

# Leadership in True 3D CAE Technology

**Moldex3D**  
MOLDING INNOVATION

PARTNERS

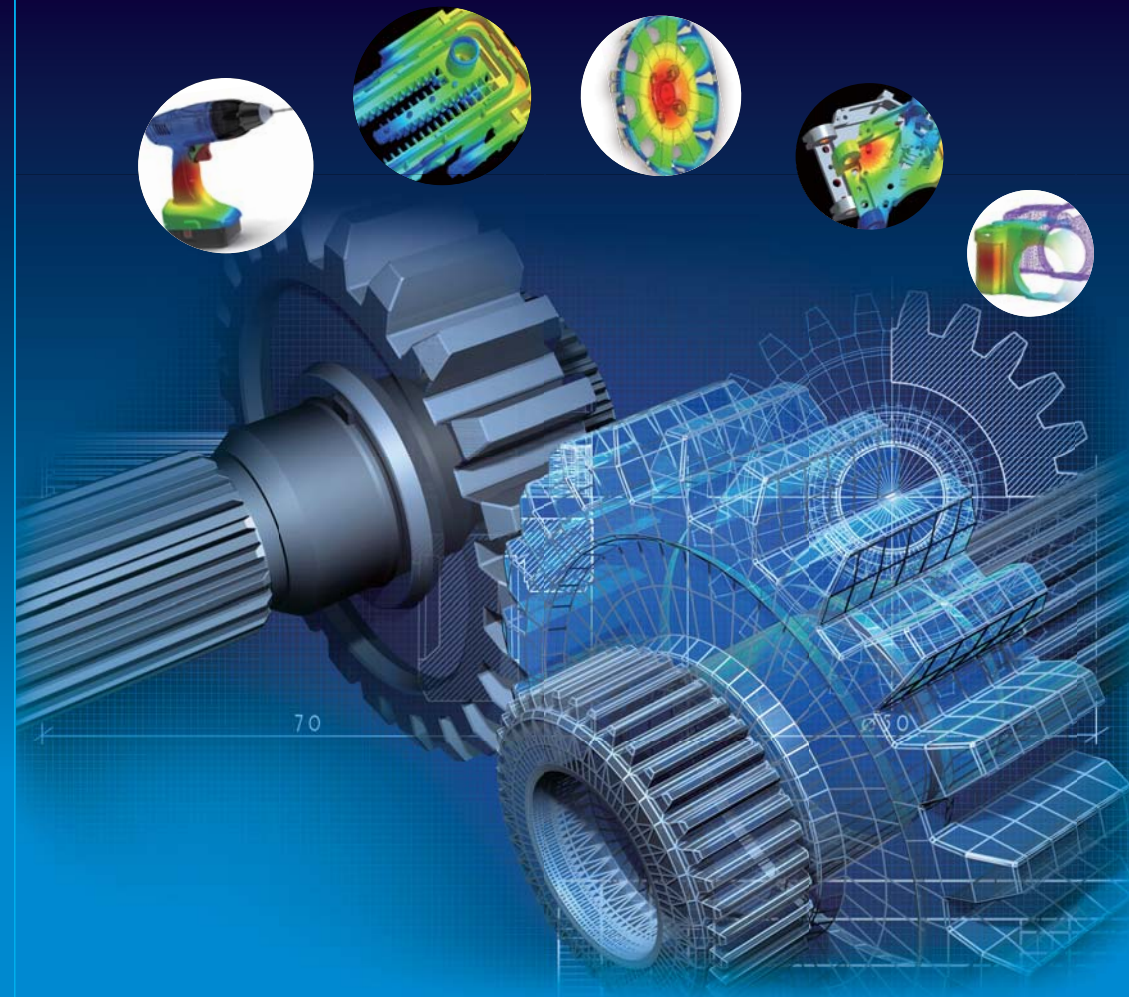


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## Your Core Competitiveness

Moldex3D helps you simulate versatile injection molding processes to optimize product designs, increase manufacturability, shorten time-to-market and maximize Return on Investment (ROI).

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

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

### Mold Design Process



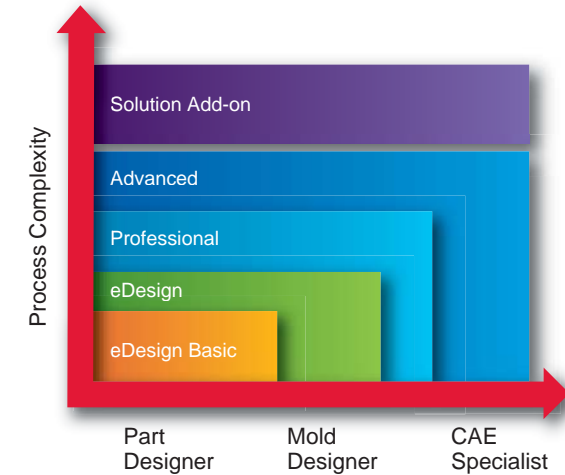
Now, it is time to advance from such inefficiency. Moldex3D's solutions help users simulate and validate their part and mold designs before actual production. Design revisions and optimizations can be done much more quickly and more easily. Moldex3D not only saves your precious money and labor but also avoids time-wasting mold trials.



Moldex3D provides accurate simulations of flow patterns for plastic parts even with complicated geometry.

## Pioneering True 3D CAE Solutions

With the technology based on solid hybrid meshes and High-Performance Finite Volume Method (HPFVM), Moldex3D brings a complete suite of professional simulation tools for plastic injection molded products. It helps users verify part and mold designs and predict potential blemishes. Therefore, users can optimize product designs, increase manufacturability and cost down.



### Intelligent Pre-Processing Workflow

- Superior Automatic 3D Mesh Engine (eDesign)**  
 Moldex3D eDesign helps users work directly through CAD models to True 3D simulations, saving working hours in mesh preparation. With its intelligent wizards, users can easily build gates, feeding systems and cooling channels. Advanced functionalities also allow users to import, patch and edit CAD models for more accurate injection molding analyses.
- CAD-Embedded Pre-Processing (eDesignSYNC)**  
 Moldex3D eDesignSYNC, integrated with mainstream CAD software, including SolidWorks, NX and Creo Parametric, provides CAD users an easy access to generating meshes directly in their familiar CAD/CAM environments. Users now can synchronize design changes and validate product designs more efficiently in the early design phase.
- High Resolution 3D Mesh Technology (BLM)**  
 Aimed to delicate CAD models with specific features, the proprietary Boundary Layer Mesh (BLM) makes it achievable and straightforward to generate high-quality meshes for complicated 3D geometry. BLM also highly enhances the solver accuracy for viscous heating and pressure simulations and significantly improves warpage prediction.



### High-Performance Parallel Processing

By utilizing the strength of multi-Core and multi-CPU, Moldex3D's unique parallel processing capability enables users to greatly shorten the time required for injection molding simulations and enhances the computing efficiency by several times. Moldex3D parallel processing lowers your time costs and contributes to outstanding performance.

## Unique and Surpassing

Moldex3D offers the easy-to-use interface with accurate computations that help users verify complex part and mold designs more efficiently. Optimization can be achieved by improving the quality of designs depending on comprehensive analysis results.

### Professional Industrial Solutions

- Basic Flow Simulation
- Precision Molding
- Micromolding
- Hot Runner Optimization
- Rapid Heating Cooling Molding (RHCM)
- Conformal Cooling
- Multi-shot, Insert, Overmolding (MCM)
- In-Mold Decoration (IMD)
- Injection Compression Molding
- Optical Molding
- Gas-Assisted Injection Molding
- Water-Assisted Injection Molding
- Metal/Ceramic Powder Injection Molding (MIM/CIM)
- RIM Professional Simulation (RIM-Master)
- Encapsulation Molding

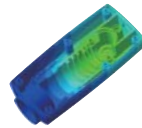
### Flow

Moldex3D Flow enables users to simulate the filling patterns of injection molded parts, predict potential manufacturing problems, such as weld lines, venting, air traps, short shots or sink marks, and validate gate contributions for flow balance.



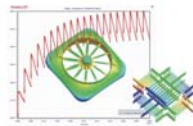
### Pack

Moldex3D Pack incorporates the material compressibility (PVT changes) to fully simulate the density variation and melt flow behaviors during the packing process. It helps users precisely determine gate freeze time, efficient packing time and packing pressure, and warpage prediction to minimize high volumetric shrinkage.



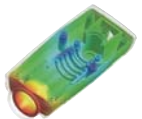
### Cool

Moldex3D Cool helps improve cooling efficiency by optimizing cooling circuit designs, especially for complicated plastic parts. Furthermore, its unique transient cooling analysis capability brings a more insightful analysis for the variotherm heating systems, such as steam heating, electric heating and induction heating. It also can be applied to evaluate the efficiency and return-on-investment of conformal cooling inserts. With its advanced mold base mesh generation functions, users can easily evaluate dynamic mold temperature and optimize their cooling process.



### Warp

Moldex3D Warp provides a reliable prediction of the key issues of shrinkage and warpage, such as volumetric shrinkage, thermal stress and fiber orientation effect, etc. It helps improve quality and avoid the blemishes of plastic molded products.



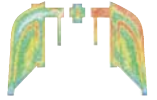
### Multi-Component Molding (MCM)

Moldex3D MCM diversifies the development of plastic molded products. Its explicit analysis capabilities enable users to evaluate insert molding, overmolding and multi-shot sequential molding processes. It also helps users to observe the thermal and shrinkage interactions of different materials so as to improve quality and minimize part warpage.



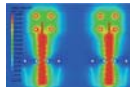
### Fiber

Moldex3D Fiber precisely simulates 3D fiber orientation, both short and long fibers, in the mold-filling process and calculates the process-induced anisotropic thermo-mechanical properties of fiber-reinforced plastic parts.



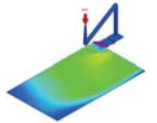
### Advanced Hot Runner

Moldex3D Advanced Hot Runner provides a simulation tool to visualize temperature distribution of runners and moldbase. Users can investigate the process, including heating coils, manifolds and hot nozzles, to further elaborate temperature control system and the risk of thermal degradation of plastic materials and achieve optimization of hot runner system.



### Injection Compression Molding (ICM)

Moldex3D ICM delivers a professional simulation capability for injection compression molding to verify process conditions such as delay time or compression gap, and to analyze potential issues in advance for thin and flat products such as light guide plates.



### Co-Injection Molding

Moldex3D Co-Injection provides powerful modeling solutions to estimate shrinkage and warpage concerning the interaction between skin and core materials. It helps to detect potential defective locations with high temperature and stress. Users can obtain insights of critical characteristics of the process such as material interface and distribution.



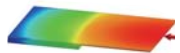
### Gas/Water-Assisted Injection Molding (GAIM/WAIM)

Moldex3D GAIM/WAIM is the simulation tool to analyze the dynamics of gas or water assisted injection molding process. It enables users to visualize 3D fluid penetration behaviors inside the mold cavity, design the overflow region, and optimize the mold design and process settings.



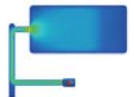
### Microcellular Injection Molding (MuCell®)

Moldex3D MuCell® simulates the nucleation and growth of microcellular bubbles. It can predict volume expansion during filling and shrinkage compensation during packing process. It also provides results of microcellular bubble number, density distribution, bubble size distribution, average density and volumetric shrinkage, etc. Moldex3D MuCell® helps users determine optimal processing parameters more efficiently and reduce product defects.



### Viscoelasticity

Moldex3D Viscoelasticity takes the viscous and elastic properties of polymeric materials into calculation. It supports various differential and integral types of viscoelastic models. Users can estimate flow-induced residual stress, warpage and optical properties (with Moldex3D Optics) more accurately.



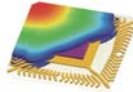
### Optics

Moldex3D Optics predicts the performance of optical parts, such as birefringence, retardation, and polarization, to optimize process conditions. The integration with CODE V enables users to have more precise non-uniform refractive index and further control the real production problems.



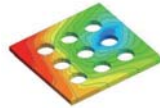
### Encapsulation

Moldex3D Encapsulation provides a complete solution to reach more accurate simulations of IC packaging, including filling, curing, warpage, wire sweep, paddle shift, etc. It helps users optimize the IC packaging design and the encapsulation process.



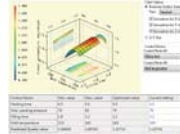
### Underfill

Moldex3D Underfill simulates the filling pattern of flip chip underfill and capillary performance caused by the surface tension effect on the melt front. It helps users analyze dispensing parameters and evaluate the influence of bump pitch and bump pattern to achieve process enhancement and cost reduction.



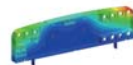
### Expert

Moldex3D Expert is a professional DOE (Design of Experiment) tool that helps designers evaluate the optimal process conditions, such as packing time, cooling time, mold temperature, etc. It creates analysis variations and provides graphical summaries automatically.



### Stress

Moldex3D Stress delivers stress analysis results for parts and part inserts. Users can define boundary conditions, such as stress or displacement, and measure deformation and stress distributions under these conditions. It helps enhance product quality by considering the process-induced material properties.



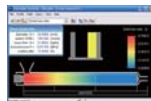
### FEA Interface

Moldex3D FEA Interface is a series of interface modules that integrate with leading structural software, including ABAQUS, ANSYS, LS-DYNA, Marc, Radioss and Nastran. It allows users to evaluate important process-induced properties, such as fiber orientation or residual stress, and structural performance more effectively.



### ScrewPlus

Moldex3D ScrewPlus provides prediction on melt volume and temperature distribution with the process-induced effects in the screw and barrel. It helps users evaluate the screw performance and improve flow analysis accuracy.



### Products/Modules

	Products	Modules	Mesh Technology		
			eDesign	Shell	Solid
Thermoplastic	eDesign Basic	Flow	●		
	eDesign	Flow, Pack, Cool, Warp, MCM	●		
	Professional	Flow, Pack, Cool, Warp, MCM	●	●	
	Advanced	Flow, Pack, Cool, Warp, MCM	●	●	●
	Solution Add-on	Fiber	●	●	●
		Advanced Hot Runner	●		●
		Injection Compression			●
		Co-Injection			●
		Gas-Assisted Injection		●	●
		Water-Assisted Injection			●
	MuCell®			●	
	Viscoelasticity			●	
	Optics			●	
	Expert		●	●	●
	Stress		●		●
	FEA Interface		●	●	●
	Digimat Interface		●		●
Thermoset (RIM)	eDesign Basic	Flow	●		
	eDesign	Flow, Pack, Cool, Warp, MCM	●		
	Professional	Flow, Pack, Cool, Warp, MCM	●	●	
	Advanced	Flow, Pack, Cool, Warp, MCM	●	●	●
	Solution Add-on	Fiber	●	●	●
		Stress	●		●
		FEA Interface	●	●	●
		Encapsulation			●
	Underfill			●	
Solution Manager	Post-Processing	Project	●	●	●

Moldex3D FEA Interface include interface modules to Abaqus, ANSYS, MSC.Nastran, Nastran, NENastran, NXNastran, LS-DYNA, Marc, Radioss.

System Requirements :

1. Microsoft Windows 7, Windows Vista, Windows Server 2008, Windows HPC 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.

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