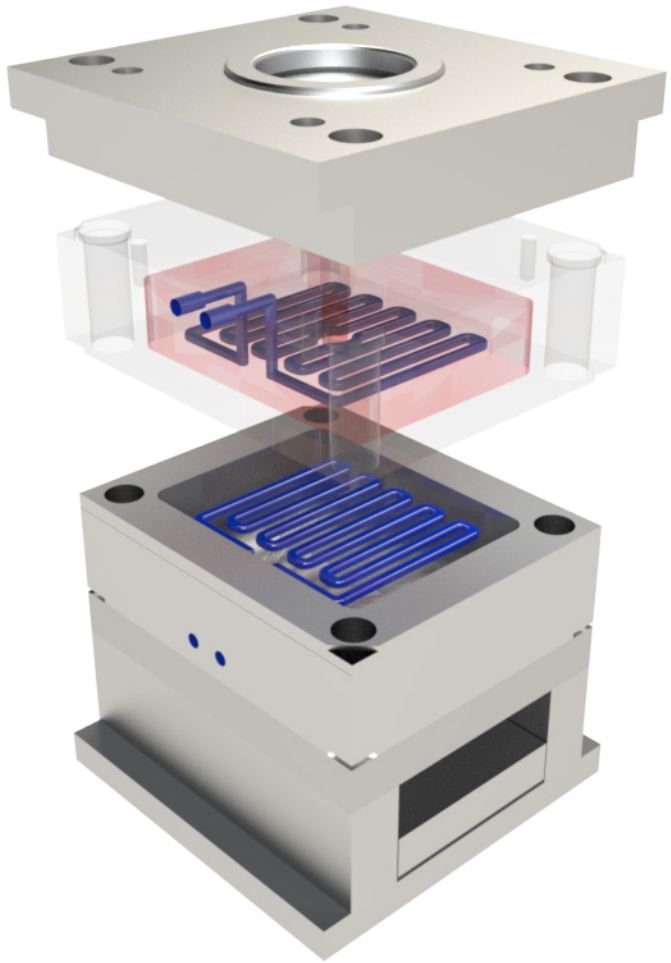
iTherm® Tool Plates

PRODUCT DESCRIPTION

1 DESCRIPTION

iTherm® Tool Plate is engineered with an Integrated Cooling Circuit, and produced with advanced Additive Manufacturing technologies, for maximum temperature homogeneity and high cooling effectiveness of the working surface, with the purpose to influence production cycle time and productivity. Cooling Power of the plate can be selected based on application requirements.

iTherm® Tool Plate comes in selected standard dimensions A x B x H. A selection of material and hardness is possible, among other parameters that define the functionality of the iTherm® Tool Plate.



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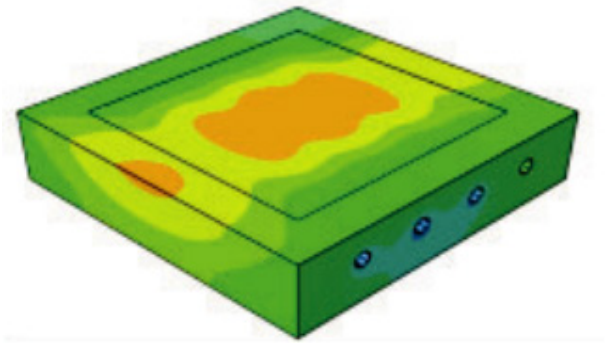
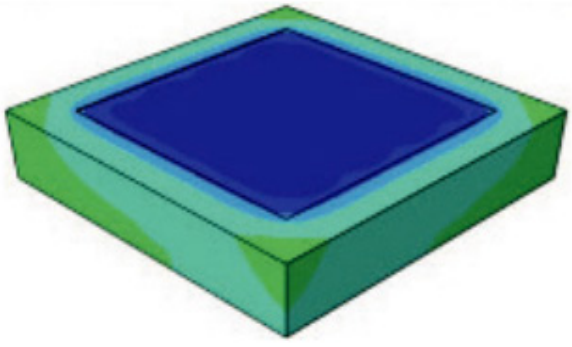
2 MAIN ADVANTAGES

- iTherm® Tool Plate is manufactured with an Integrated Cooling Circuit, therefore no cooling system engineering, drilling and tapping is required (this means at the plate interior there is a prefabricated network of cooling channels that form an effective cooling system, the plate exterior is the same as a conventional tool plate with ground surface finish)
- The plate is manufactured as a tool-steel monoblock with only two connectors for cooling water IN and OUT at the side of the plate, so no leakage is possible
- iTherm® Tool Plates are designed for highest temperature homogeneity of the working surface, see figure below
- Cooling power of the plate can be selected depending on desired process parameters and plastics specifications
- Selection of a variety cooling arrangements is possible (Linear, Round). One can define additional material stock to accommodate different part geometry, as well as type of Sprue / Gate Bushing, or even a hot runner nozzle
- A custom design of cooling system is also possible, just click Custom Cooling Solution and drop us your preferred design



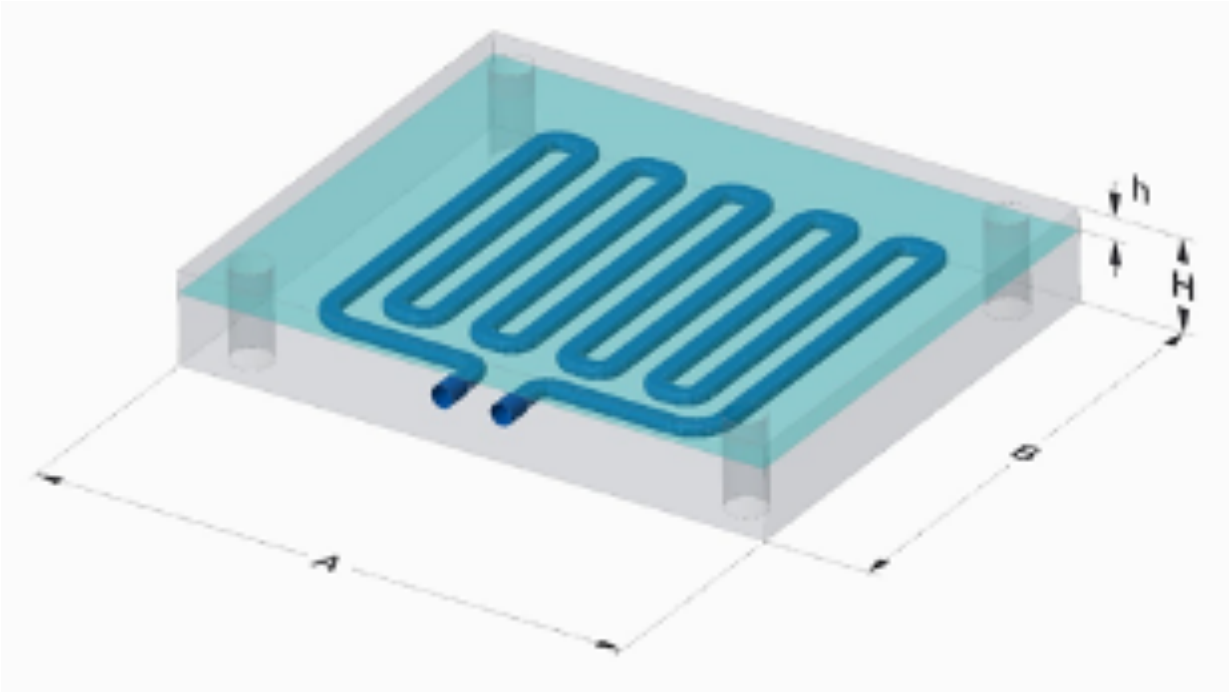
Temperature distribution at working surface of a tool plate with conventional cooling system (hole drilling technology)



Temperature distribution at working surface of iTherm® Tool Insert

iTherm® Tool Plates

TECHNICAL SPECIFICATIONS



DESIGN PARAMETER	SELECTION RANGE
Dimension A x B	
iTherm® Tool Inserts are available in selected standard dimensions	Dimension range is between 126x126mm and 496x496mm.
Plate thickness, H	
H is the overall plate thickness. Depending on selected H, customer is given the information on availability of extra material stock on the insert, h.	Available H depends on plate dimension, and range from 16mm up to 60mm.
Thickness Parameter, h	
Parameter h defines maximum stock of material needed for positioning of product. Its maximum cavity / core depth. Parameter is vital for correct positioning of cooling system.	Parameter h is available in different dimensions according the plate thickness H and minimum height needed for positioning of cooling system. Therefore, parameter h varies according to plate thickness and plate dimension.

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DESIGN PARAMETER	SELECTION RANGE
Sprue	
Cooling system in iTherm® is optionally designed to include the sprue, which is always positioned in the plate center. The Linear and Round design are modified if the sprue option is selected.	For selection of: COLD sprue, the cooling system is designed to allow maximum sprue opening diameter 55mm. HOT sprue, the cooling system is designed such that allows positioning of desired hot runner nozzle type.
Material	
Different tool steel materials are currently available	
Hardness	
Desired hardness of the insert material can be individually selected.	Available hardness from 40 to 52HRC
Cooling System Type	
Cooling system with two different design arrangements is available. Dimension of cooling channels and overall cooling surface dimension depends on the insert size selected.	Design available: Linear design with dimension of the cooling surface covered, a x b; Round design with diameter of cooling surface, D;
Cooling Power definition	
By inserting 4 process parameters, one can define its cycle time and Cooling Power. Calculator is a novel method for simple determination of desired Cooling Power and consequently also cycle time.	Cooling power and cycle time are defined by following parameters: plastics type, plastics thickness (tp), eject temperature (Te) and working surface temperature of tool (Tw).

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DESIGN PARAMETER	SELECTION RANGE
Connectors	
Connectors for cooling water are determined based on plate dimensions and system cooling power.	As Inserts are pre-machined, connection holes comes in a diameter of cooling system requirements. Threads can be added at final machining process.

3 CUSTOM ORDER

iTherm® Tool Plate can be ordered with custom built cooling system. Select the plate using the plate selector (A,B, material, hardness), and select Custom at Type of cooling system path shape, to provide your individual cooling system design (2D design) and specify thickness parameters h.

On special request non-standard dimension plates can be manufactured, also with Individual 3D cooling circuits. Contact our sales team for information.

iTherm® Tool Plates

Do you need a slightly different design or component?

We got you covered.

Contact our die casting professionals and we will do our best to match your requirements. You can count on us to support you through each step of preformance improvement.

sales@hts-ic.com