrax).

## 02

### Delivery condition

- Heat treated
- Hardness between 38 and 58 HRC
- Machined to final dimension or blank

### 03 Model Types



FLAT

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CORE

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CAVITY

## Flat Gate Insert with bushing

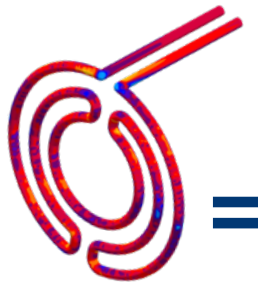


### 01 Cooling Power

#### DESIGN APPROACH

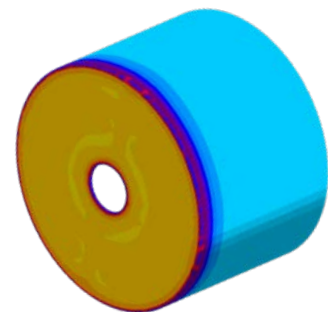


#### THERMAL ANALYSIS AND SIMULATION



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#### iTherm® FLAT GATE INSERT WITH BUSHING



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

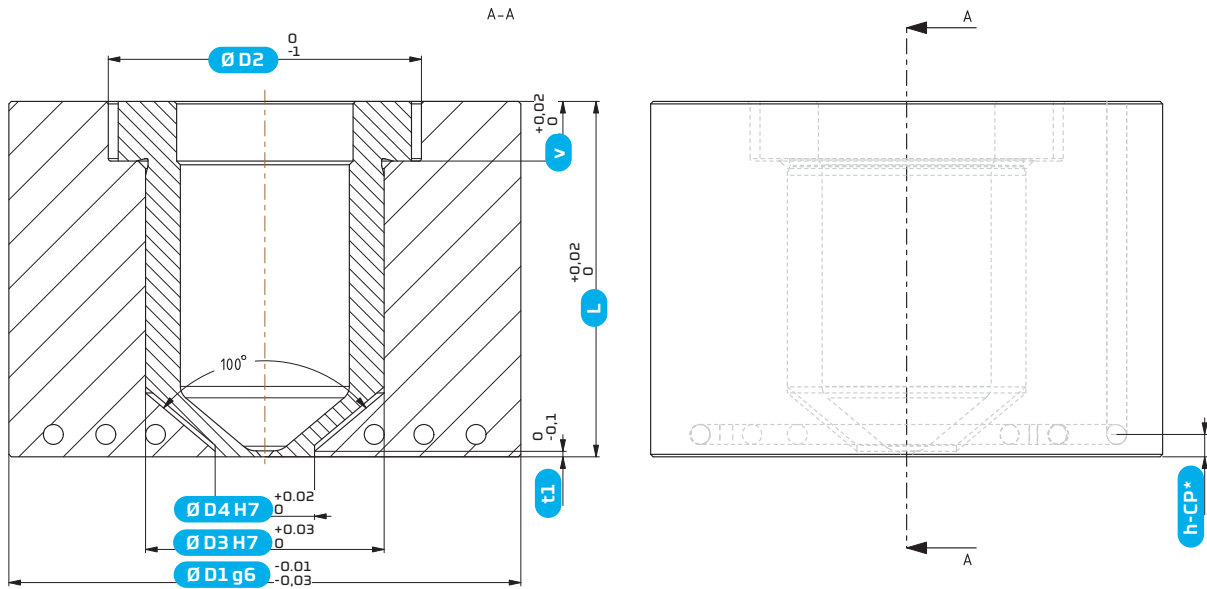
25 W/m<sup>2</sup>

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

# 02

## Dimensional parameters

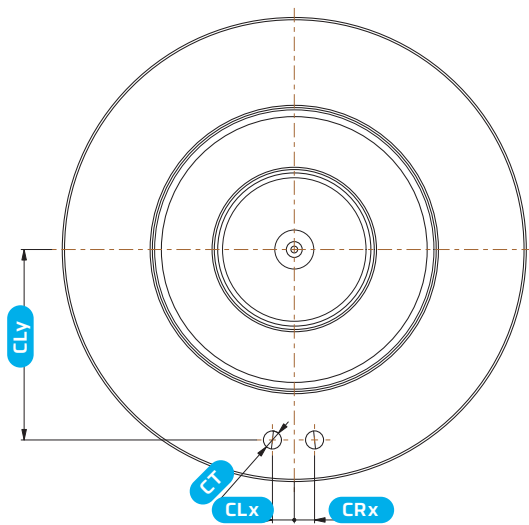


\*The dimension changes based on the cooling power input

Name	D1	D2	D3	D4	v	t1	L range
20BF	55	35	28	16	5	2,3	50-100
22BF	58	38	32	16	5	2,3	50-120
26BF	65	45	36	16	5	2,3	50-120
32BF	70	50	42	20	9	3,3	60-120
38BF	79	59	48	26	12	4,3	60-120
44BF	84	64	54	32	12	5,3	60-120
50BF	92	72	60	38	12	6,3	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BF	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BF	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BF	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BF	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BF	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BF	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BF	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



## Core Gate Insert with Bushing

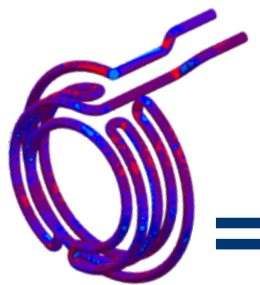


### 01 Cooling Power

#### DESIGN APPROACH

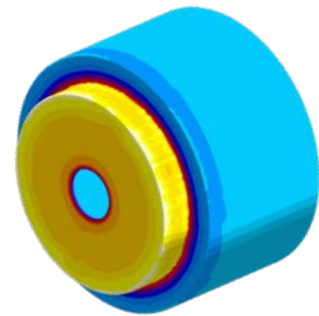


#### THERMAL ANALYSIS AND SIMULATION



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#### iTherm® CORE GATE INSERT WITH BUSHING



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

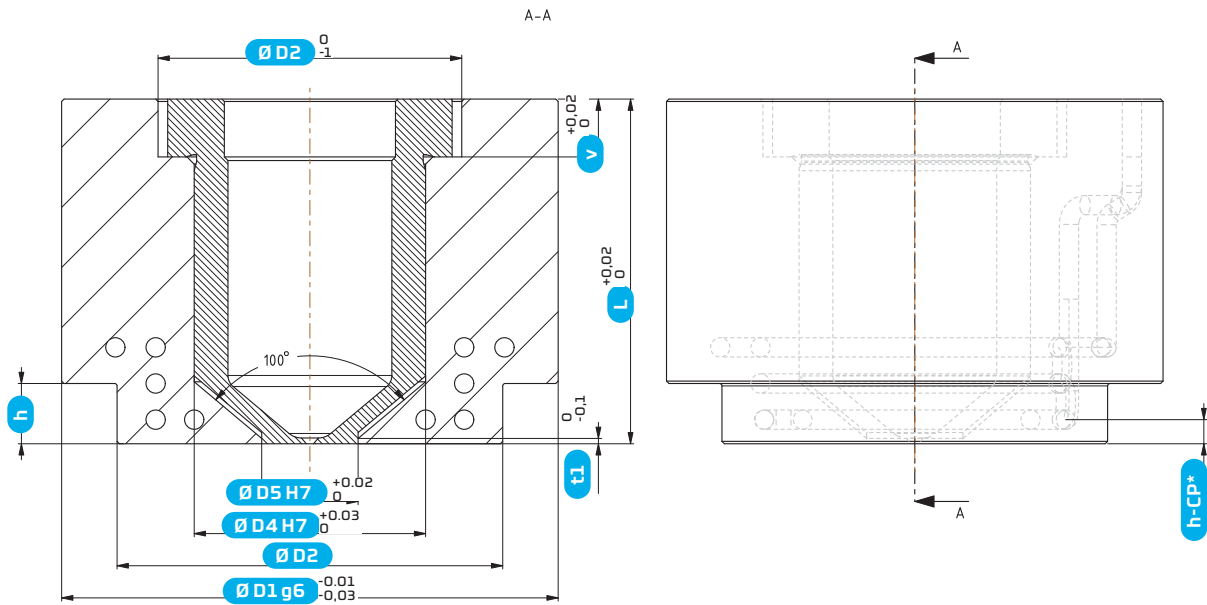
25 W/m<sup>2</sup>

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

# 02

## Dimensional parameters

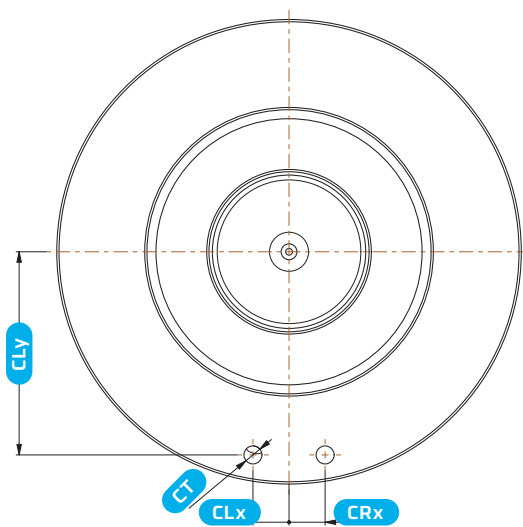


\*The dimension changes based on the cooling power input

Name	D1	D2	D3	D4	D5	v	t1	H	L range
20BCO	55	48	35	28	16	5	2,3	5-45	50-100
22BCO	58	52	38	32	16	5	2,3	5-45	50-120
26BCO	65	56	45	36	16	5	2,3	5-45	50-120
32BCO	70	62	50	42	20	9	3,3	5-45	60-120
38BCO	79	68	59	48	26	12	4,3	5-45	60-120
44BCO	84	74	64	54	32	12	5,3	5-45	60-120
50BCO	92	80	72	60	38	12	6,3	5-45	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BCO	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BCO	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BCO	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BCO	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BCO	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BCO	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BCO	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



## Cavity Gate Insert with Bushing

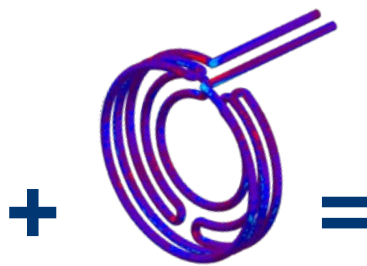


### 01 Cooling Power

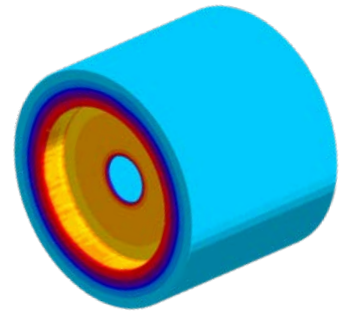
#### DESIGN APPROACH



#### THERMAL ANALYSIS AND SIMULATION



#### CAVITY GATE INSERT WITH BUSHING



- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

#### COOLING POWER OPTIONS

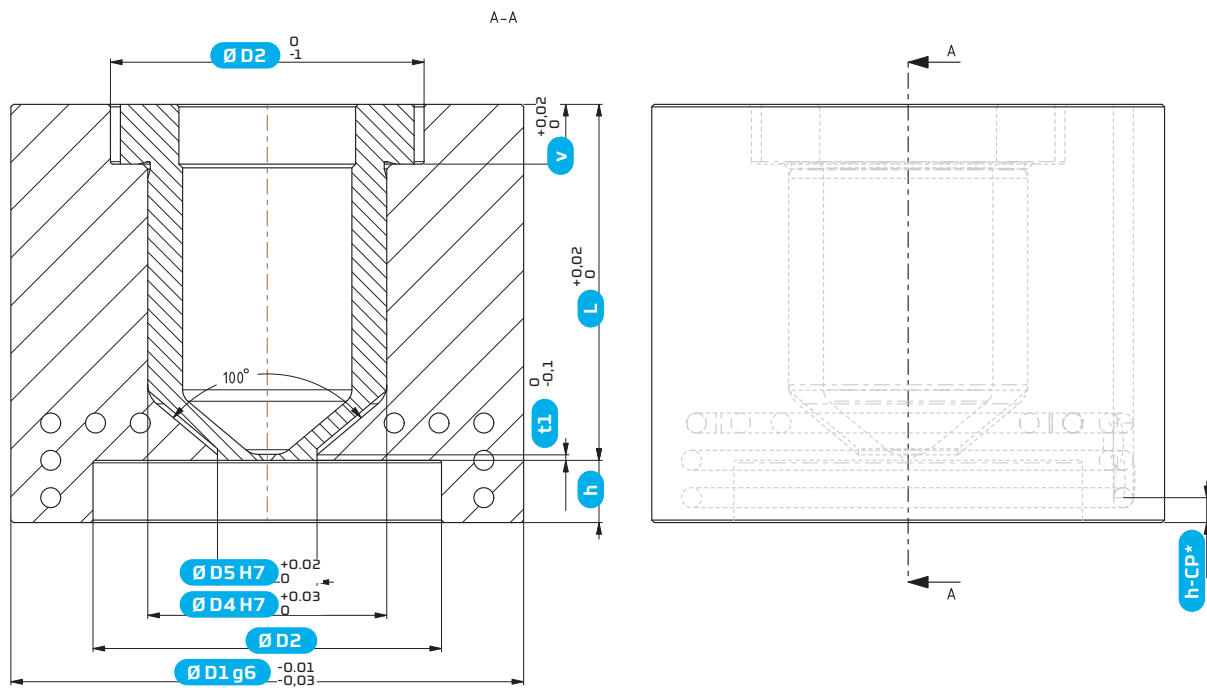
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

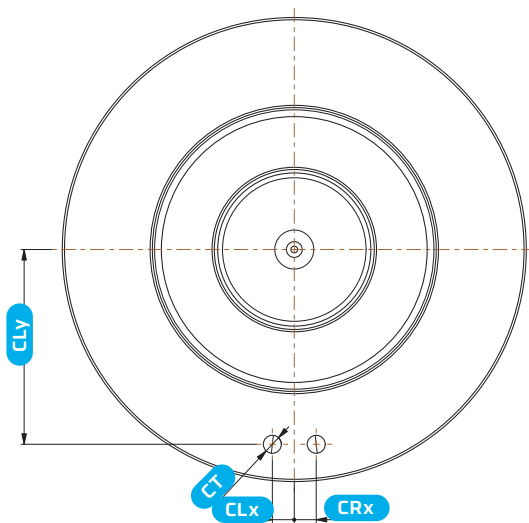


\*The dimension changes based on the cooling power input

Name	D1	D2	D3	D4	D5	v	t1	h	L range
20BCA	55	48	35	28	16	5	2,3	5-45	50-100
22BCA	58	52	38	32	16	5	2,3	5-45	50-120
26BCA	65	56	45	36	16	5	2,3	5-45	50-120
32BCA	70	62	50	42	20	9	3,3	5-45	60-120
38BCA	79	68	59	48	26	12	4,3	5-45	60-120
44BCA	84	74	64	54	32	12	5,3	5-45	60-120
50BCA	92	80	72	60	38	12	6,3	5-45	60-120



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BCA	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BCA	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BCA	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BCA	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BCA	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BCA	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BCA	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



# Gate Insert



Gate insert  
with bushing



Conformally  
Cooled



Uniform Heat  
Distribution



Tool Steel  
Material



No leakage



Cycle Time  
Reduction



Lifespan  
Extension



## iTherm® Gate Insert

- Ensures better surface quality of the molded part
- On thermal gate systems, it eliminates part defects or blemishes and stringing.
- On valve gate systems it eliminates cold slugs or part defects/blemishes.
- Allows operating the hot runner tip at a higher temperature without impacting part quality or inducing mold sticking.
- Combining the advantages of iTherm® Gate Insert, you can significantly shorten cycle time, by up to 20%.

# Technical Specification



## 01 Material

- iTherm® Gate Inserts are made using forged or rolled tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used (such as SiTHERM® S140, 1.2709, MS1, L40, M390, Stavax, Tyrax, Corrax).

## 02 Delivery condition

- Heat treated
- Hardness between 38 and 58 HRC
- Machined to final dimension or blank

## 03 Model Types



FLAT

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CORE

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CAVITY



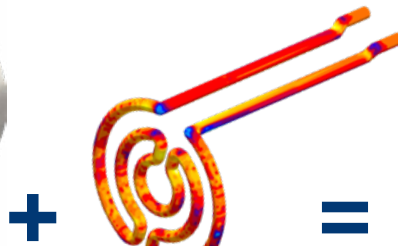
## Flat Gate Insert

### 01 Cooling Power

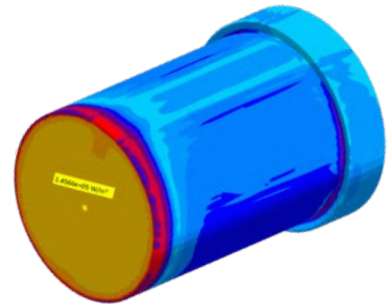
#### DESIGN APPROACH



#### THERMAL ANALYSIS AND SIMULATION



#### iTherm® FLAT GATE INSERT



- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

#### COOLING POWER OPTIONS

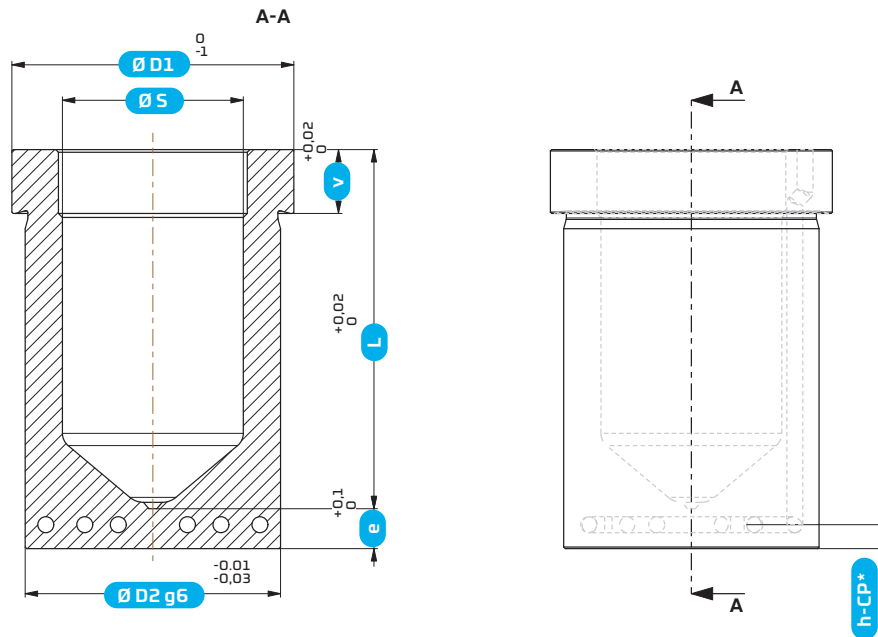
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

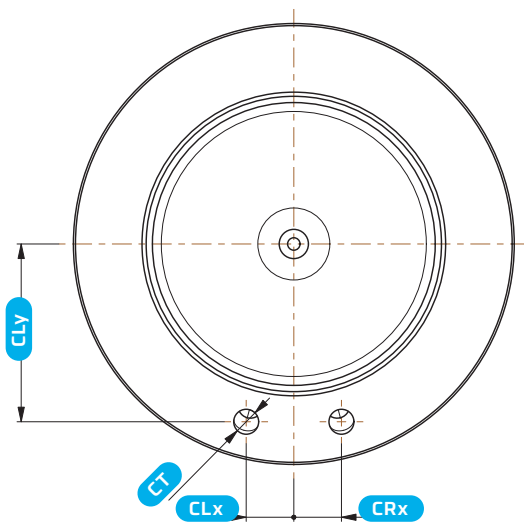


\*The dimension changes based on the cooling power input

Name	D1	S	D2	v	L-range	e
20BF	35	20	30	5	50-100	5
						10
						15
22BF	38	22	32	5	50-120	5
						10
						15
26BF	45	26	36	5	50-120	5
						10
						15
32BF	50	32	42	9	60-120	5
						10
						15
38BF	59	38	48	12	60-120	5
						10
						15
44BF	64	44	54	12	60-120	5
						10
						15
50BF	72	50	60	12	60-120	5
						10
						15



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BF	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BF	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BF	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BF	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BF	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BF	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BF	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"





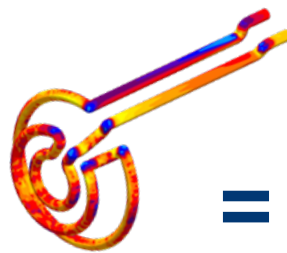
## Core Gate Insert

### 01 Cooling power

#### DESIGN APPROACH

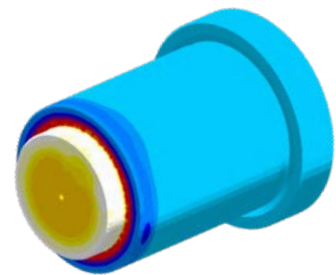


#### THERMAL ANALYSIS AND SIMULATION



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#### iTherm® CORE GATE INSERT



#### COOLING POWER OPTIONS

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

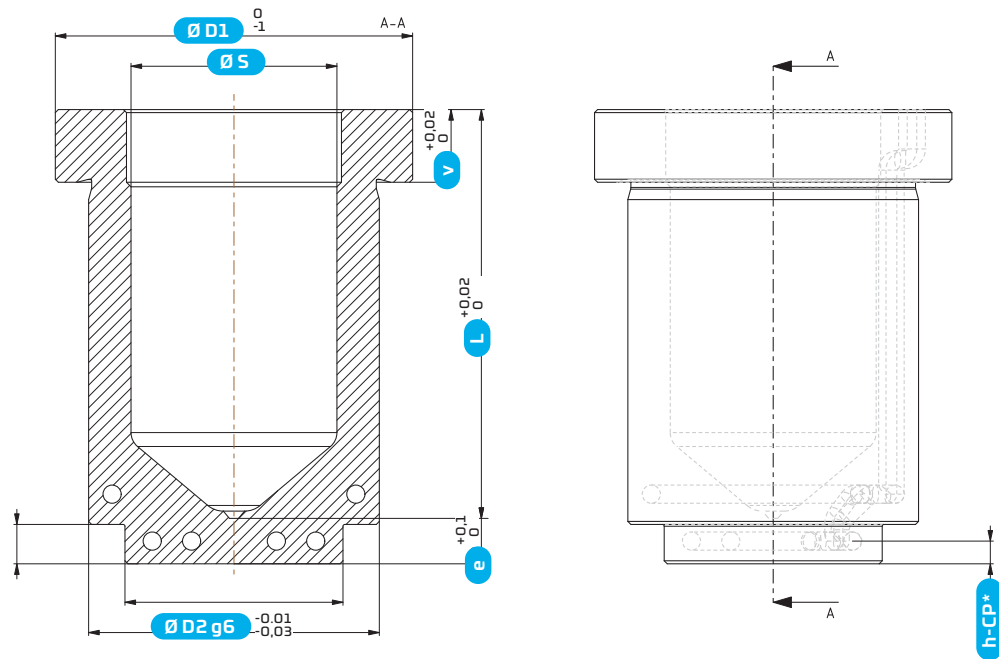
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

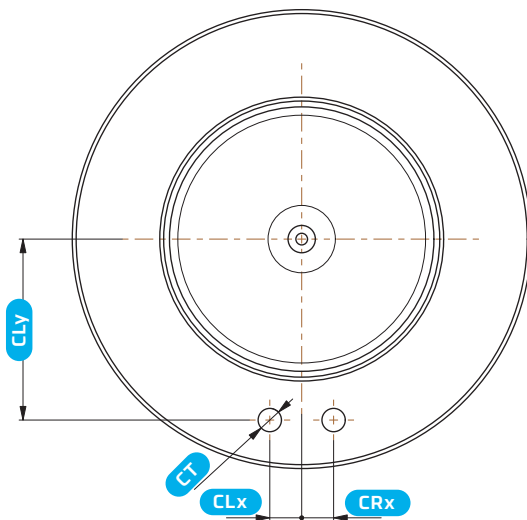


\*The dimension changes based on the cooling power input

Name	D1	D2	D3	v	H	L range	e
20BCO	55	48	35	5	5-45	50-100	5
							10
							15
22BCO	58	52	38	5	5-45	50-120	5
							10
							15
26BCO	65	56	45	5	5-45	50-120	5
							10
							15
32BCO	70	62	50	9	5-45	60-120	5
							10
							15
38BCO	79	68	59	12	5-45	60-120	5
							10
							15
44BCO	84	74	64	12	5-45	60-120	5
							10
							15
50BCO	92	80	72	12	5-45	60-120	5
							10
							15



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BCO	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BCO	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BCO	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BCO	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BCO	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BCO	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BCO	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"





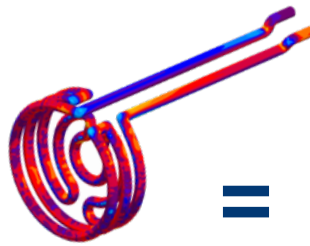
## Cavity Gate Insert

### 01 Cooling power

DESIGN APPROACH

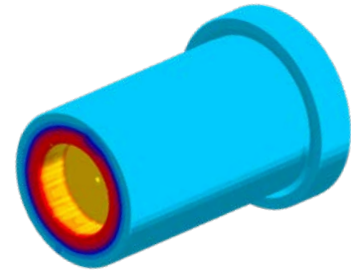


THERMAL ANALYSIS AND SIMULATION



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iTherm®  
CAVITY GATE INSERT



COOLING POWER OPTIONS

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

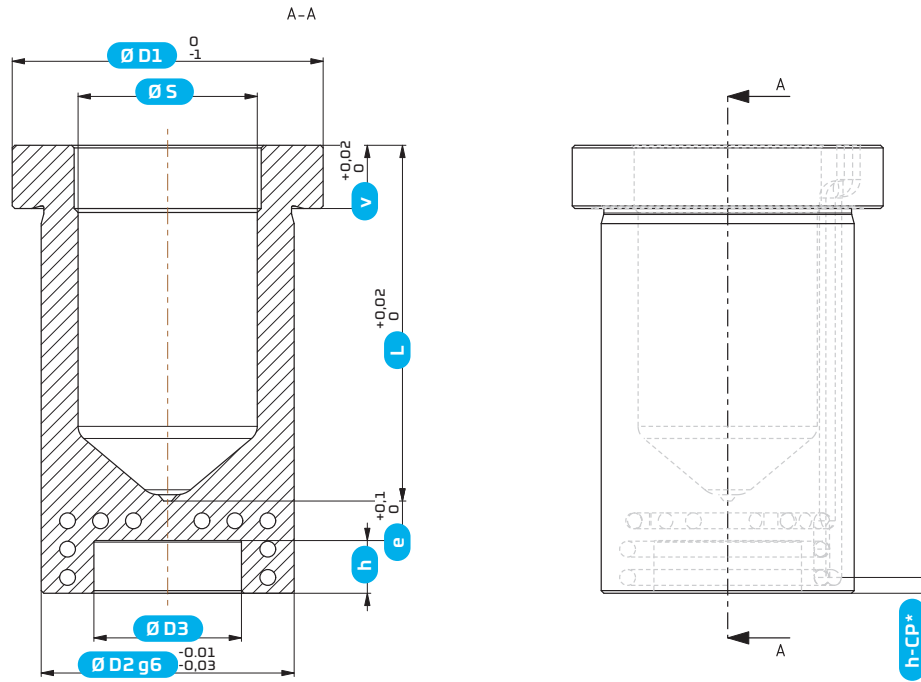
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters

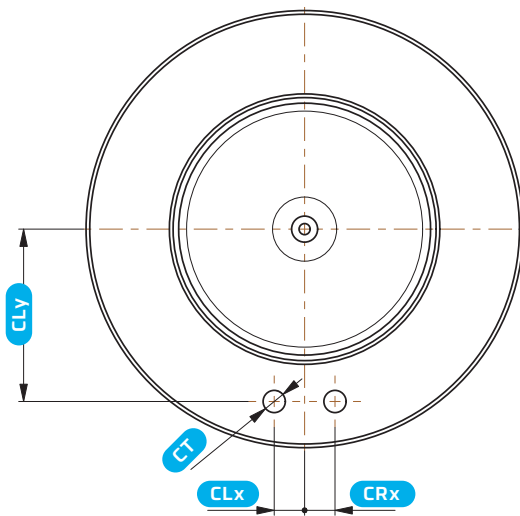


\*The dimension changes based on the cooling power input

Name	D1	D2	D3	v	h	L range	e
20BCA	55	48	35	5	5-45	50-100	5
							10
							15
22BCA	58	52	38	5	5-45	50-120	5
							10
							15
26BCA	65	56	45	5	5-45	50-120	5
							10
							15
32BCA	70	62	50	9	5-45	60-120	5
							10
							15
38BCA	79	68	59	12	5-45	60-120	5
							10
							15
44BCA	84	74	64	12	5-45	60-120	5
							10
							15
50BCA	92	80	72	12	5-45	60-120	5
							10
							15



## 03 Connection holes



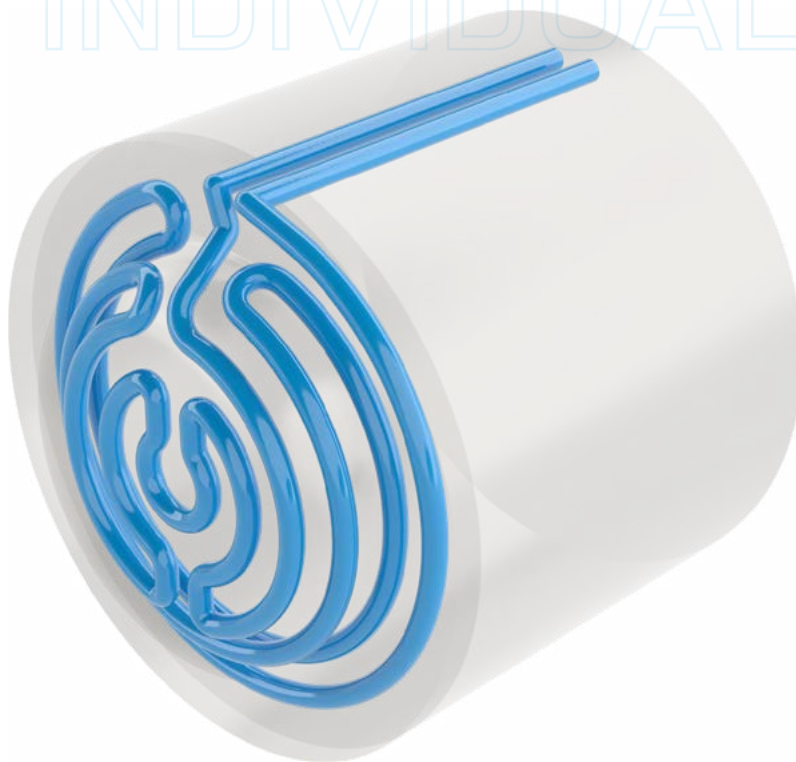
Name	CLx	CRx	CLy	CT
20BCA	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BCA	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BCA	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BCA	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BCA	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BCA	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BCA	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



# Mould Insert Individual



IM iTherm® Insert  
INDIVIDUAL



Conformally  
Cooled



Uniform Heat  
Distribution



Tool Steel  
Material



No leakage



Cycle Time  
Reduction



Lifespan  
Extension



## **iTherm<sup>®</sup> Mould Insert Individual**

- Ensures better surface quality of the molded part.
- Made according to customer specific dimensional requirements.
- On thermal gate systems, it eliminates part defects or blemishes and stringing.
- On valve gate systems it eliminates cold slugs or part defects/blemishes.
- Allows operating the hot runner tip at a higher temperature without impacting part quality or inducing mold sticking.
- Mould Insert individual is customizable to your dimensional requirements.

# Technical Specification



## 01

### Material

- iTerm® Mould Inserts Individual are made using forged or rolled tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used (such as SiTHERM® S140, 1.2709, MS1, L40, M390, Stavax, Tyrax, Corrax).

## 02

### Delivery condition

- Heat treated
- Hardness between 38 and 58 HRC
- Machined to final dimension or blank

### 03 Model Types



Core

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Cavity



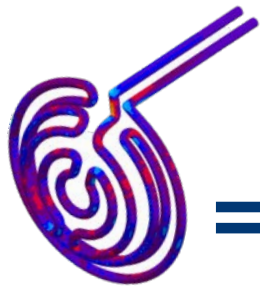
## Core Mould Insert Individual

### 01 Cooling Power

#### DESIGN APPROACH

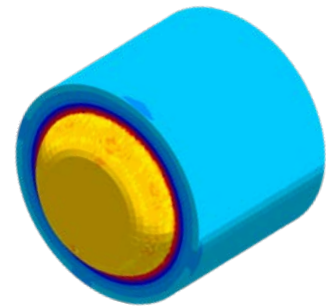


#### THERMAL ANALYSIS AND SIMULATION



+ =

#### iTherm® CORE MOULD INSERT INDIVIDUAL



#### COOLING POWER OPTIONS

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

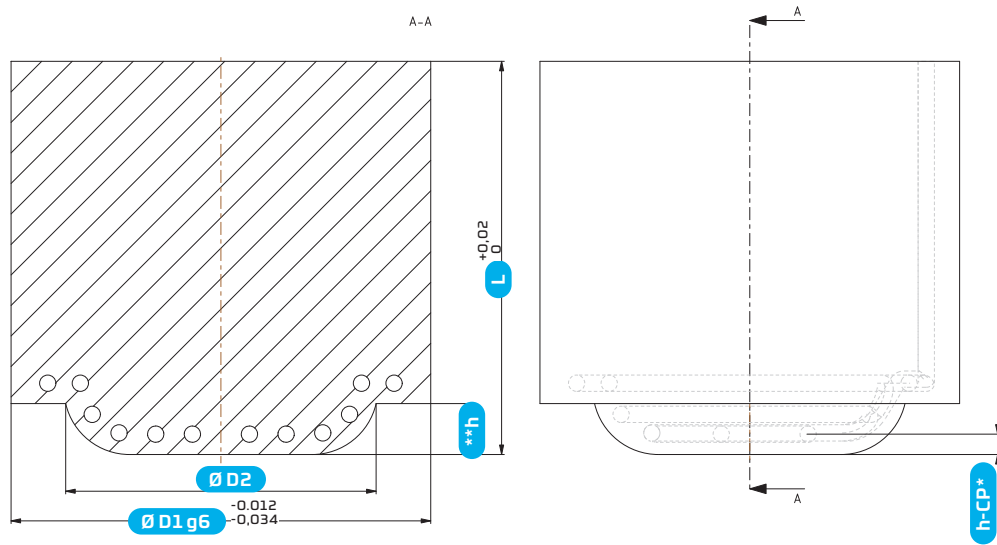
10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

25 W/m<sup>2</sup>

# 02

## Dimensional parameters



\*The dimension changes based on the cooling power input

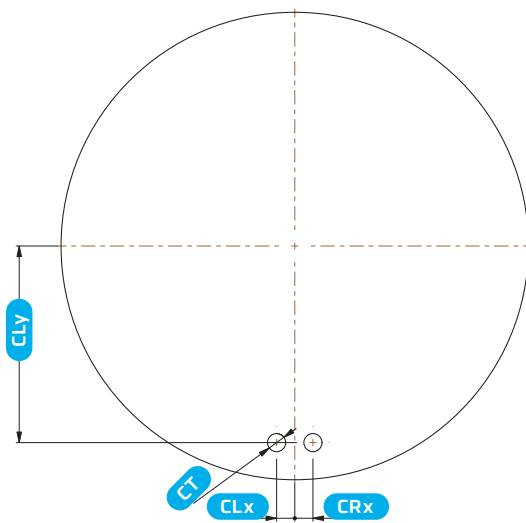
Name	D1	L range
20BCO	55	50-100
22BCO	58	50-120
26BCO	65	50-120
32BCO	70	60-120
38BCO	79	60-120
44BCO	84	60-120
50BCO	92	60-120

\*D2 up to customer preference

\*\*h up to customer preference



## 03 Connection holes



Name	CLx	CRx	CLy	CT
20BCO	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BCO	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BCO	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BCO	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BCO	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BCO	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BCO	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"





## Cavity Mould Insert Individual

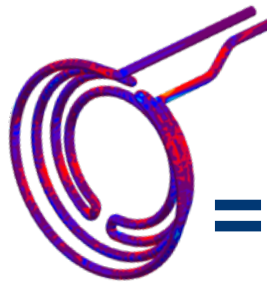
### 01 Cooling Power

#### DESIGN APPROACH



+

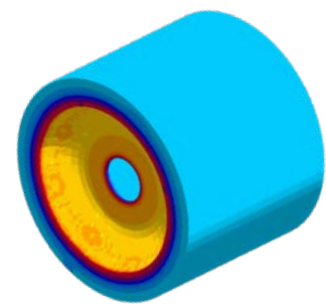
#### THERMAL ANALYSIS AND SIMULATION



=

iTherm®

CAVITY MOULD  
INSERT INDIVIDUAL



#### COOLING POWER OPTIONS

10 W/m<sup>2</sup>

15 W/m<sup>2</sup>

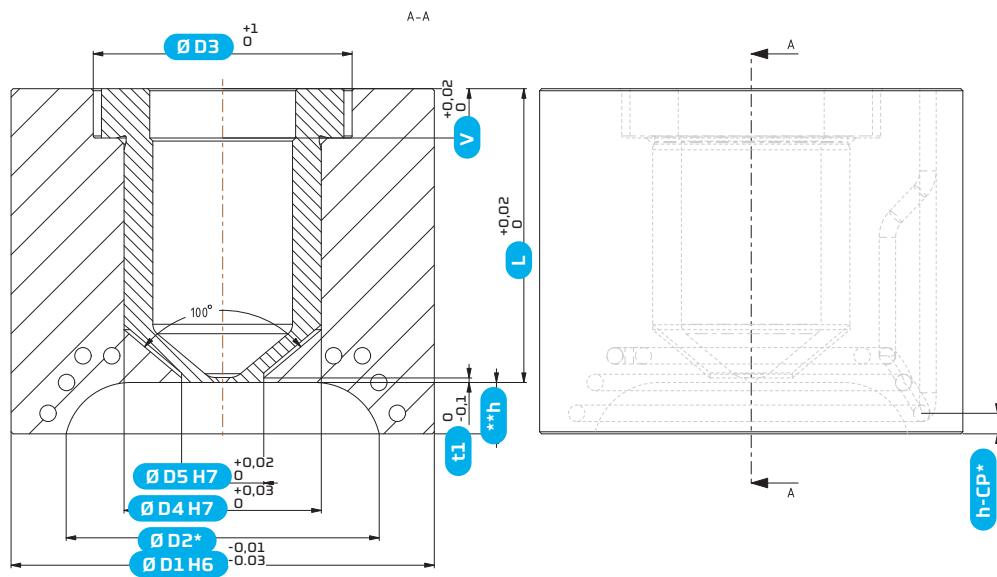
25 W/m<sup>2</sup>

- Optimal cooling of overheated surfaces in the nozzle area.
- Homogeneous cooling of the working surface.
- Circular shape of cooling channels for maximum efficiency.

- Low standard deviation of the temperature field.
- Small pressure differences between the inlet and outlet of the cooling medium.
- High Reynolds number, high turbulence, optimal heat transfer.

# 02

## Dimensional parameters



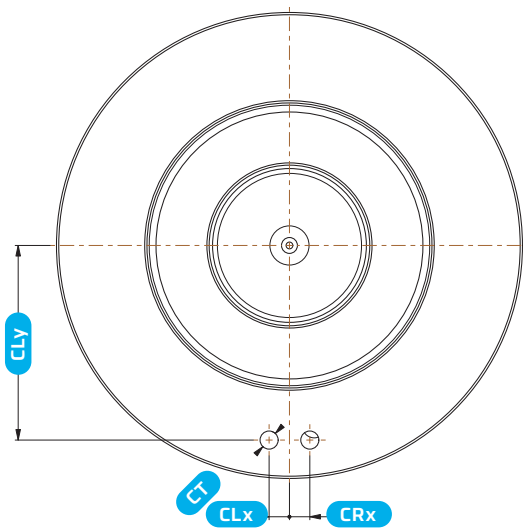
\*The dimension changes based on the cooling power input

Name	D1	D3	D4	D5	v	t1	L range
20BI	55	35	28	16	5	2,3	50-100
22BI	58	38	32	16	5	2,3	50-120
26BI	65	45	36	16	5	2,3	50-120
32BI	70	50	42	20	9	3,3	60-120
38BI	79	59	48	26	12	4,3	60-120
44BI	84	64	54	32	12	5,3	60-120
50BI	92	72	60	38	12	6,3	60-120

\*D2 up to customer preference  
\*\*h up to customer preference



## 03 Connection holes



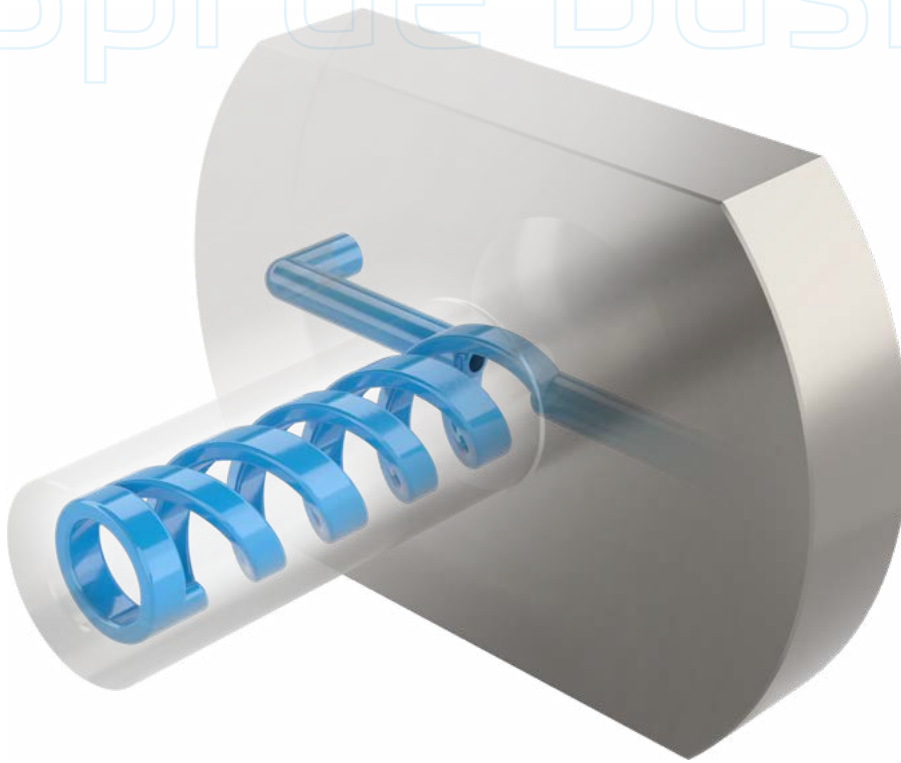
Name	CLx	CRx	CLy	CT
20BI	0-24	0-24	0-24	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
22BI	0-26	0-26	0-26	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
26BI	0-29	0-29	0-29	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
32BI	0-32	0-32	0-32	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
38BI	0-36	0-36	0-36	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
44BI	0-39	0-39	0-39	1/16" NPT - 1/2"NPT or G1/16" - G1/2"
50BI	0-43	0-43	0-43	1/16" NPT - 1/2"NPT or G1/16" - G1/2"



# Sprue Bush



## Sprue Bush



Conformally Cooled



Uniform Heat Distribution



Tool Steel Material



No leakage



Cycle Time Reduction



Lifespan Extension



## iTherm® Sprue Bush

- Compared to conventional sprue bushes, the iTherm® Sprue Bush offers the advantage of integrated cooling channels, enabling the use of conformal cooling to enhance sprue performance.
- By using the iTherm® Sprue Bush, you can eliminate sprue sticking caused by temperature fluctuation, thanks to its faster cooling rate. As result, cycle time can be significantly reduced.
- Our customers have reported up to 25 % reduction in cycle time after switching to the iTherm® Sprue Bush.

# Technical Specification



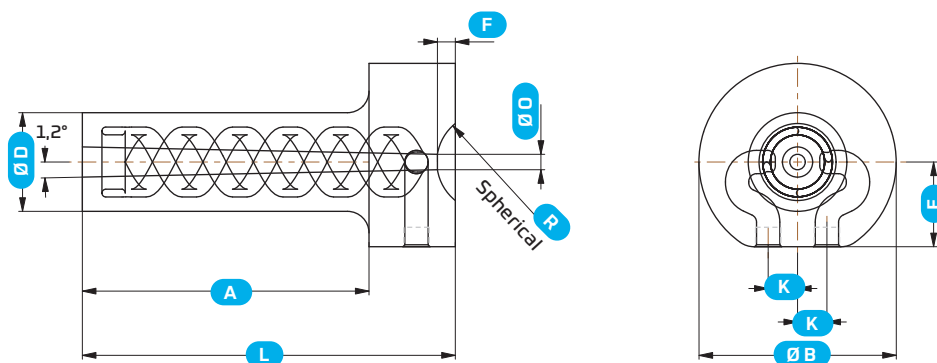
## 01 Material

- iTherm® Sprue Bushes are made using forged or rolled tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used.

## 02 Delivery condition

- Heat treated
- Hardness between 38 and 58 HRC
- Machined to final dimension
- Coated (optionally)

## 03 Dimensional parameters



# Dimensional parameters

D	A-Range	L	B - Range	E-Range	K-Range	O-Range	R-Range	F-Range
14	45-65	80	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	55-75	90	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	65-85	100	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	75-95	110	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	85-105	120	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	95-115	130	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	105-125	140	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	115-135	150	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	125-145	160	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	135-155	170	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	145-165	180	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	155-175	190	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	165-185	200	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	175-195	210	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
14	185-205	220	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	45-65	80	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	55-75	90	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	65-85	100	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	75-95	110	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	85-105	120	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	95-115	130	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	105-125	140	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	115-135	150	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	125-145	160	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	135-155	170	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	145-165	180	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	155-175	190	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	165-185	200	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	175-195	210	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
16	185-205	220	30-90	10-35	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	45-65	80	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	55-75	90	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	65-85	100	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	75-95	110	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	85-105	120	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	95-115	130	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	105-125	140	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	115-135	150	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	125-145	160	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	135-155	170	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	145-165	180	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	155-175	190	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	165-185	200	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	175-195	210	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
18	185-205	220	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	45-65	80	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	55-75	90	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	65-85	100	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	75-95	110	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	85-105	120	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	95-115	130	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	105-125	140	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	115-135	150	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5

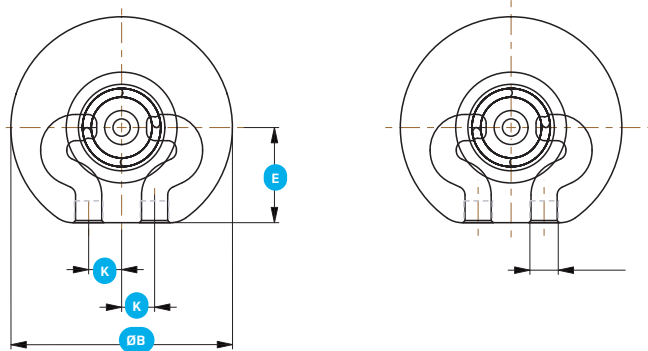
# Dimensional parameters

D	A-Range	L	B - Range	E-Range	K-Range	O-Range	R-Range	F-Range
20	125-145	160	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	135-155	170	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	145-165	180	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	155-175	190	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	165-185	200	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	175-195	210	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
20	185-205	220	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	45-65	80	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	55-75	90	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	65-85	100	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	75-95	110	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	85-105	120	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	95-115	130	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	105-125	140	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	115-135	150	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
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22	175-195	210	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
22	185-205	220	40-100	15-45	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	45-65	80	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	55-75	90	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	65-85	100	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	75-95	110	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	85-105	120	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	95-115	130	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
24	105-125	140	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
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24	185-205	220	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
26	45-65	80	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
26	55-75	90	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
26	65-85	100	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
26	75-95	110	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
26	85-105	120	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
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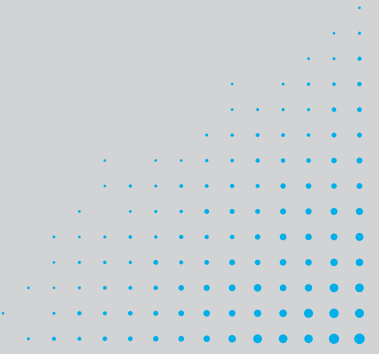
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28	55-75	90	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	65-85	100	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	75-95	110	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	85-105	120	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	95-115	130	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	105-125	140	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	115-135	150	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
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28	165-185	200	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	175-195	210	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5
28	185-205	220	50-110	20-50	15-55	1.5-5.5	9.5-21.5	3.5-7.5

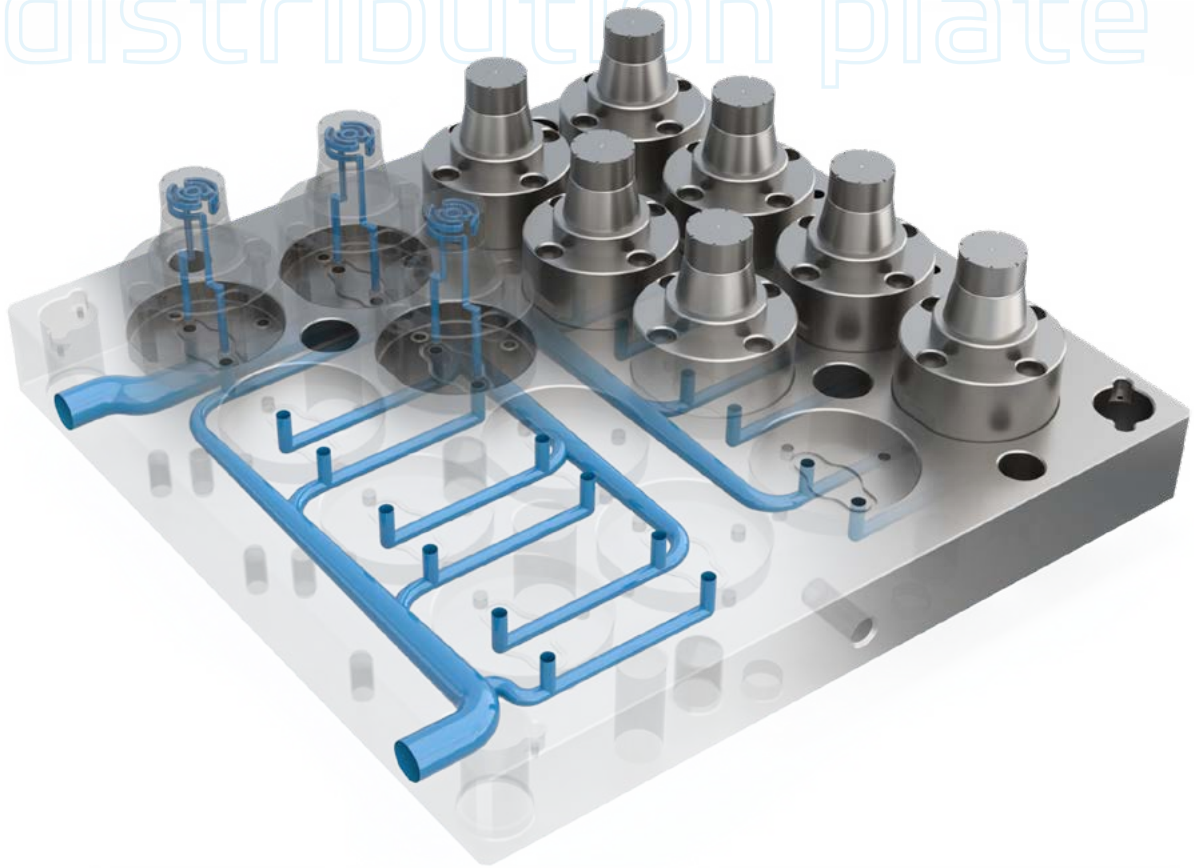
## 04 Connection holes



# iTherm® Water Distribution Plate



Water distribution plate



Conformal Design



Tool Steel Material



No leakage



More uniform resin distribution



Quicker color/material change



Cycle Time Reduction



## iTherm® Water Distribution Plate

- **Advanced Manufacturing:** Produced from tool steel using HTS proprietary additive manufacturing for exceptional performance.
- **Monoblock Strength:** Single-body component with mechanical properties equivalent to tool steel monoblock.
- **Customizable Design:** Freely designed channels, optimized for specific cooling requirements, offering flexibility in critical zones.
- **Simplified Assembly:** Only 2 connectors needed for the entire system, reducing tool complexity and speeding up assembly.
- **Reduced Leakage Risk:** Two connectors for the whole system eliminate leakage issues and related downtimes.

# Technical Specification



## 01

### Material

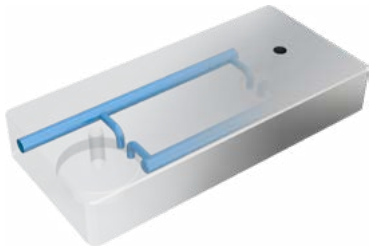
- iTerm® Water Distribution Plates are made using forged or rolled tool steel blocks produced in EU.
- Most often used grades are 1.2083/420, 1.2343/H11, 1.2344/H13.
- Based on specific customer needs, other steel grades can be used.

## 02

### Delivery condition

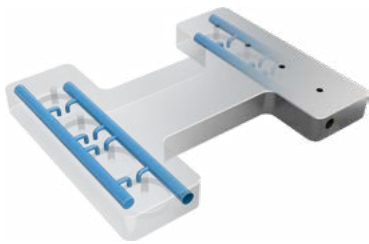
- Heat treated
- Hardness: 34 - 52 HRC
- Machined to final dimension or blank

# 03 Model Types



**I-SHAPED**

---



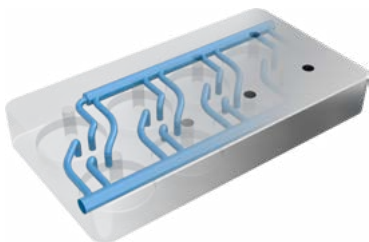
**H-SHAPED**

---



**T-SHAPED**

---



**RECTANGULAR**

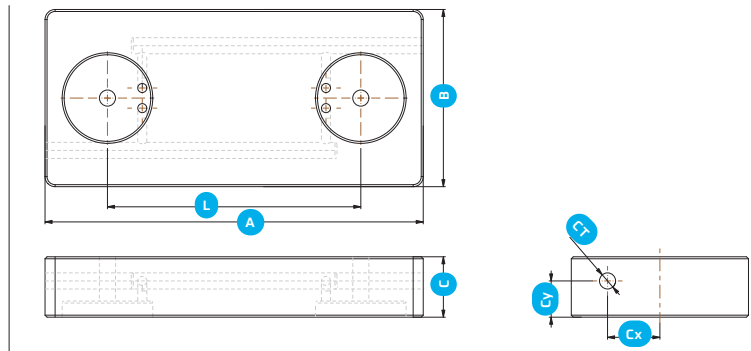
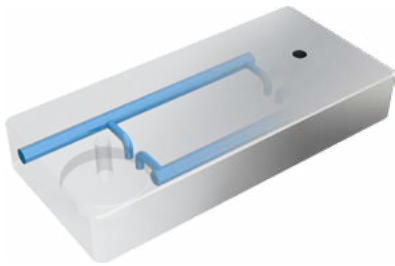


## I-shaped water distribution plates

### 04 Dimensional Parameters

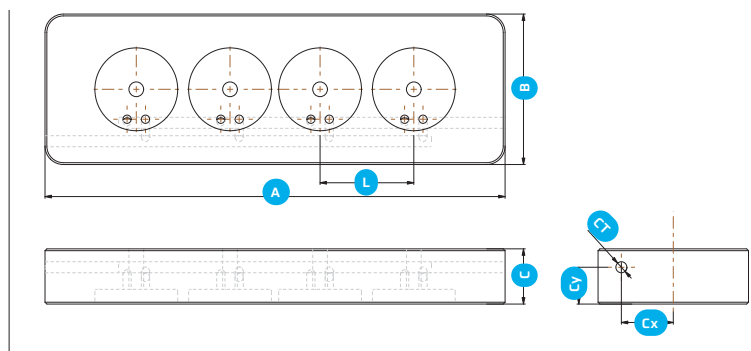
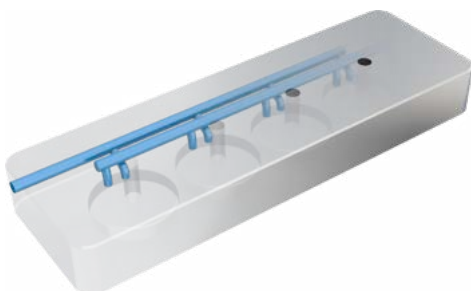
### I-SHAPED

#### 1 × 2 SPLIT



A	B	C	L-distance between nozzles	CT	Cx	Cy
160-360	80-160	20-60	100-150	1/4" NPT-5/8" NPT or G1/4"-G1"	0-60	10-50

#### 1 × 4 SPLIT

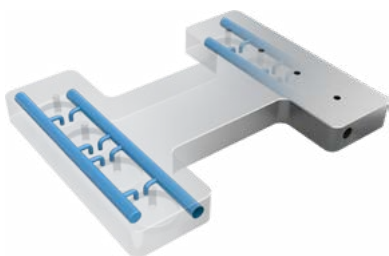


A	B	C	L-distance between nozzles	CT	Cx	Cy
160-360	80-160	20-60	30-150	1/4" NPT-5/8" NPT or G1/4"-G1"	0-60	10-50

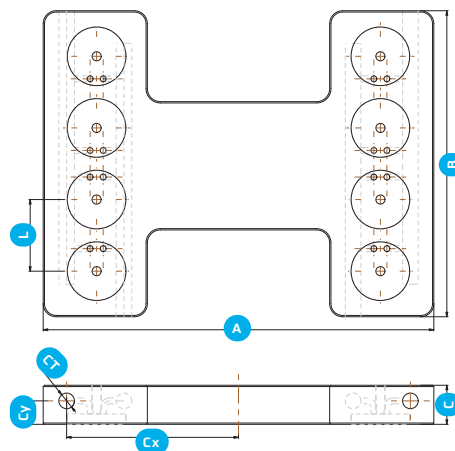
## H-Shaped water distribution plates

### 04 Dimensional Parameters

#### 2 × 4 SPLIT

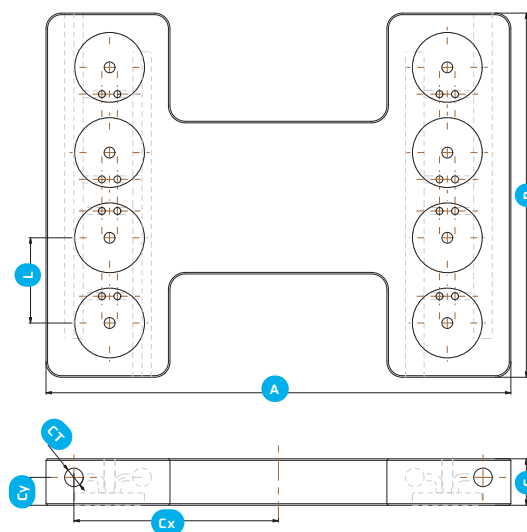
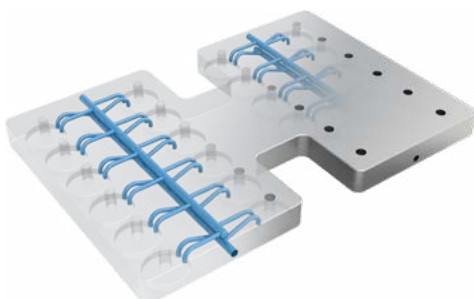


### H-SHAPED



A	B	C	L-distance between nozzles	CT	Cx	Cy
260-460	260-360	20-60	20-100	1/4" NPT-5/8" NPT or G1/4"-G1"	0-150	10-50

#### 4 × 6 SPLIT



A	B	C	L-distance between nozzles	CT	Cx	Cy
260-560	180-460	20-60	20-100	1/4" NPT-5/8" NPT or G1/4"-G1"	0-200	10-50

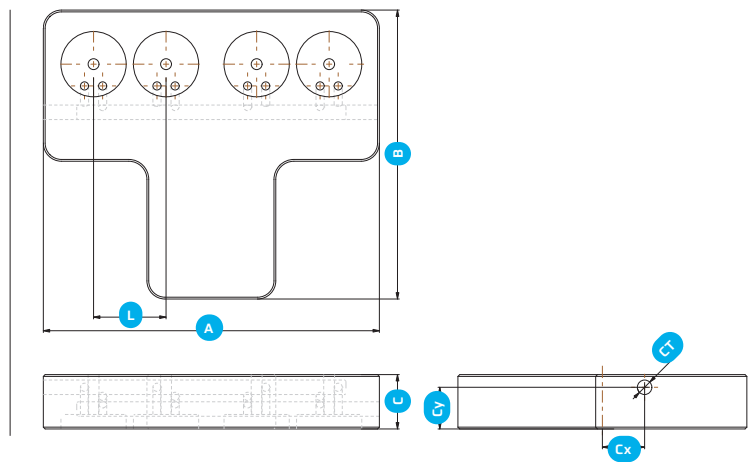
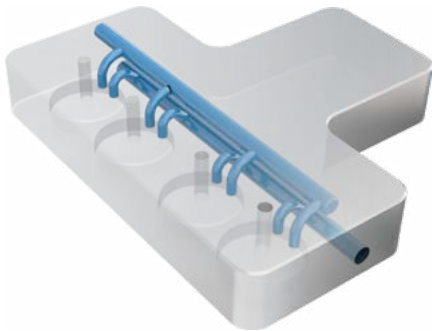
## T-Shaped water distribution plate



### 04 Dimensional Parameters

T-SHAPED

1 x 4 SPLIT



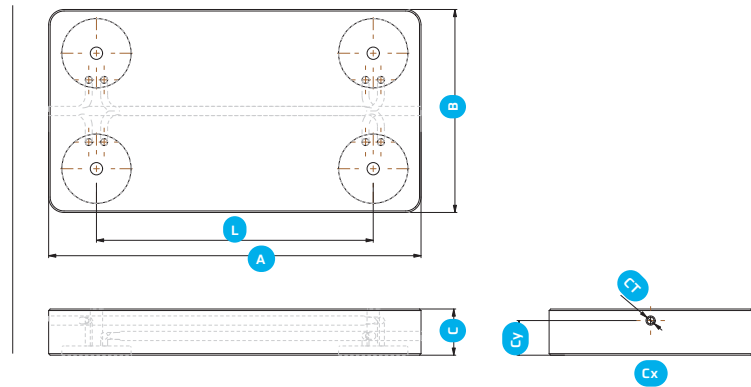
A	B	C	L-distance between nozzles	CT	Cx	Cy
160-320	260-360	20-60	30-150	1/4" NPT-5/8" NPT or G1/4"-G1"	0-150	10-50

## Rectangular water distribution plates

### 04 Dimensional Parameters

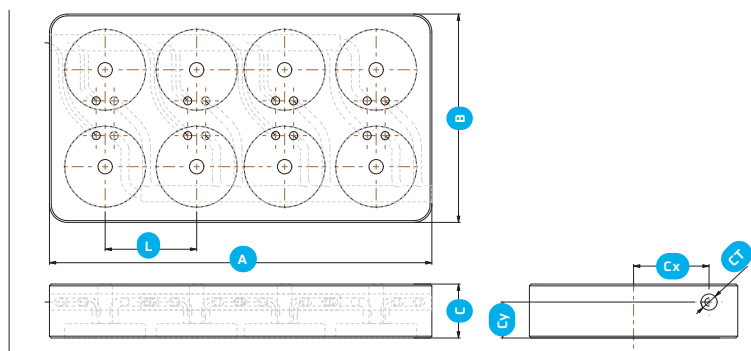
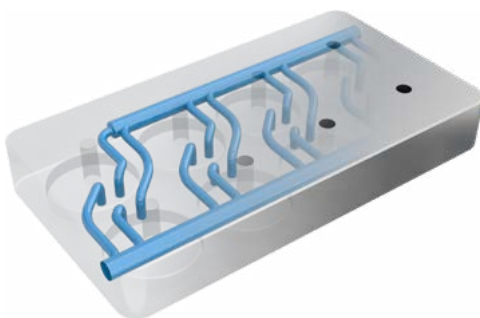
### RECTANGULAR

#### 2 x 2 SPLIT



A	B	C	L-distance between nozzles	CT	Cx	Cy
160-360	260-360	20-60	20-100	1/4" NPT-5/8" NPT or G1/4"-G1"	0-150	10-50

#### 2 x 4 SPLIT



A	B	C	L-distance between nozzles	CT	Cx	Cy
160-460	260-360	20-60	20-100	1/4" NPT-5/8" NPT or G1/4"-G1"	0-150	10-50

# Case Studies



# Gate insert

## The customer

**Cosmetic packaging**

## The challenge

**Scrap rate decrease and part surface quality**

## HTS solution

**iTherm® Gate insert**

## Outcome

**14% scrap rate decrease**

# 01 Case study overview

## Cycle time cosmetics packaging

Our customer that works in packaging industry was trying to improve the following areas:

- Cycle time
- Scrap rate
- Moulded product surface blush

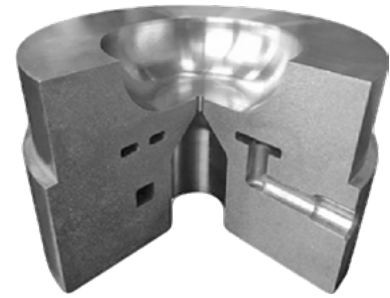
Instead of using a conventional gate insert, they have decided to use the iTherm® Gate Insert.



Conventional



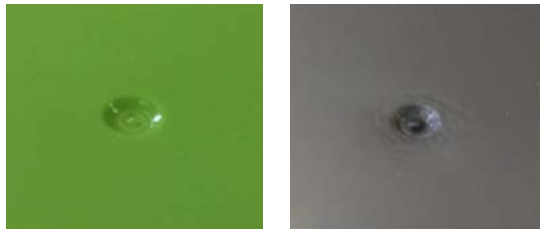
iTherm®



# 02 Results/conclusion

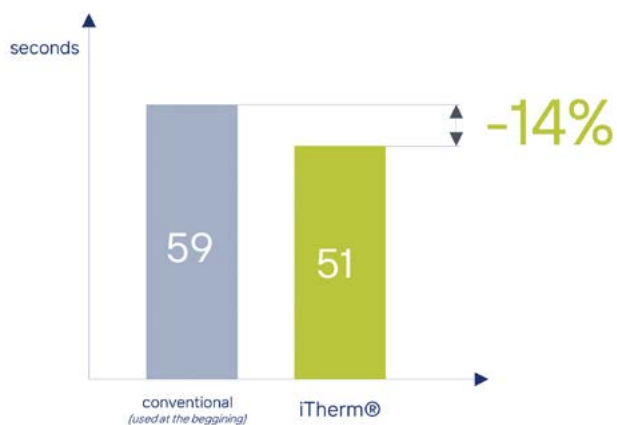
Using iTherm® resulted in improved surface quality of the moulded part (gate blush).

Gate blush comparison



Customer also increased its productivity due to shorter cycle time, and decreased the reject rate, from 12% to 4%

Cycle time comparison



# Sprue bush

## The customer

***DENSO***

## The challenge

**Slow Sprue Cooling rate**

## HTS solution

**iTherm<sup>®</sup> Sprue Bush**

## Outcome

**14% faster cooling rate**

# 01 Case study overview

## Cycle time automotive

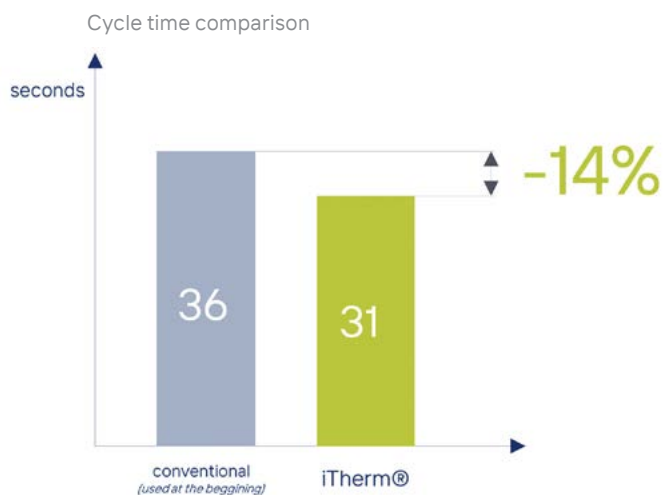
Our customer Denso needed to improve the performance of sprue bushing on one of the IM which operates on a cold runner system with 4x cavities and produces thin parts for dashboard components.

Steel made sprue without conformal cooling was limiting the cycle time improvement, as it was not cooling down quick enough.



# 02 Results/conclusion

Using iTherm® Sprue Bush resulted in substantially shorter cycle time.



# Mould insert

## The customer

**Caps & closures producer**

## The challenge

**More uniform cooling of the insert surface**

## HTS solution

**iTherm<sup>®</sup> Mould Insert**

## Outcome

**26% lower surface temperature**

## 01 Case study overview

More uniform cooling of the working surface

Our customer that produces closures was trying to prevent thermal warping on the top surface and avoid leakage.

We engineered an iTherm® insert with specially designed cooling to address the ununiform temperature on the working surface of the insert.



Conventional

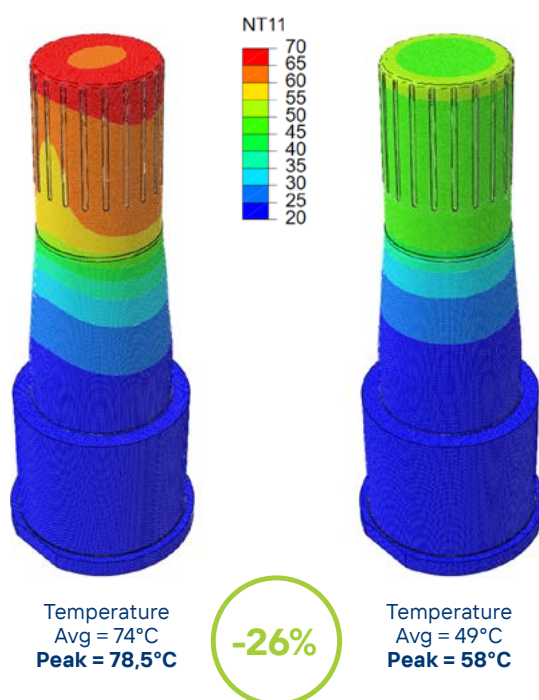


iTherm®



## 02 Results/conclusion

Using iTherm® resulted in more uniform temperature and 26% lower average temperature of insert's working surface.









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