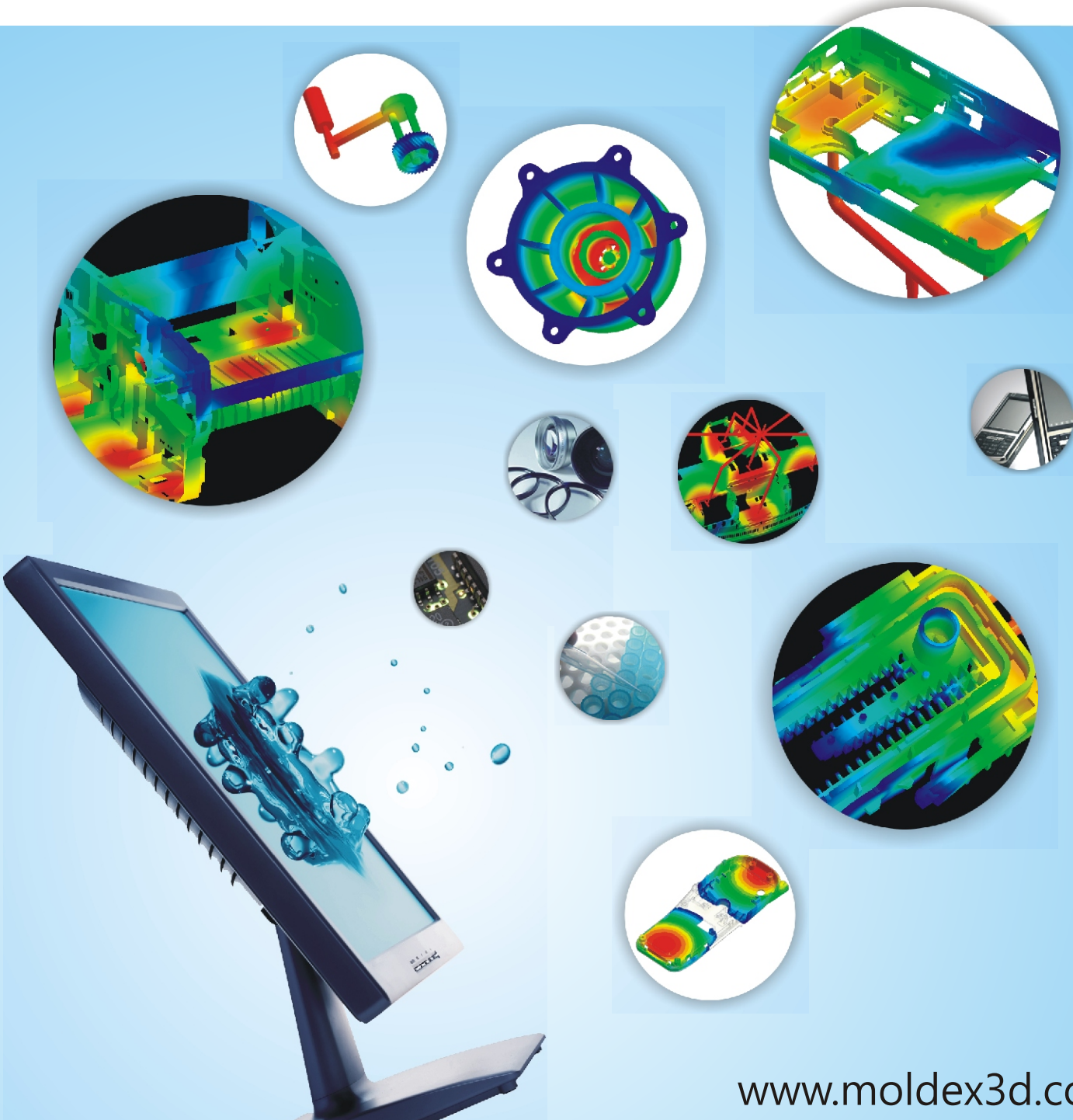


# Moldex3D<sup>®</sup>

True 3D CAE for Injection Molding

## Leadership in True 3D CAE Technology



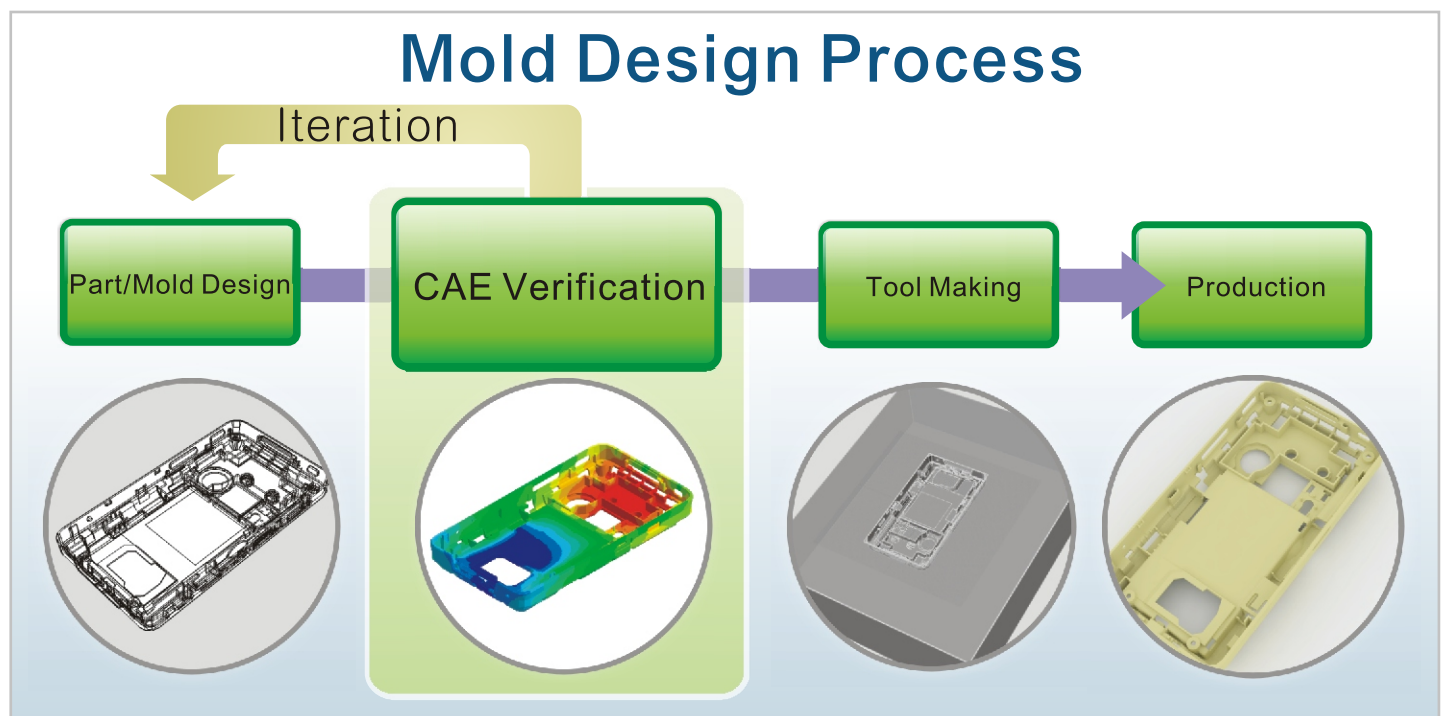
[www.moldex3d.com](http://www.moldex3d.com)

# Your Core Competitiveness

Moldex3D is the world's leading True 3D CAE product for the plastics injection molding. With the best-in class analysis technology, Moldex3D helps you simulate versatile injection molding processes to optimize product design and manufacturability, shorten time- to-market, and maximize product Return of Investment (ROI).

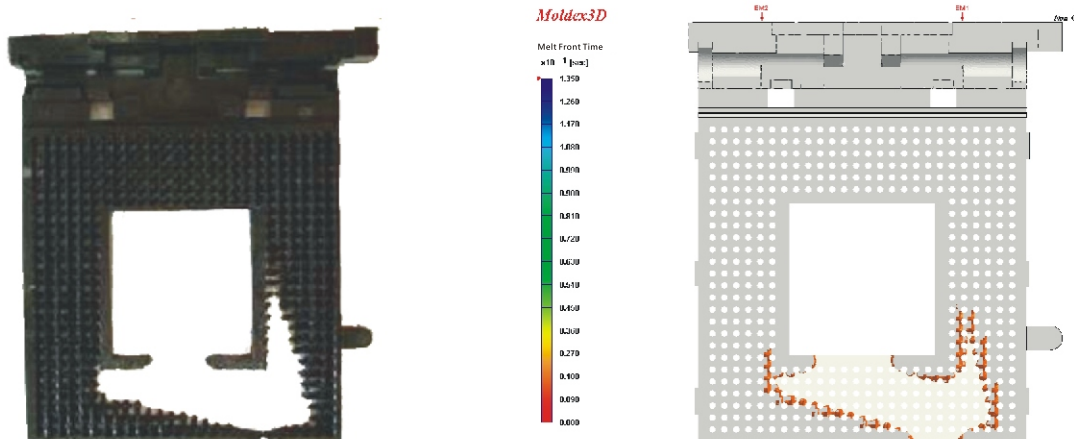
Moldex3D CAE Software provides the technology you need if you are fed up with countless trial-and-errors, which contribute greatly to the waste of time, energy and money during moldmaking process.

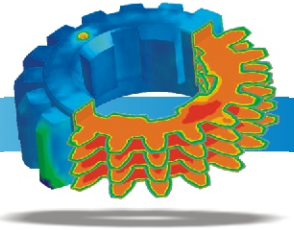
A typical scenario continues to occur in mold design : the product designer has the initial idea on product. However, the mold designer has to modify the design again and again because the optimal result is too difficult to reach using conventional trial-and-error approach; in which case the verification of the mold can be done only when the mold is fully finished. We all agree that this production process is costly!



Now it's time to advance from such inefficiency. Moldex3D solutions help simulate and verify your part/mold designs before actual production. Design revisions and optimizations are now can be done much easier and faster.

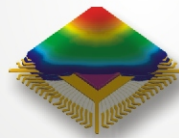
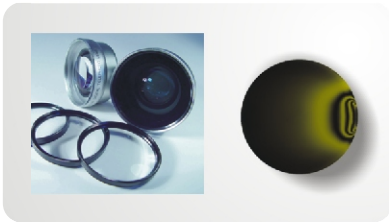
Moldex3D not only saves your precious money and labor, but also time-wasting mold trials.



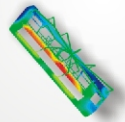


## Semiconductor Industry

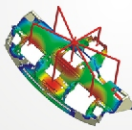
### Photoelectric products



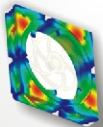
## Household Electrical Appliances



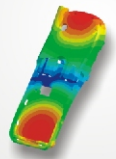
## Automotive Industry



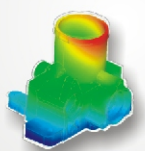
## Computer Component



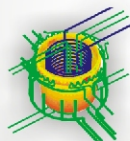
## Communications Products



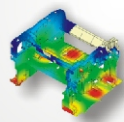
## Key Components



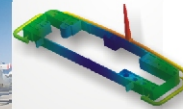
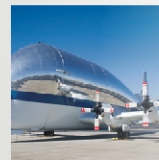
## Biomedical Technology



## Consumer Electronics



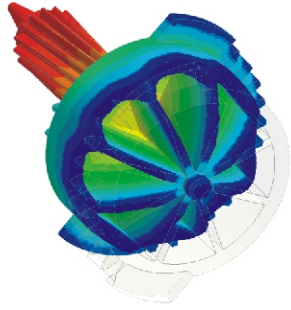
## Aerospace Industry





# Unique and Surpassing

Moldex3D pioneering 3D kernel will support and ensure your design with confidence. Time-to-market is getting less and less in global competition. Moldex3D always catches the latest IT innovation. Empowered by our parallel computing, calculations in Moldex3D can be speeded up per your computing power and keeps your works leading the way. High quality analysis can even be done during a coffee break!

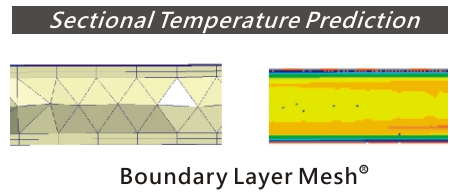


## Leadership in True 3D CAE Technology

With the best-in-class 3D technology based on solid hybrid mesh and High-Performance Finite Volume Method (HPFVM), Moldex3D allows you to analyze thick parts, those that have extreme thickness changes from Thin to thick, those that are difficult to define a proper mid-plane model, or those with very complicated part geometry. By considering complete physical equations, Moldex3D brings up the amazing accuracy for the plastics industry.

## Superior 3D Meshing Engine

Moldex3D is equipped with an automatic 3D mesh generation engine to help users to work directly through solid CAD model to true 3D simulations and save mass working-hours in mesh preparation. The advanced functionalities allow users to efficiently import/patch/edit the CAD model, layout the runner and cooling system, and prepare the mesh for various analyses. To capture the strong viscous heating effects, high resolution 3D mesh is crucial. The proprietary Boundary Layer Mesh (BLM) feature makes it achievable and straightforward to prepare high quality mesh for any complicated 3D geometry. BLM enhances the solver accuracy in viscous heating and pressure, thus improves warpage prediction significantly.

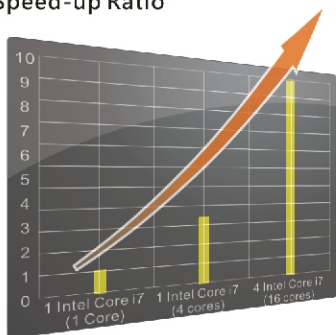


## High Performance Parallel Computing

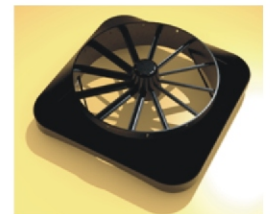
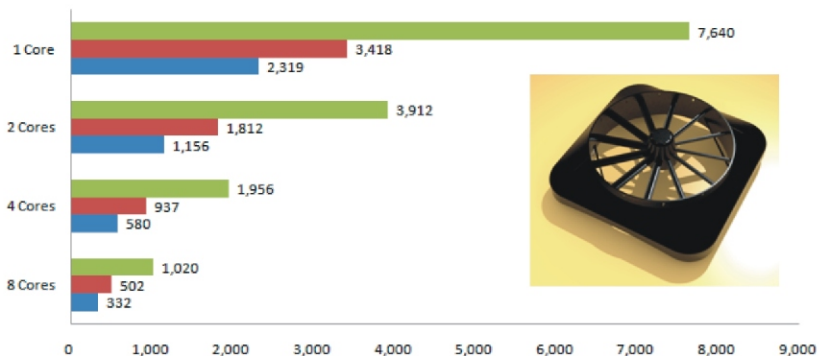
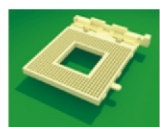
Moldex3D, the leading professional CAE for injection molding, is the ONLY one offering the entire parallel computing support in Flow, Pack, Cool, Warp, Fiber, MCM, and so on. By utilizing the strength of multi-Core or multi-CPU, the time required for analysis is greatly shortened. For example, the computing efficiency is enhanced up to fifty to eighty percent on general dual-core PC, even much more. Moldex3D parallel computing lowers your cost and contributes to outstanding performance.

Moldex3D R9.1 3D-Flow Parallel Computing Performance with Intel Core i7 CPU-Time(sec)

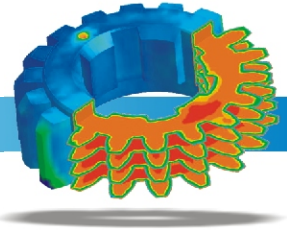
Speed-up Ratio



**Hardware**  
 - 4-nodes PC  
 - Intel Core i7 940 CPU  
 - 12 GB DDR3 RAM  
 - Gigabit network

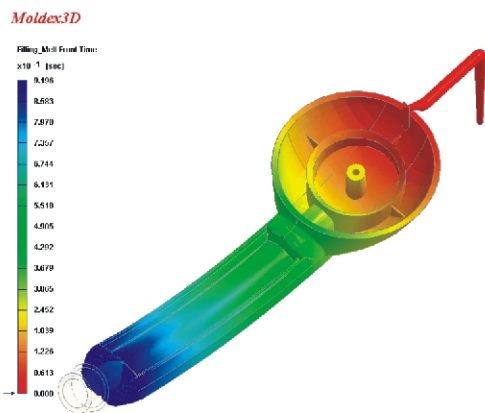


	8 Cores	4 Cores	2 Cores	1 Core
Car Fan(elements : 1,422,416)	1,020	1,956	3,912	7,640
Phone Cover(elements : 1,006,448)	502	937	1,812	3,418
CPU Socket(elements : 713,558)	332	580	1,156	2,319



## Moldex3D-Flow

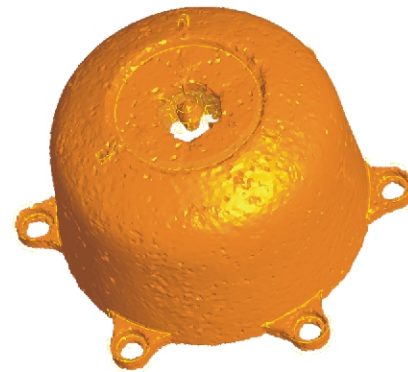
Moldex3D-Flow simulates the entire filling process of injection molding for thermoplastic materials. With the power of Moldex3D-Flow, you can clearly understand how the solid melt flow progresses, accurately identify where solid weld surfaces are, detect short shot problems, predict air trap location, etc. All historical data at any specific region can be derived for in-depth investigation.



3D Melt Front

## Moldex3D-Pack

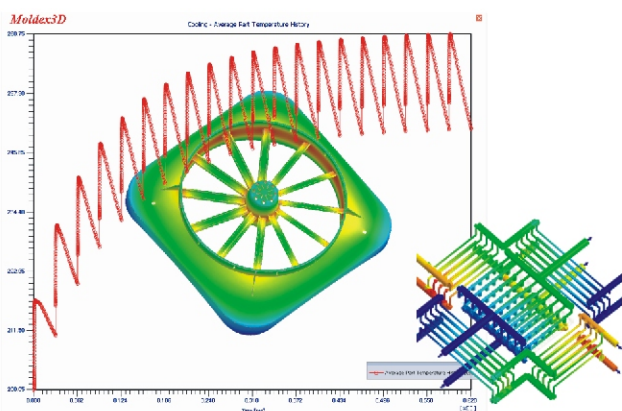
Moldex3D-Pack incorporates material compressibility (PVT change) in its full 3D Navier-Stokes solver to account for the density variation and melt flow behaviors in packing process for thermoplastic materials. Using Moldex3D-Pack, it can help you to precisely determine gate freeze time, efficient packing time and proper packing pressure to minimize areas of high volumetric shrinkage.



3D Volumetric Shrinkage

## Moldex3D-Cool

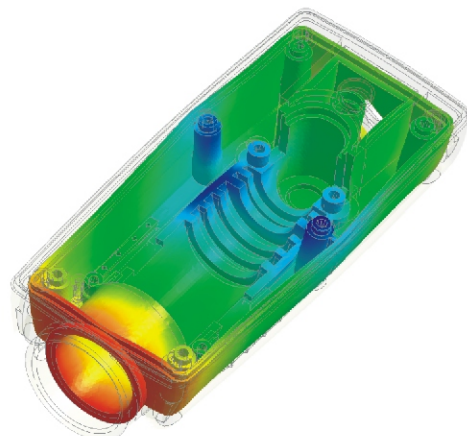
Moldex3D-Cool is a true 3D simulation tool to analyze the mold cooling process. Based on true 3D technology, it is an efficient tool to accurately analyze the mold temperature, the efficiency of cooling channel layout, and the required cooling time. Furthermore, advanced transient cool function supports the simulation of variotherm process to simulate the results of deliberately using higher mold temperature during filling and packing and then dropping the temperature for the remainder of cycle.



3D Transient-cool Technology

## Moldex3D-Warp

Moldex3D-Warp provides users a true 3D simulation tool to anatomize the causes of shrinkage and warpage and further control these defects before mold is built. With Solid-Warp, users can easily and efficiently improve the part quality and optimize design. For fiber-filled material, Solid-Warp incorporates fiber composite theories and the fiber orientation results from Solid-Fiber to predict its anisotropic shrinkage and warpage.



3D Warpage Prediction

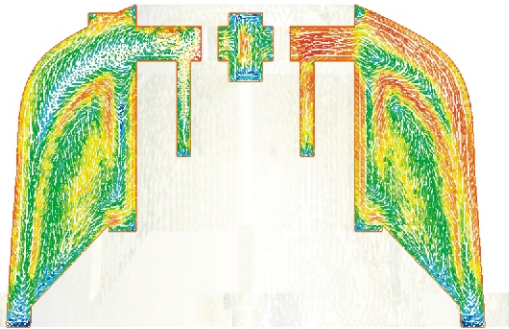


# Customized Add-ons

Moldex3D advanced analysis modules provide comprehensive and specific capabilities to help users to identify, solve, and optimize plastics parts and mold designs. The concerns of your specific process will be analyzed delicately to reach perfection.

## Moldex3D-Fiber

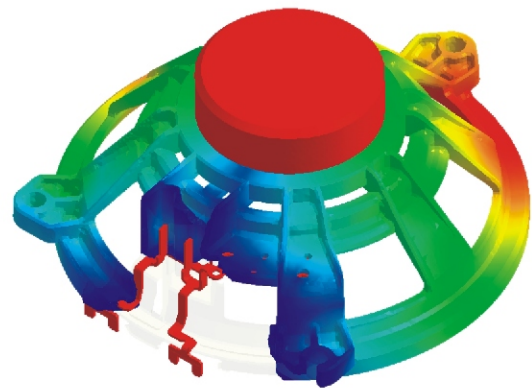
Moldex3D-Fiber accurately simulates the 3D fiber orientation in mold-filling process and further calculates the process-induced anisotropic thermo-mechanical properties of fiber-reinforced plastic part. With Moldex3D-Fiber, users can understand the 3D orientation of fiber and further control the anisotropic shrinkage of fiber-reinforced part. The process-induced anisotropic shrinkage and mechanical properties due to fiber orientation are therefore taken into account for accurate warpage prediction.



3D Fiber Orientation

## Moldex3D-MCM

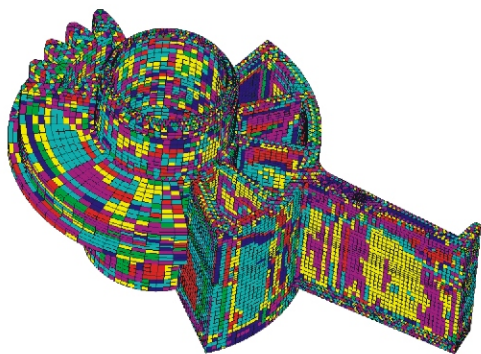
Multi-component molding is one of the greatest methods to diversify the development of the plastic molded product fabrication. Based on true 3D technology, explicit analysis capabilities of Moldex3D-MCM helps you to predict the warpage due to property mismatch of different materials, prolonged cooling time and unsymmetrical shrinkage behavior in two-color or overmolding processes...etc.



3D MCM Process Analysis

## Moldex3D-I2

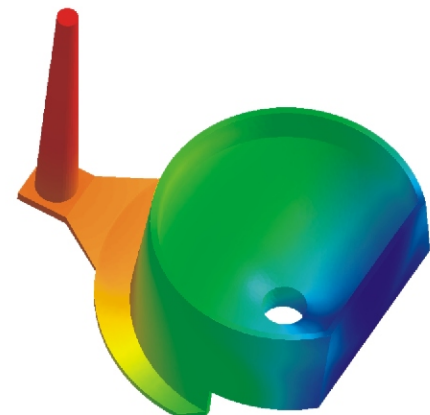
Moldex3D-I2 is a series of interface modules to integrate Moldex3D and most popular commercial structural CAE software, including ABAQUS, ANSYS, MSC.Nastran, NENastran, LS-Dyna, Marc and DigiMat. These modules help users to introduce the process-induced properties, such as fiber orientation or residual stress, into the above-mentioned software to evaluate the impact of the molding process on the structural performance of the part.



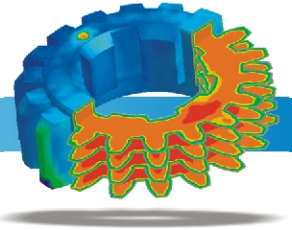
Material Reduction Technology

## Moldex3D-RIM

Moldex3D-RIM module is to analyze the reactive injection molding process for thermoset materials. The typical applications include injection molding of unsaturated polyester, polyurethane, liquid silicon rubber, epoxy molding compound, etc. It is capable of simulating cavity filling and curing, part warpage, fiber orientation, multi-component process, etc.

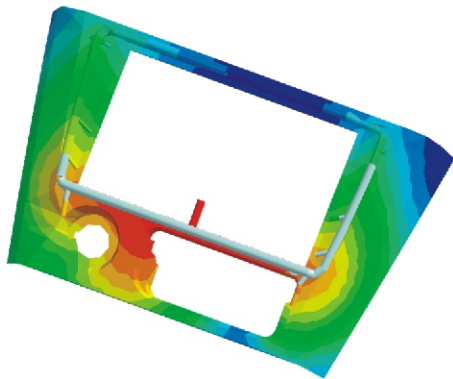


3D Reactive Injection Molding Simulation



## Moldex3D-GasIn

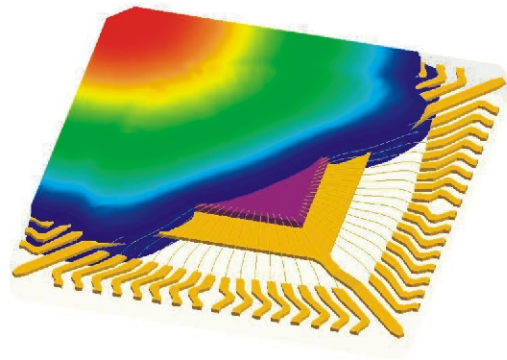
Moldex3D-GasIn provides a simulation tool to analyze the dynamics of gas-assisted injection molding process. It is capable of simulating the plastics filling and packing, gas injection, mold cooling, fiber orientation and part warpage. With complete analysis capabilities, it allows users to evaluate the gas flow front, gas blow-through, final wall thickness, part warpage, and to further optimize gas entrance locations, gas channel layout, gas injection timing and part design.



Gas-assisted Injection Molding Simulation

## Moldex3D-IC Package

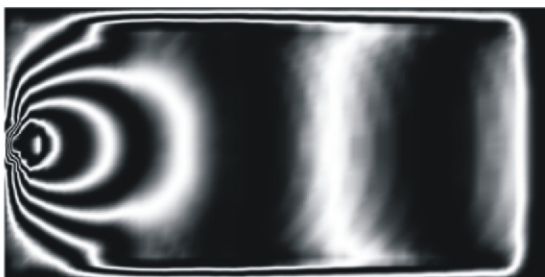
Moldex3D-IC Package provides a complete true 3D solution for IC & LED package process, including filling and curing analysis, warpage prediction, wire sweep, paddle shift simulation, conversion rate etc. Highly accurate solvers aided by Moldex3D unique meshing capability enable users to analyze and further optimize the IC & LED layout design and yield rate during production.



Chip Encapsulation & Wire Sweep Simulation

## Moldex3D-Optics

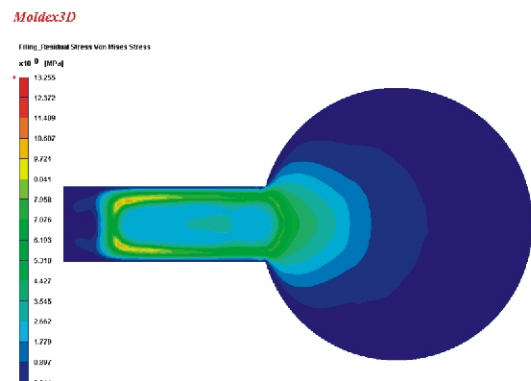
Based on three-dimensional filling analysis and viscoelastic analysis, Moldex3D-OPTICS can precisely predict the birefringence caused by complicated process-induced anisotropy in the space. Moreover, this module not only predicts birefringence in each molding stage but also integrates the photo-elasticity to provide the retardation, fringed order and fringed pattern after a light passing through the part.



3D Optical Fringed Pattern

## Moldex3D-Viscoelasticity

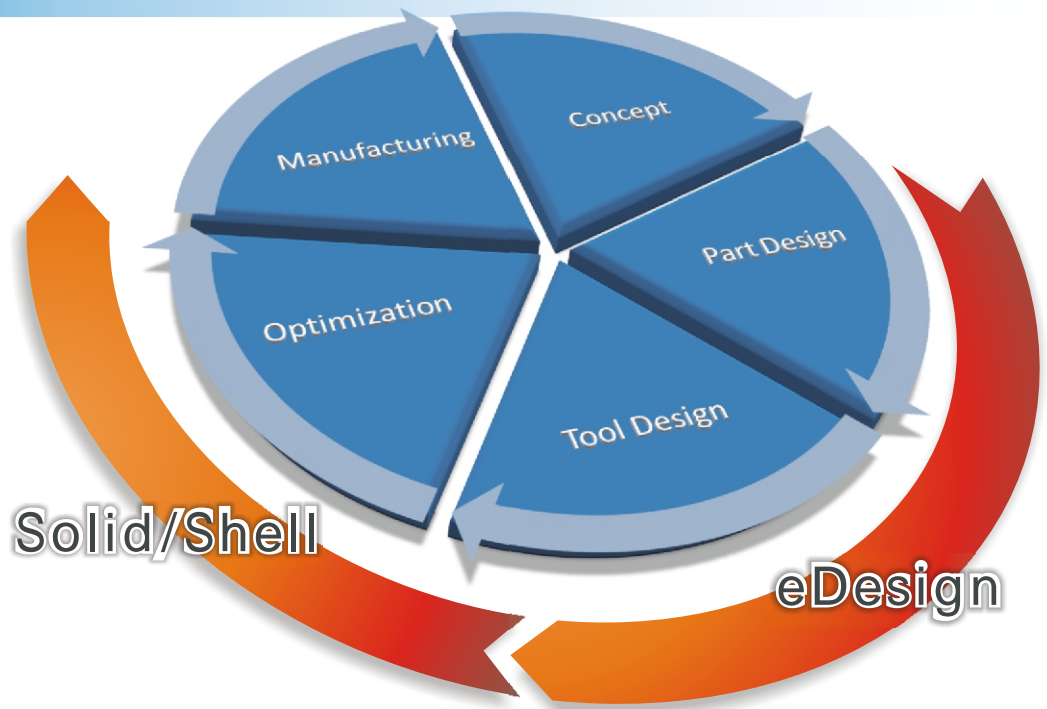
Plastic (Polymeric) fluids are often called viscoelastic fluids because they have both viscous and elastic properties. Moldex3D -Viscoelasticity includes this essential characteristic to effectively predict the flow-induced residual stress and prevent the potential design problem. Furthermore, this stress can also be applied to predict the optical properties and be taken into account in the warpage analysis.



3D Residual Stress Prediction

# Products & Modules

Moldex3D offers three major products to the plastic injection molding industry. The product lines include Moldex3D/Solid, Moldex3D/Shell and Moldex3D/eDesign. Moldex3D/Solid&Shell is an excellent tool for complicated part optimization. Moldex3D/eDesign provides designers easy and efficient 3D solution in product development.



## **Moldex3D/eDesign** *Powerful analysis assistant with quickly and iteratively verifying product design*

Powerful analysis assistant with quickly and iteratively verifying product design  
Moldex3D/eDesign is the cross generation true 3D technology which can not only satisfy the demands of designers, but also check the manufacturability of injection molded plastic part design. With intelligent hybrid meshing engine and best-in-class 3D technology, users can work directly through solid CAD model to true 3D simulations and reduce mass working-hours in mesh process. Interactive result display helps users to quickly check and optimize design.

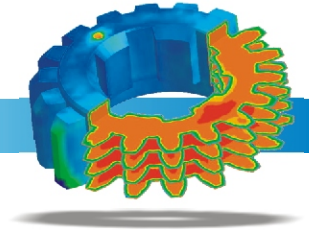
## **Moldex3D/Solid** *Leading 3D simulation solution for in-depth design verification and simulation*

Moldex3D/Solid is the world's leading true 3D simulation solution for in-depth design verification and troubleshooting. With the best-in-class 3D technology based on solid hybrid mesh and High-Performance Finite Volume Method (HPFVM), Moldex3D/Solid allows you to optimize product design and predict manufacturability.

## **Moldex3D/Shell** *Efficient and robust simulation tool for design validation and optimization*

Efficient and robust simulation tool for design validation and optimization  
Moldex3D/Shell is based on an efficient and robust 2.5D technology, which helps you to in-depth analyze and optimize the design of conventional parts. With the unique Fast Finite Element Method (FFEM) and meshing technologies, users can significantly decrease the mid-plane model preparation time and validate more design iterations.





Modules/Products	Moldex3D/Solid & Shell	Moldex3D/eDesign
<b>Thermoplastic</b>	Flow	●
	Pack	●
	Cool	●
	Warp	●
	Fiber	●
	Viscoelasticity	●
	Optics	●
	MCM	●
	GasIn	●
	ScrewPlus	●
	Expert	●
<b>Parallel Computing</b>	Multi-core PC	●
	Cluster System	●
<b>Pre/Post Process</b>	Mesh	●
	Designer	●
	Project	●
<b>Thermoset (RIM)</b>	Flow	●
	Cure	●
	Warp	●
	Fiber	●
	MCM	●
<b>CAE Interface</b>	I2*	●
<b>IC Encapsulation</b>	IC Package	●
<b>License Manager</b>	Standalone License	●
	Floating License	●

\* I2 modules include interface to ABAQUS, ANSYS, MSCNastran, NENastran, LSDyna, Marc and DigitMat.

\* System Requirements: 1. Microsoft Windows Vista, Windows XP Professional, Windows XP x64, Windows Server 2008.

2. Intel Core i7, Intel Core2Duo, Intel Pentium, Intel Xeon, Intel EM64T, AMD Athlon or AMD Opteron Based Processor.

3. 8 GB RAM or greater.

# Moldex3D Services

Committed to provide the advanced technologies and solution for industrial demands, Moldex3D has extended the worldwide sales and service network to provide local, immediate and professional service. Moldex3D presents the innovation technology to help customers streamline your design process, to shorten time-to-market, and maximize your R&D investment.

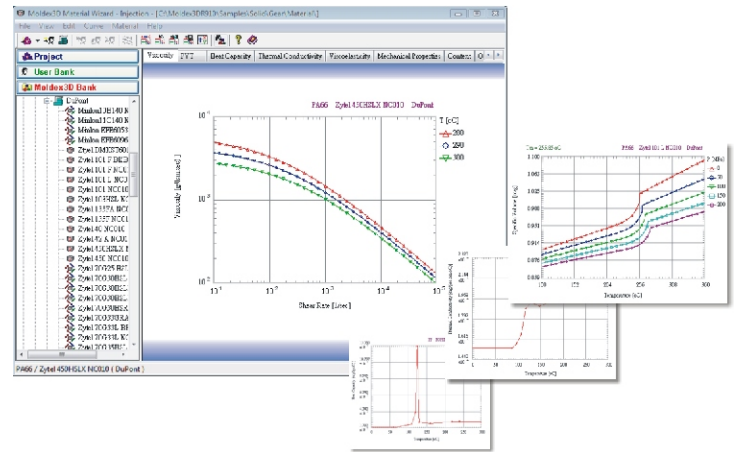


## Consulting Services

Moldex3D specializes in developing professional CAE for injection molding. With the complete understanding of CAE technologies, we know how to get the most out of CAE. Furthermore, Moldex3D cooperates with many solution providers, such as material suppliers, sensor/instrument suppliers...etc., to provide not just a CAE report, but a complete solution proposal to our customers. Up to now, Moldex3D has provided more than 100,000 consulting projects to worldwide customers.

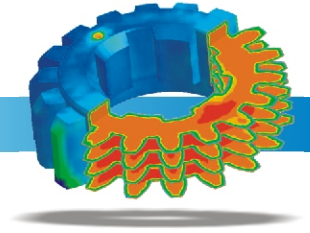
## Material Characterization

Moldex3D helps global users build their proprietary material database. According to common production needs, each company typically requires less than 10~15 grades of materials. Thus, it's generally very cost-effective to build a proprietary database for internal utilization. Furthermore, it's always highly recommended to have correct and accurate material data for reliable CAE analyses.



## Solution Partners





## Moldex3D Global Service Network



Moldex3D works with a network of professional resellers around the world. Our sales representatives specialize in utilizing Moldex3D offering key solution to streamline your part/tool development.

For a full listing of our worldwide service network, please log on to:  
<http://www.moldex3d.com>





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