Moldex3D

What's New in Moldex3D 2021

CoreTech System

Outline

Solver Capability

- Calculation Speed-up
- Simulation Accuracy Improvement
- Simulation Capability Enhancement

Pre & Post Tools

- New and Improved CAD Tools
- Upgraded Meshing Workflow
- Modeling Wizard Enhancement

Molding Innovation

- IC Packaging (IC)
- Foam & Composite Molding
- Other Molding Types

Database & Usability

- Intelligent Manufacturing
- Usability Enhancement
- IC Packaging Simulation on Studio

Supported Platforms

Moldex3D supports Windows 64-bit platform for all purposes such as pre-processing, solving and post-processing, and Linux platform is supported as calculation resource

Moldex3D Mesh 2021 for Rhino5 64-bit platform only

Platform	OS	Remark
Windows / x86-64	Windows 10 series Windows 8 series Windows 7 series* Windows Server 2012 R2** Windows Server 2016 Windows Server 2019	Moldex3D 2021 is certified for Windows 10 *: Win 7 support to be terminated in the next major release (Moldex3D 2022) **: Update to KB2919355 or newer version required
Linux / x86-64	CentOS 7 series CentOS 8 series RHEL 7 series RHEL 8 series	Linux platform is used for calculation resource only. Moldex3D LM, Pre-processor and post-processor do not support Linux platform

Solver Capability

Calculation Speed-up

Simulation Accuracy Improvement

Simulation Capability Enhancement

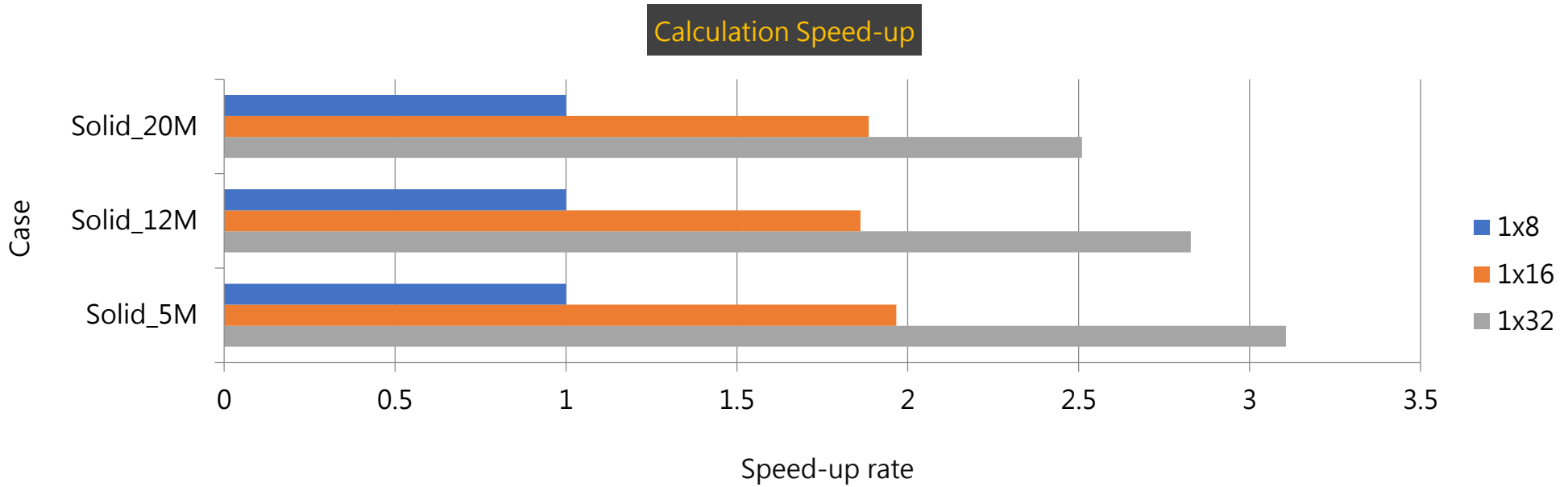
Calculation Speed-up with Parallel Processing

16-core Computing

- Up to 2 times faster

32-core Computing

- More than 3 times faster



Mesh Type: Solid (Mixed BLM)

Mesh Count: 5M ~ 20M

Analysis Type: Injection (Filling – F)

Test Reference: 8-core Computing

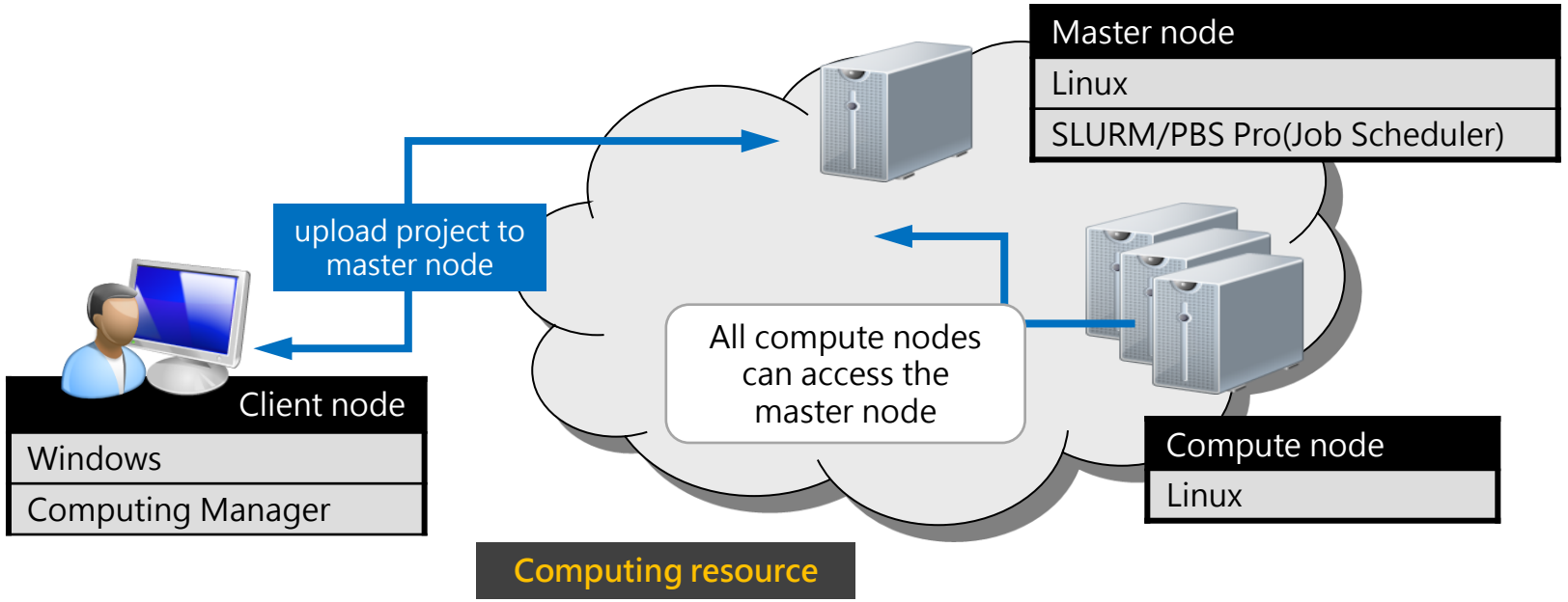
[Linux] [RC] Better Workflow and Capability of Remote Computing through Linux

Solver supports CentOS 8 & RHEL 8

Computing Manager support job scheduler for remote computing on Linux machine

Computing Manager support PBSPro Job Scheduler

Computing Manager support SLURM Job Scheduler



Solver Capability

Calculation Speed-up

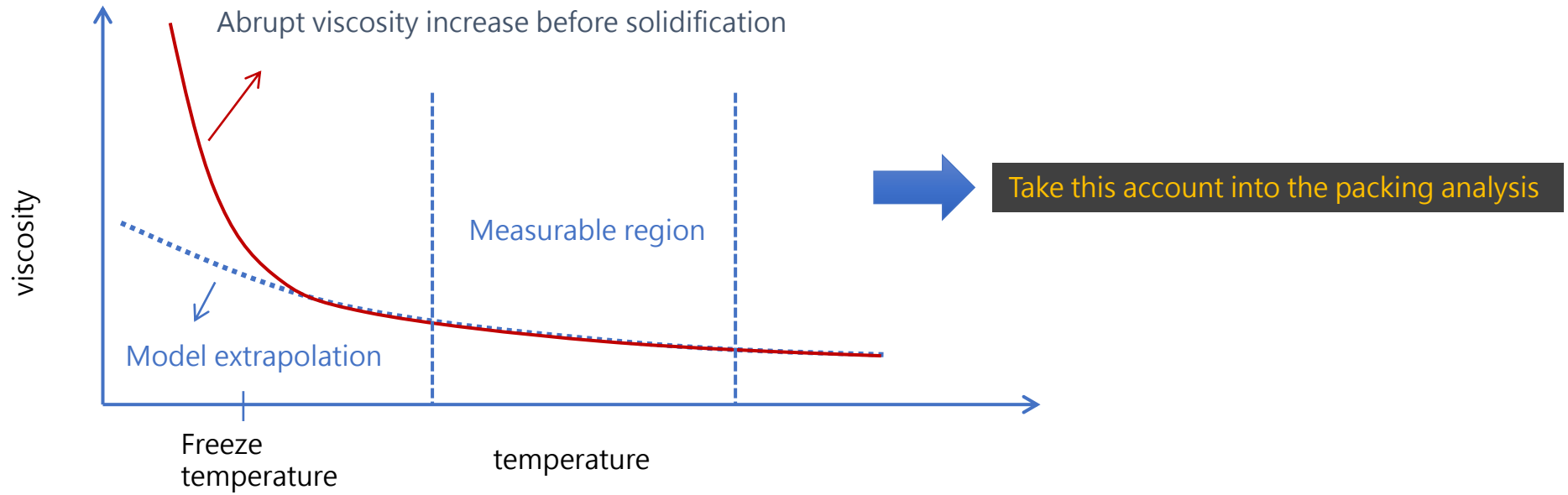
Simulation Accuracy Improvement

Simulation Capability Enhancement

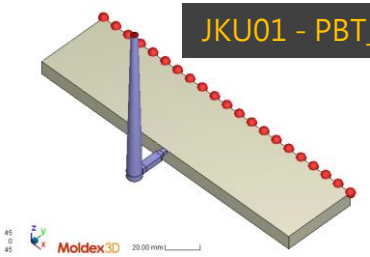
[Flow] [Warp] Apply Advanced Solid State Properties for Shrinkage (SPS)

Consider solidification effect during packing/cooling stage

- The proprietary empirical rule to account for this physical behavior based on numerous experimental evidences.
  - Freeze temperature: the temperature under which material starts to exhibit abrupt viscosity increase that deviates from extrapolation of viscosity function

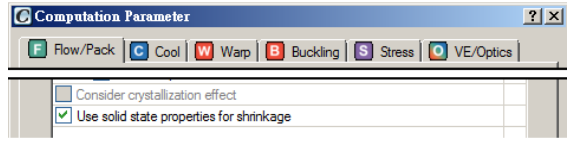


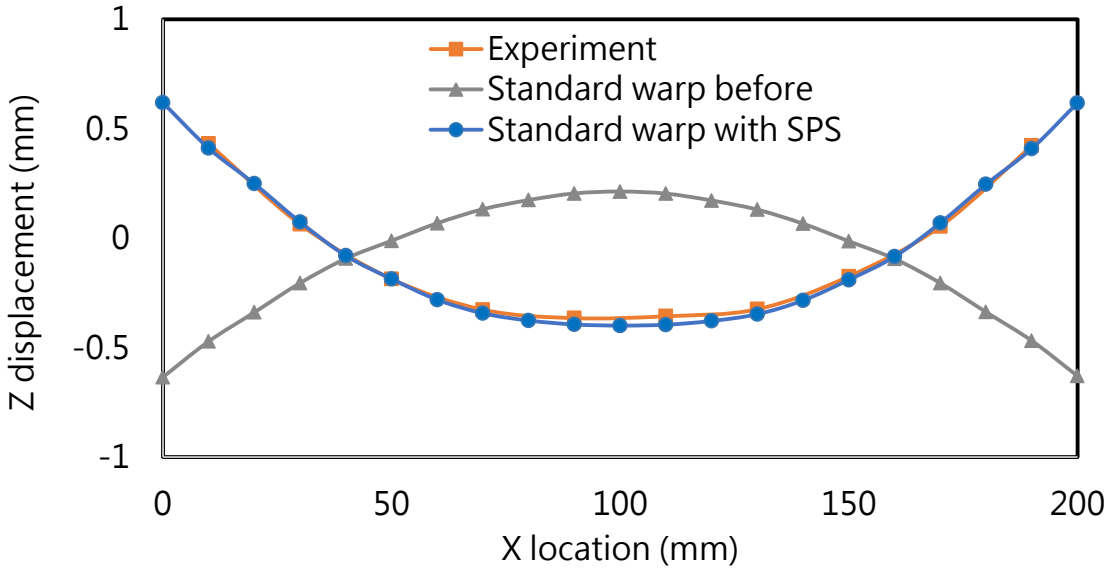
[Flow] [Warp] Apply Advanced Solid State Properties for Shrinkage (SPS)

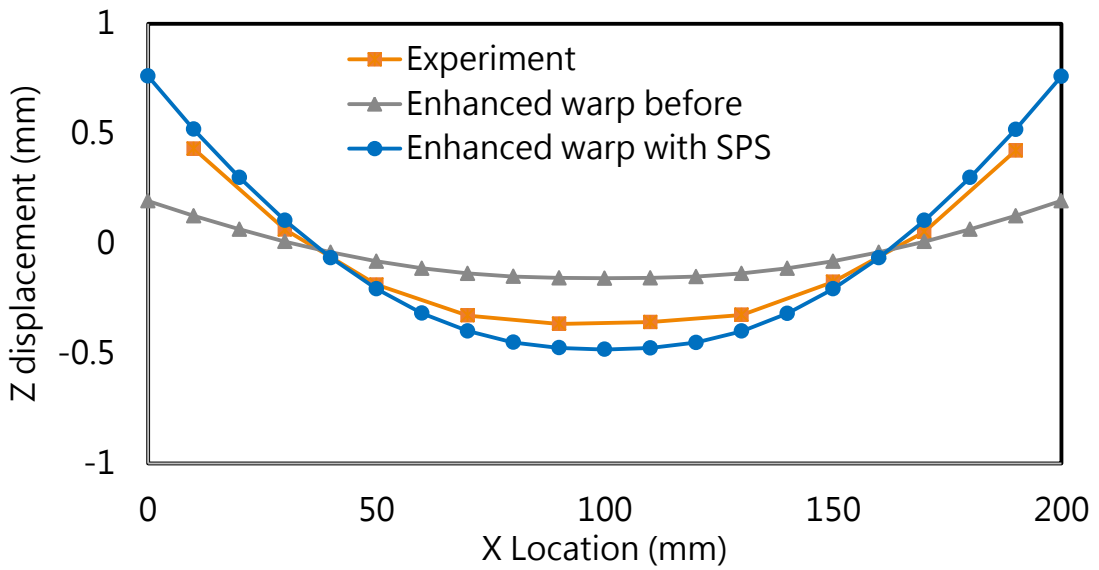


Consider solidification effect during packing/cooling stage

- Apply Solid State Properties for Shrinkage on standard Warp calculation
  - Better warpage results according to validation with experiment
  - Provided as the option in Computation Parameter of Flow/Pack







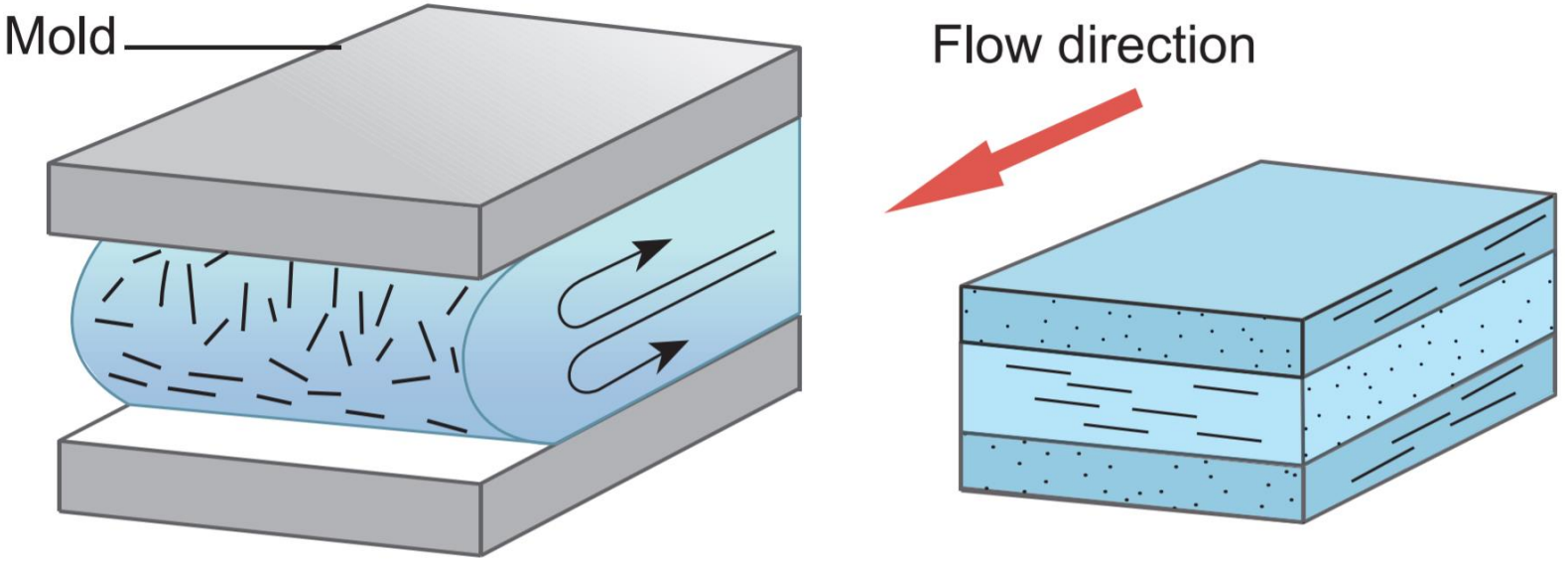
[Warp] [Fiber] Automatic Calibration of Experimental Mechanical Properties

Mechanical properties for Warp analysis:

- The fiber orientation in fiber-filled polymer composite shall be fully aligned.

Mechanical structure in experimental specimen:

- Fiber orientation is not fully aligned in general.
- Core – shell – skin structure along the thickness direction of the composite specimen.
- Mechanical behavior is an orthotropic material rather than a transversely isotropic material.



[Warp] [Fiber] Automatic Calibration of Experimental Mechanical Properties

Fiber orientation effect on experimental data (a_{11}, a_{22}, 0):

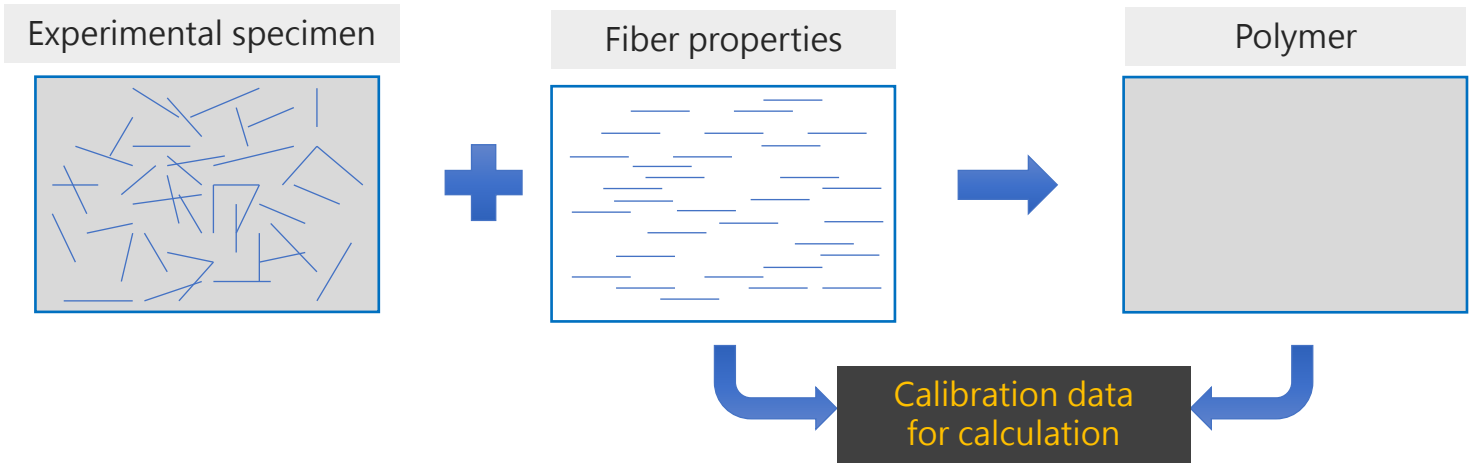
- Significant influence on the ratios of CTE2c / CTE1c and E1c / E2c, especially on the thermal expansion coefficients.
- Not a transversely isotropic material any more if the fiber orientation is not fully aligned.

a_{11}	CTE1c	CTE2c	CTE3c	CTE2c / CTE1c	E1c	E2c	E3c	E1c / E2c
1.0	1.74e-5	7.68e-5	7.68e-5	4.41	10.78	2.84	2.84	3.80
0.9	2.00e-5	6.00e-5	8.28e-5	3.00	10.02	3.65	2.94	2.75
0.8	2.25e-5	4.91e-5	8.63e-5	2.18	9.24	4.46	2.99	2.07
0.7	2.51e-5	4.16e-5	8.84e-5	1.66	8.45	5.26	3.03	1.61
0.6	2.81e-5	3.60e-5	8.95e-5	1.28	7.66	6.06	3.05	1.26
0.5	3.16e-5	3.16e-5	8.98e-5	1.00	6.86	6.86	3.05	1.00

*a11 : Fibers oriented in the flow direction.
a22 : Fibers oriented in the transverse direction, a22 = 1 – a11 – a33.
a33 : Fibers oriented in the thickness direction (herein setting a33 = 0.0).

[Warp] [Fiber] Calibration of Experimental Mechanical Properties

The experimental mechanical properties will be decomposed into polymer properties with known fiber properties. After the decomposition, the theoretical properties (polymer + fiber) will be used for the Warp analysis.



Sample case	Experimental Without Calibration	Generic value	Experimental With Calibration
E1	9.250e+10	1.155e+11	1.208e+11
E2	5.440e+10	3.629e+10	4.284e+10
CLTE1	2.480e-05	1.657e-05	1.779e-05
CLTE2	5.470e-05	6.442e-05	6.759e-05
E1/E2	1.700	3.182	2.819
CLTE2/CLTE1	2.206	3.887	3.799

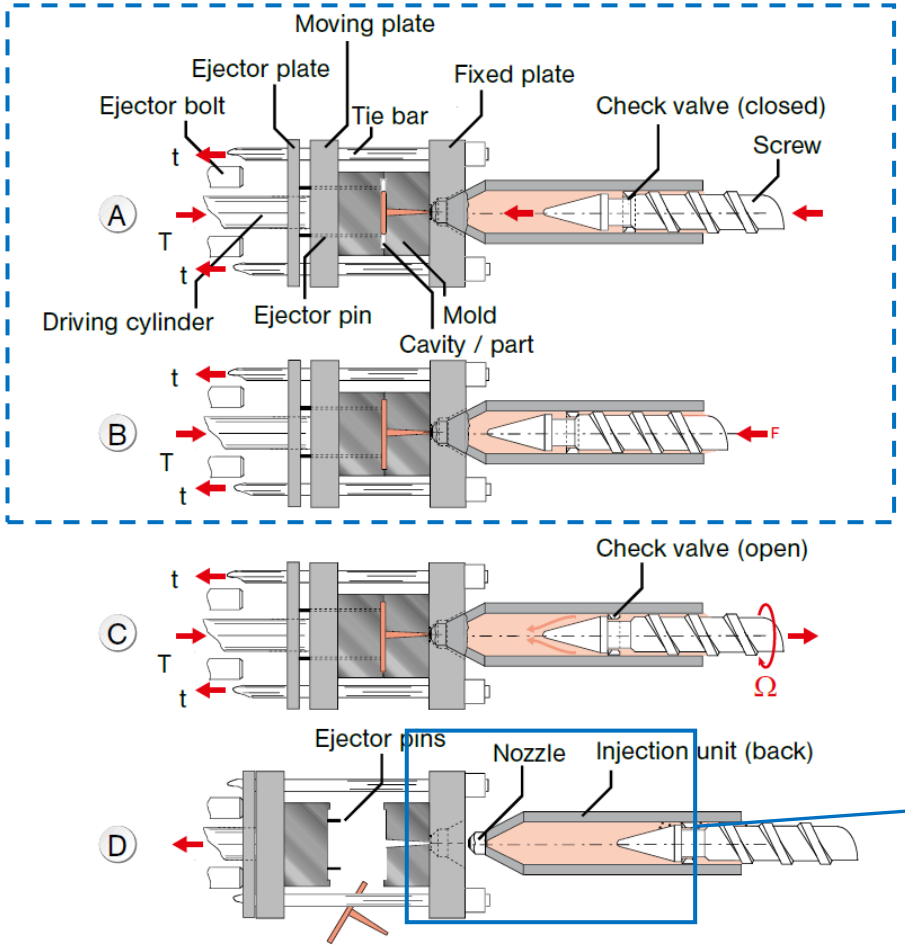
Solver Capability

Calculation Speed-up

Simulation Accuracy Improvement

Simulation Capability Enhancement

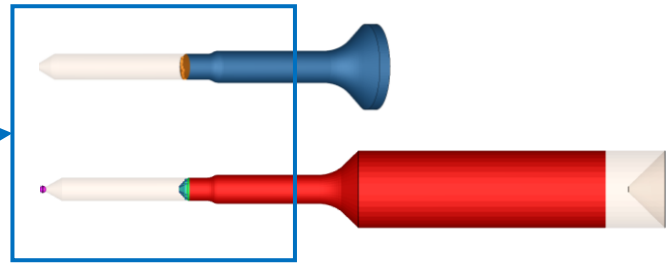
[Flow] [Barrel] Consider suckback when enable the 1D/3D Barrel Compression



Support in 2020

New in 2021

Empty space after suckback near nozzle tip



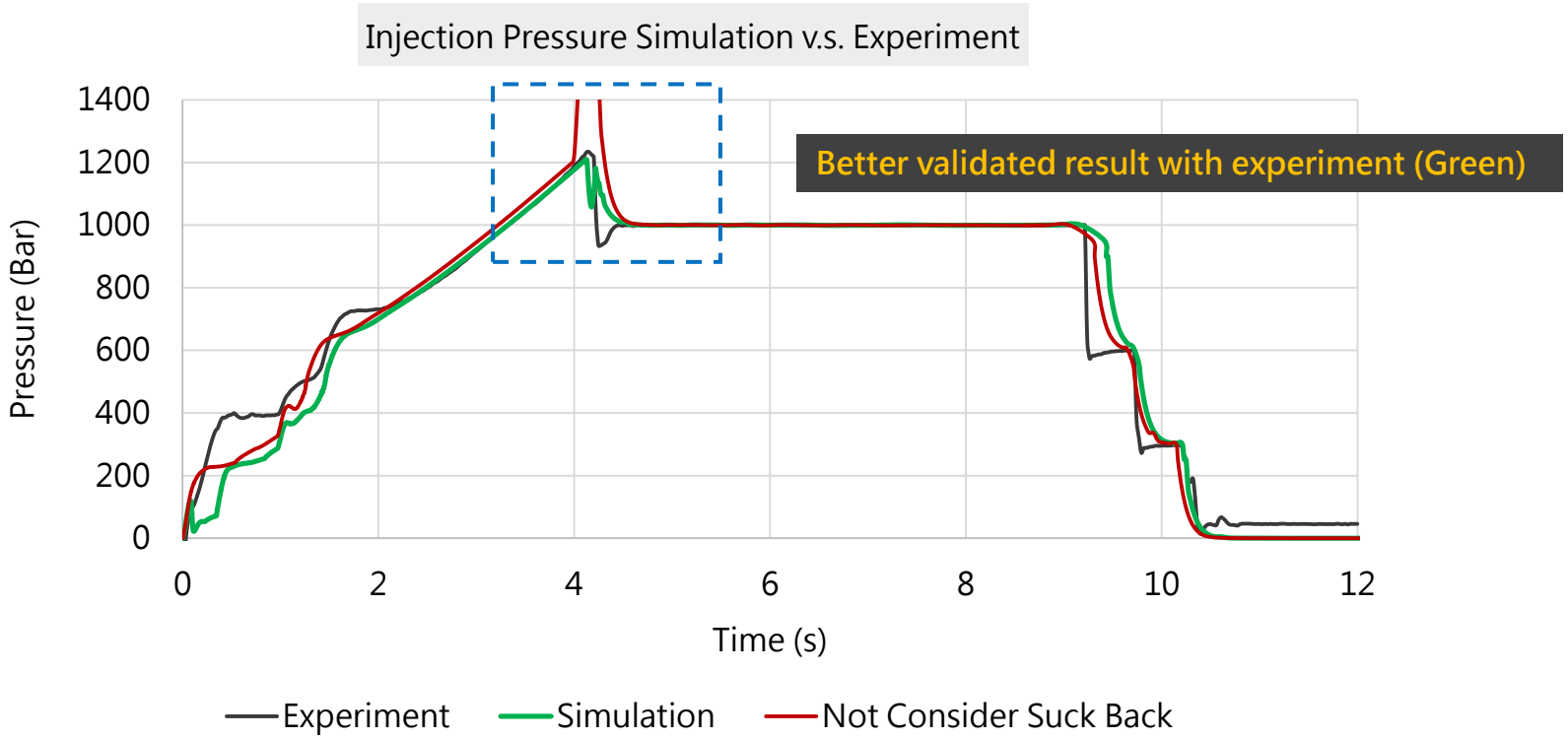
1D Barrel

3D Barrel

[Flow] [Barrel] Consider suckback when enable the 1D/3D Barrel Compression

Solver will calculate the space of empty material after suckback for more realistic injection start

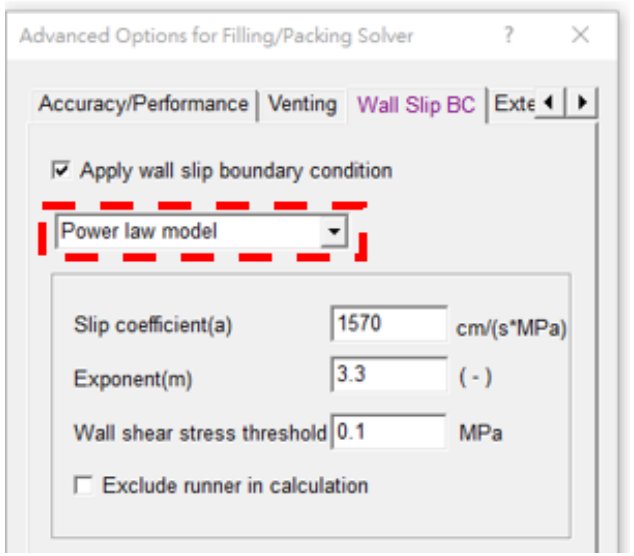
- More accurate prediction for VP-Switch timing and pressure
- No dynamic movement shown and only supported with Machine Mode and Machine Interface



[Flow] Add Enhanced Wall Slip Model

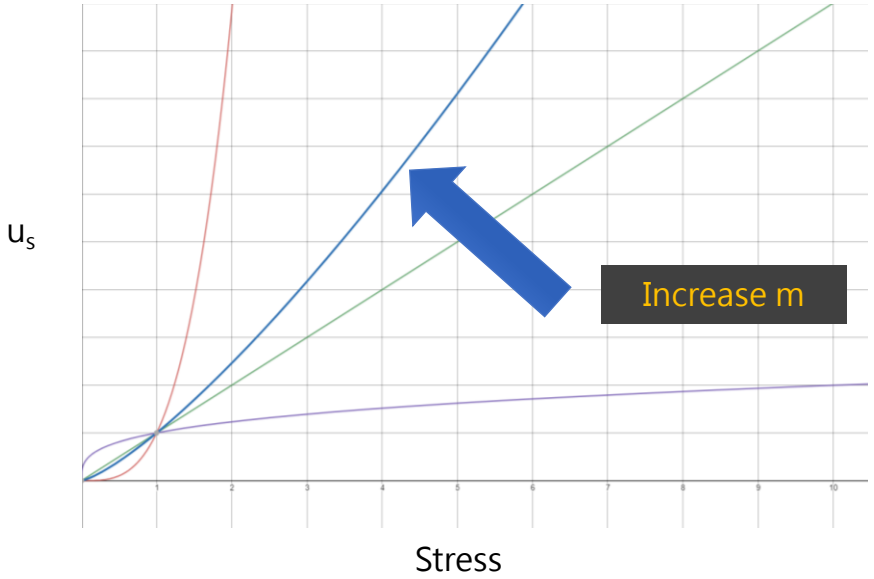
New Power law model, more intuitive model with parameters easier to obtain during measurement

- As a public used model, it is easier to control and describe the wall slip behavior according to its parameters



$$u_s = 0, \quad \sigma < \sigma_c$$

$$u_s = a\sigma^m, \quad \sigma > \sigma_c$$

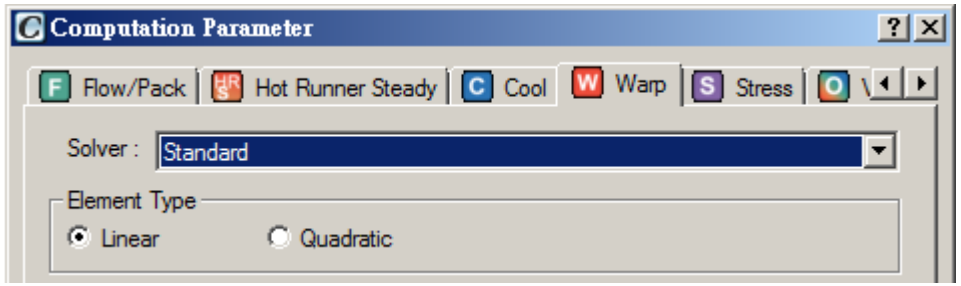


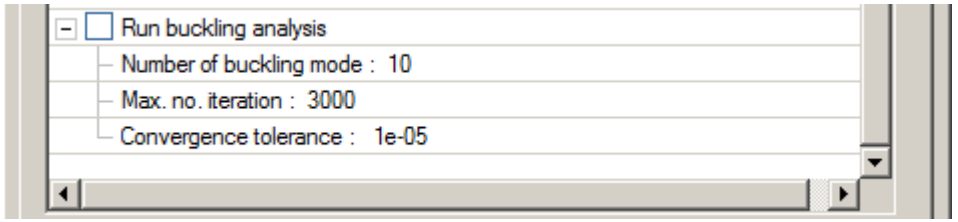
Exponent m
Define how the slip velocity changes with different shear stress

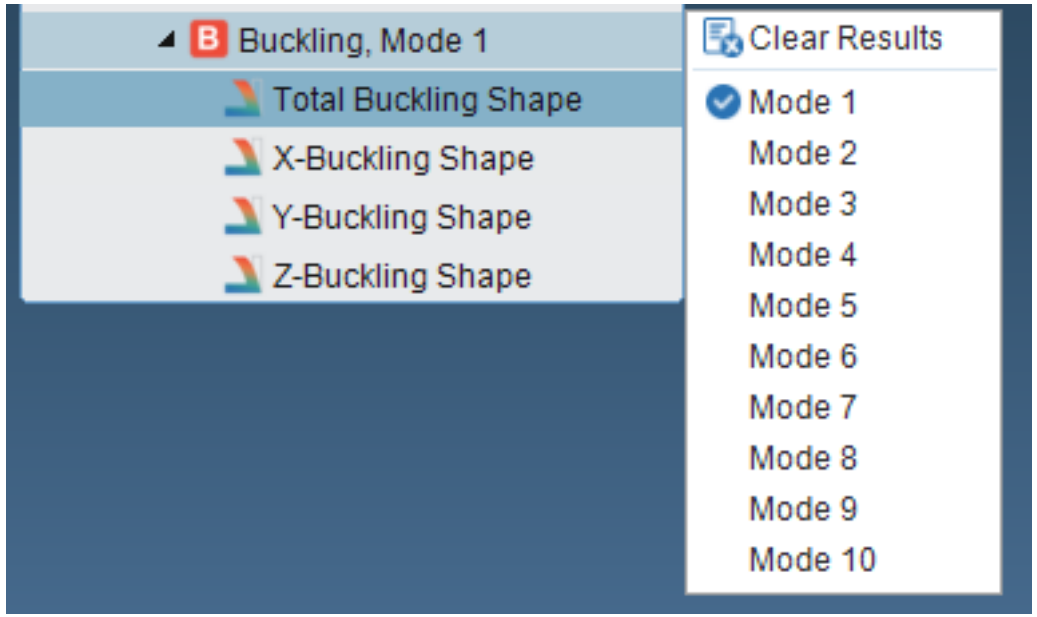
[Warp] [Mechanics] Support The Buckling Analysis

New Linear Buckling Analysis to provide users the prediction of potential that the stress will cause Buckling behavior during Warpage, for determination if using large deformation mode in the following analysis

- Will require more computing resource, and SMP calculation method will fully occupy the CPU resource of single machine



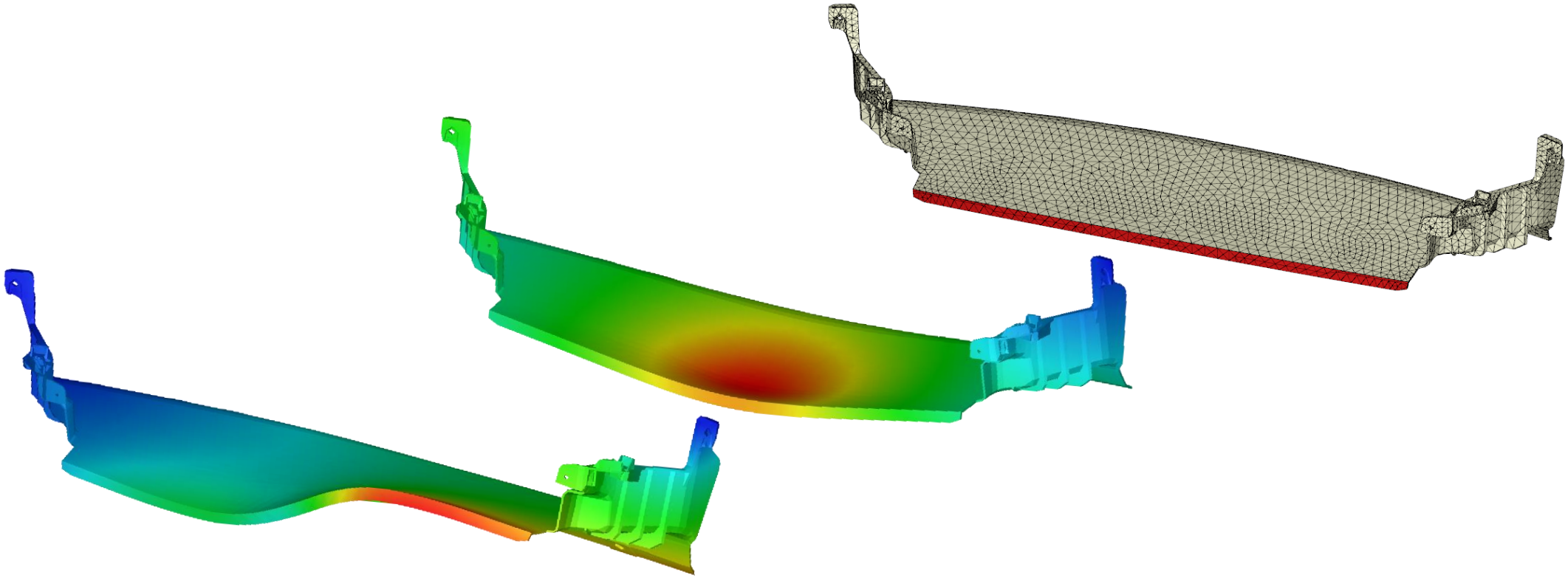




[Warp] [Mechanics] Support The Buckling Analysis

Buckling Analysis will calculate the eigenvalue and buckling shape for each buckling mode

- Buckling mode number can be set in Computation Parameter
- Buckling has chance to occur when 1>Eigenvalue>0 (Bigger chance for the value closer to 0)



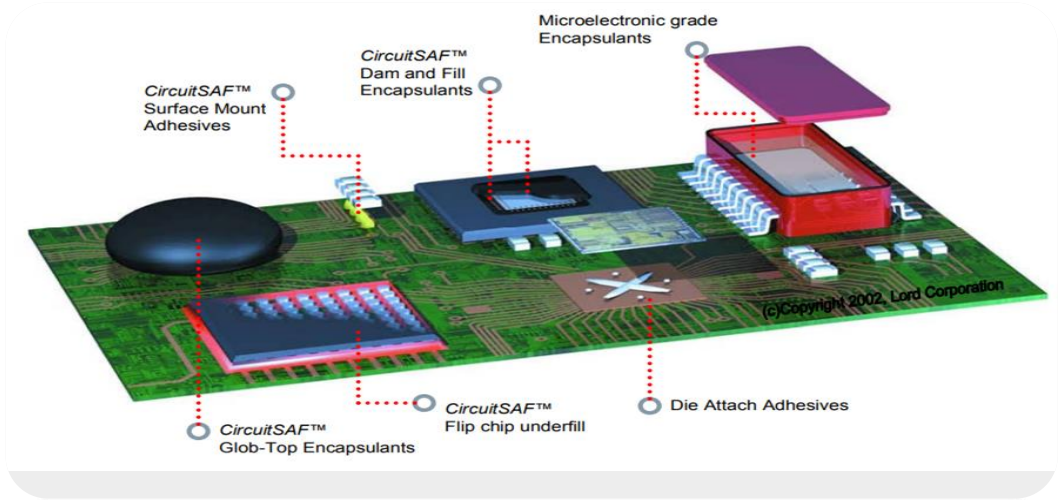
Molding Innovation

IC Packaging (IC)

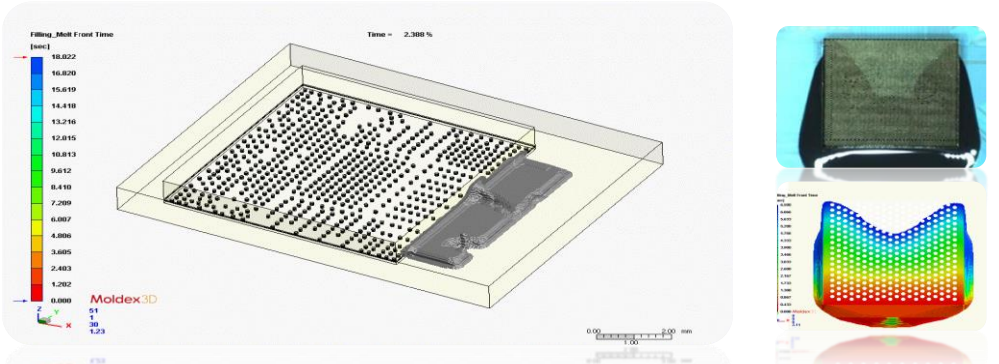
Foam & Composite Molding

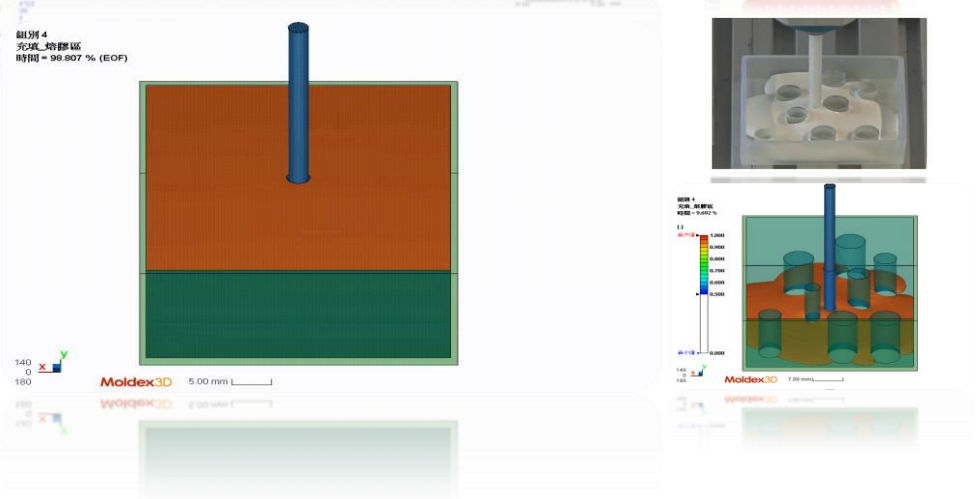
Other Molding Types

[IC] New Dispensing Related Process Simulation



Capillary underfill process





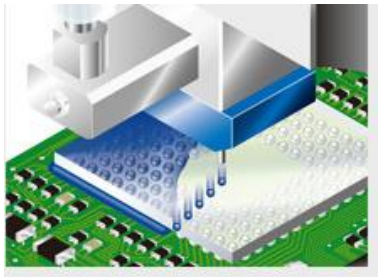
Potting process

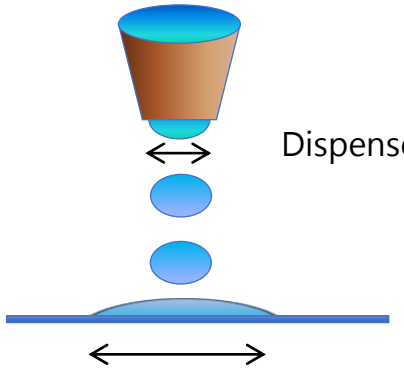
[IC] New Dispensing Related Process Simulation

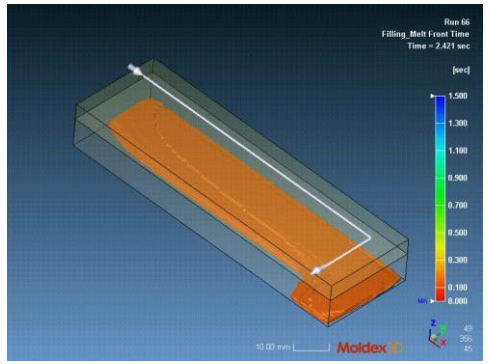
Newly support Potting and Dotting dispensing process

- Potting simulation will require additional license

Dotting (Non-contact jet dispensing)

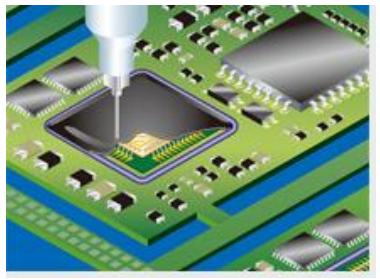




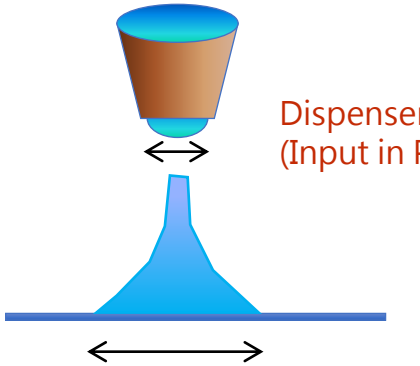


Potting (Filling-up dispensing)

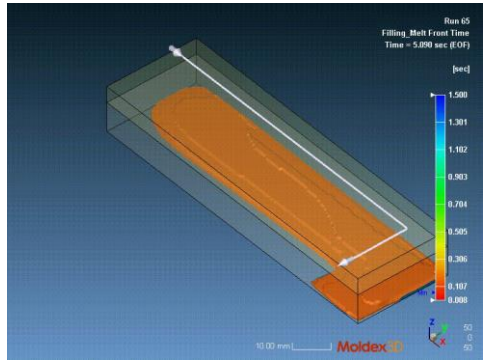
Drop size (Input in Dotting BC)



In reality



Drop size

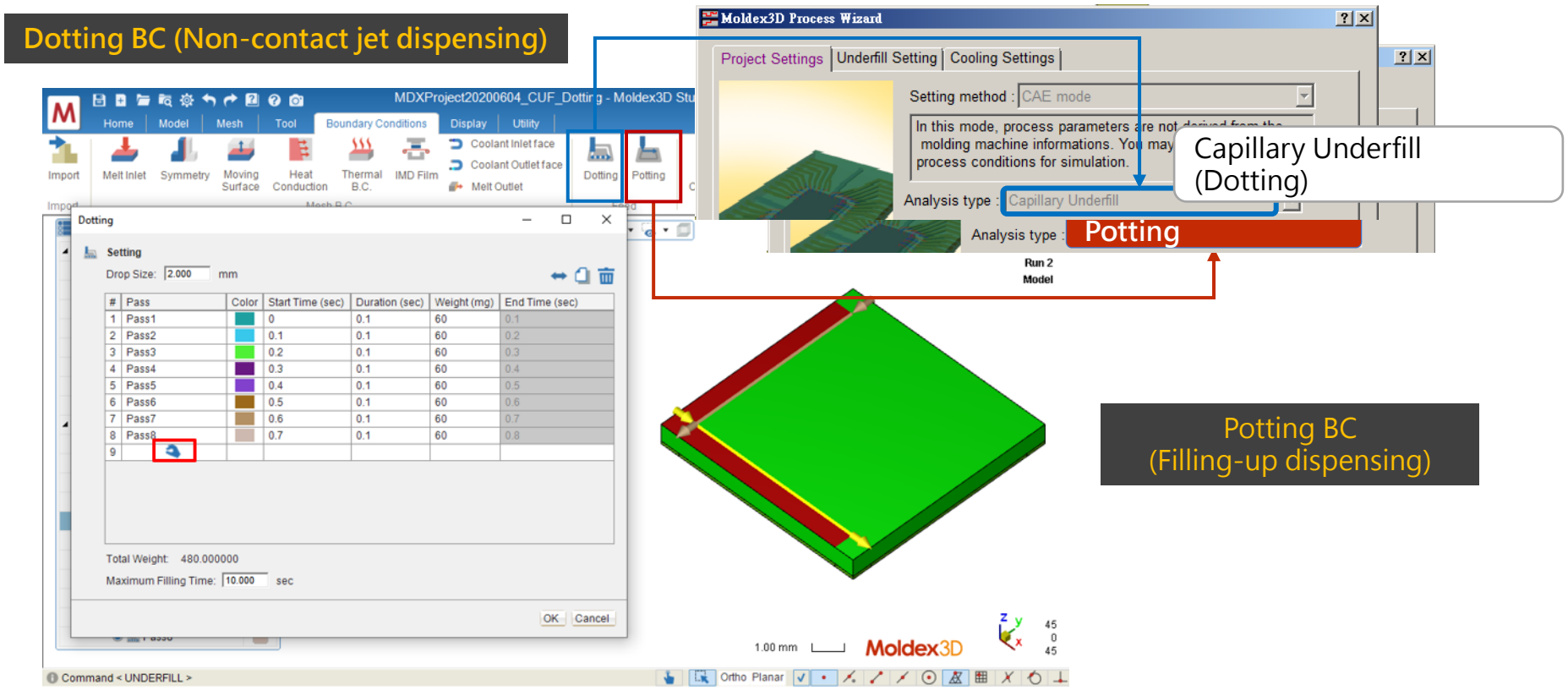


Simulation

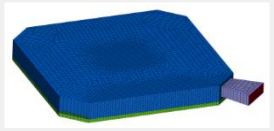
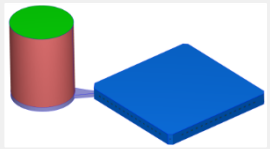
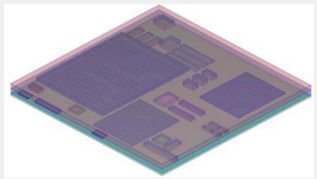
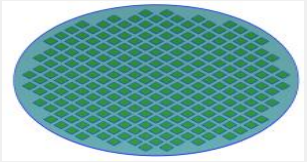
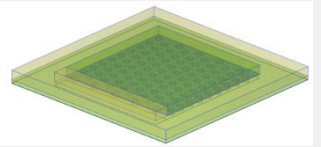
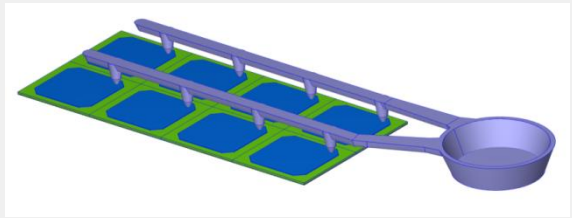
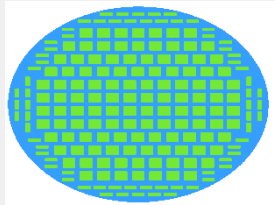
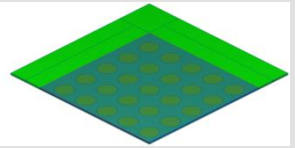
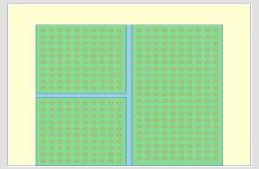
[IC] New Dispensing Related Process Simulation

More detailed simulation with better usability in preparing model

- Pass BC applied on overflow to extend simulation region for more accurate behavior compared to original dispensing process



[Wizard] IC Auto Hybrid Mesh Wizard in Studio

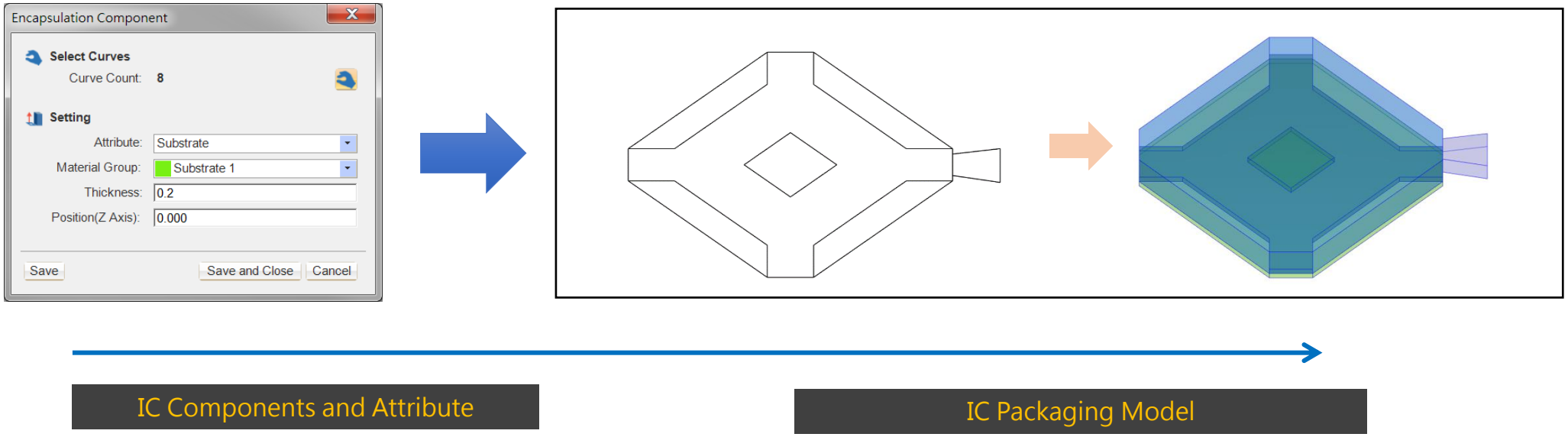
<table>
<tr><th>Module</th><th colspan="3">Injection</th><th colspan="2">Compression Molding</th><th>Underfill</th></tr>
<tr><td>Packaging Process</td><td colspan="2">Transfer molding</td><td colspan="2">Compression Molding</td><td>Embedded Wafer Level Package</td><td>Underfill</td></tr>
<tr><td rowspan="2">Mesh Type</td><td> 
Transfer Molding</td><td> 
Transfer Molding with Compression</td><td> 
Compression Molding</td><td> 
Embedded Wafer Level Package</td><td> 
Capillary Underfill (CUF) – Dotting</td></tr>
<tr><td colspan="3"> 
Transfer Molding with Geometrical Runner</td><td> 
InFO</td><td> 
Capillary Underfill (CUF) - No Pass
 
Capillary Underfill (CUF) - CoWoS</td></tr>
</table>

[Wizard] IC Auto Hybrid Mesh Wizard in Studio

For Studio to support IC Packaging simulation of different types of process

- Select close curve loop to create encapsulation components
- Set Encapsulation attributes and material group

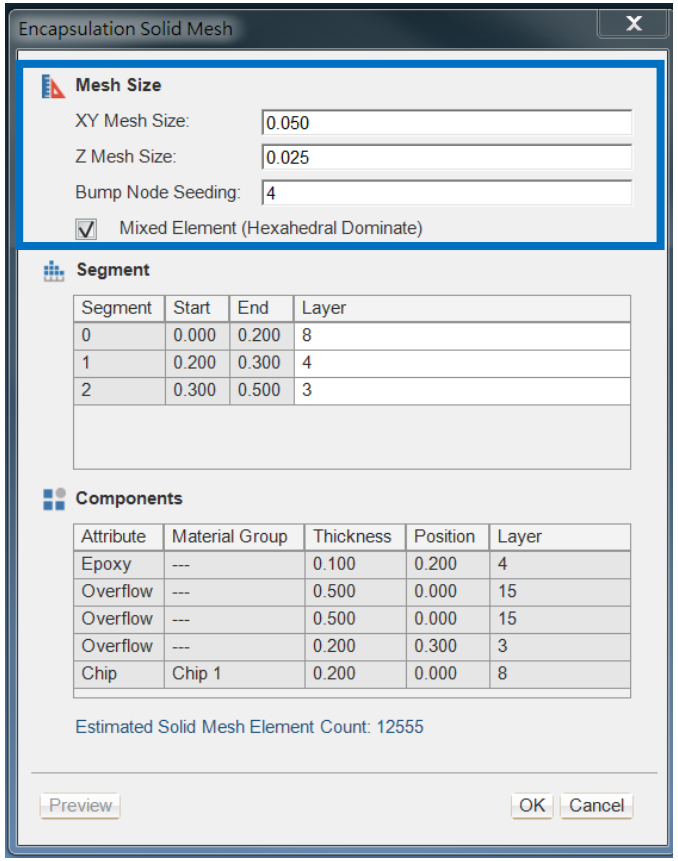
Encapsulation Component Setting

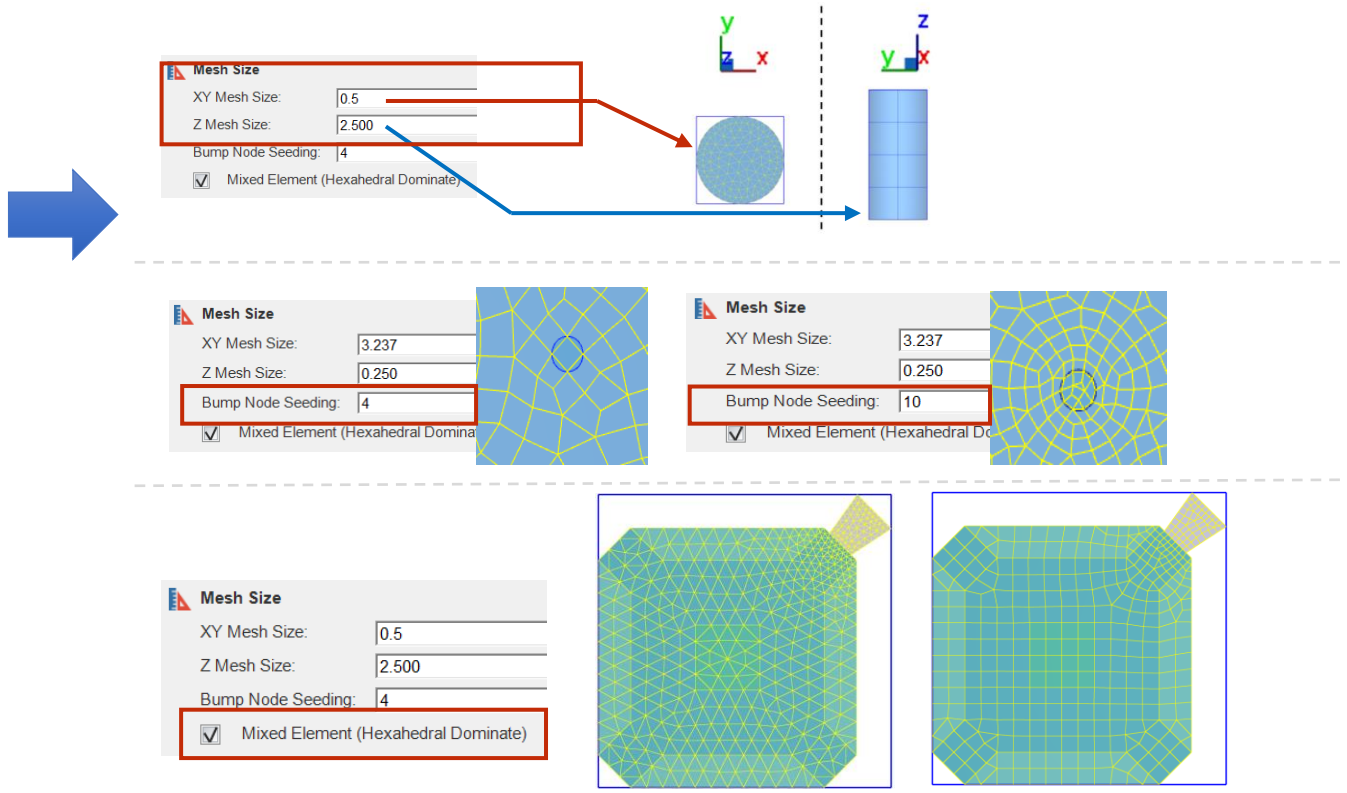


[Wizard] IC Auto Hybrid Mesh Wizard in Studio

IC component setup and solid mesh Generation

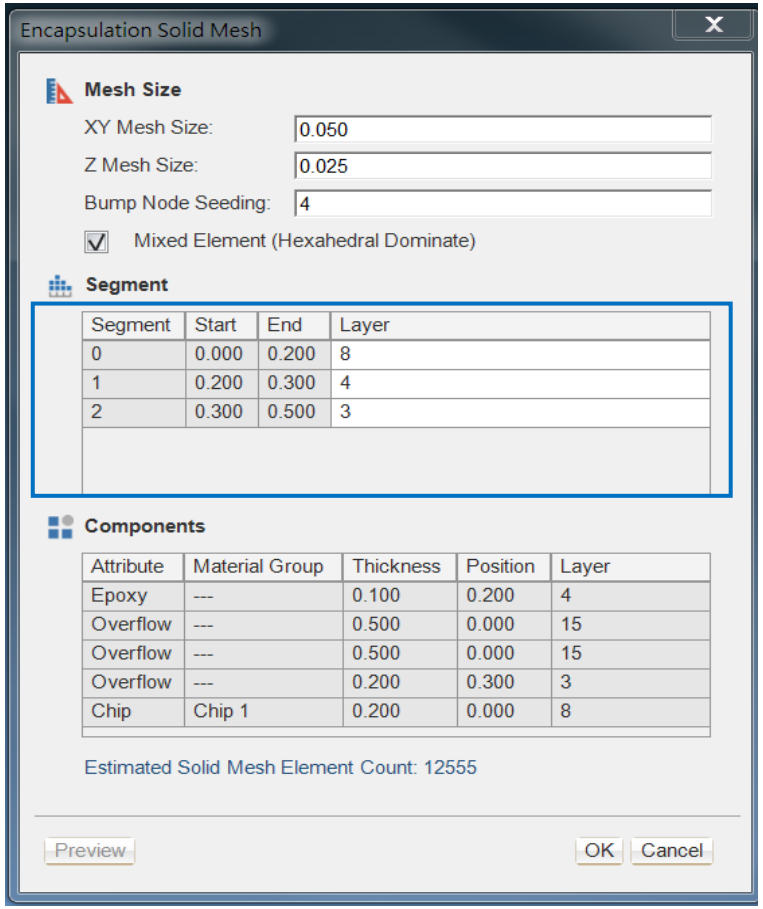
- Solid mesh generated from 2D layout with user-defined attributes

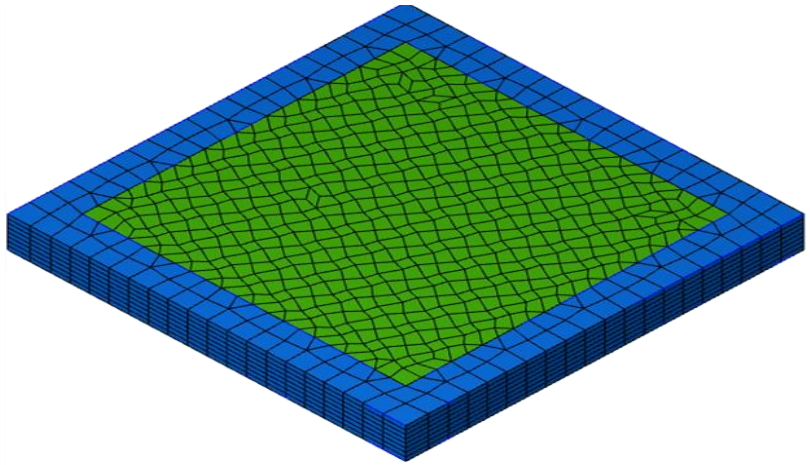


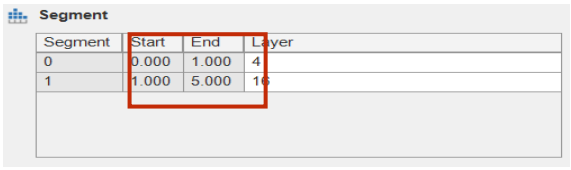


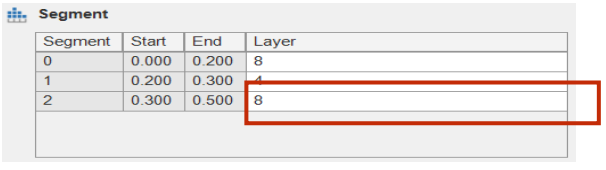
[Wizard] IC Auto Hybrid Mesh Wizard in Studio

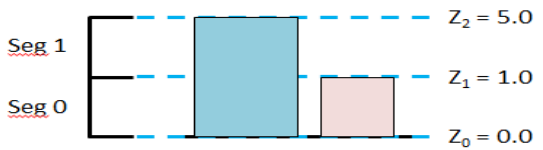
User-defined layer number to control z resolution

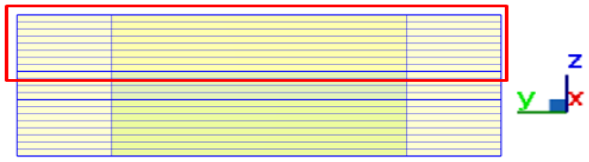












Molding Innovation

IC Packaging (IC)

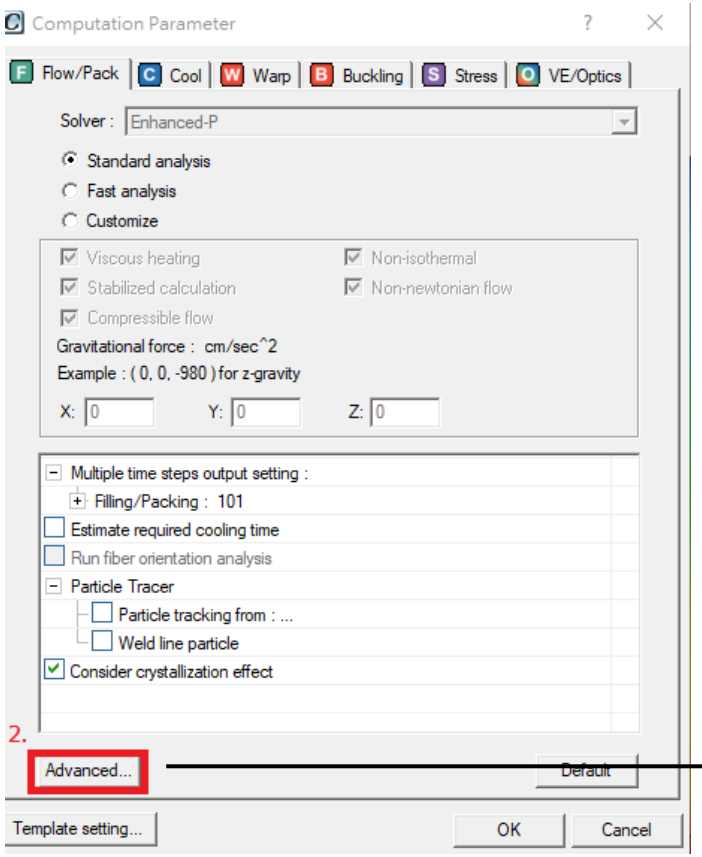
Foam & Composite Molding

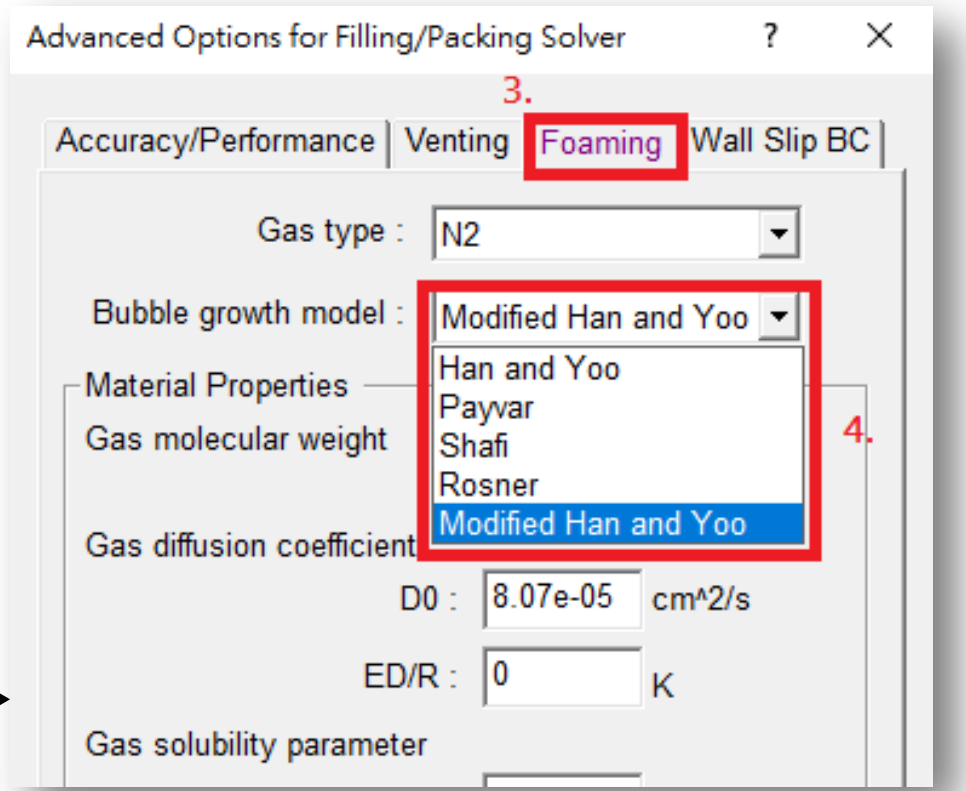
Other Molding Types

[FIM] Support New Models for Bubble Shrinkage

Rosner model and Modified Han and Yoo model

- Bubble shrinks when environmental pressure increasing

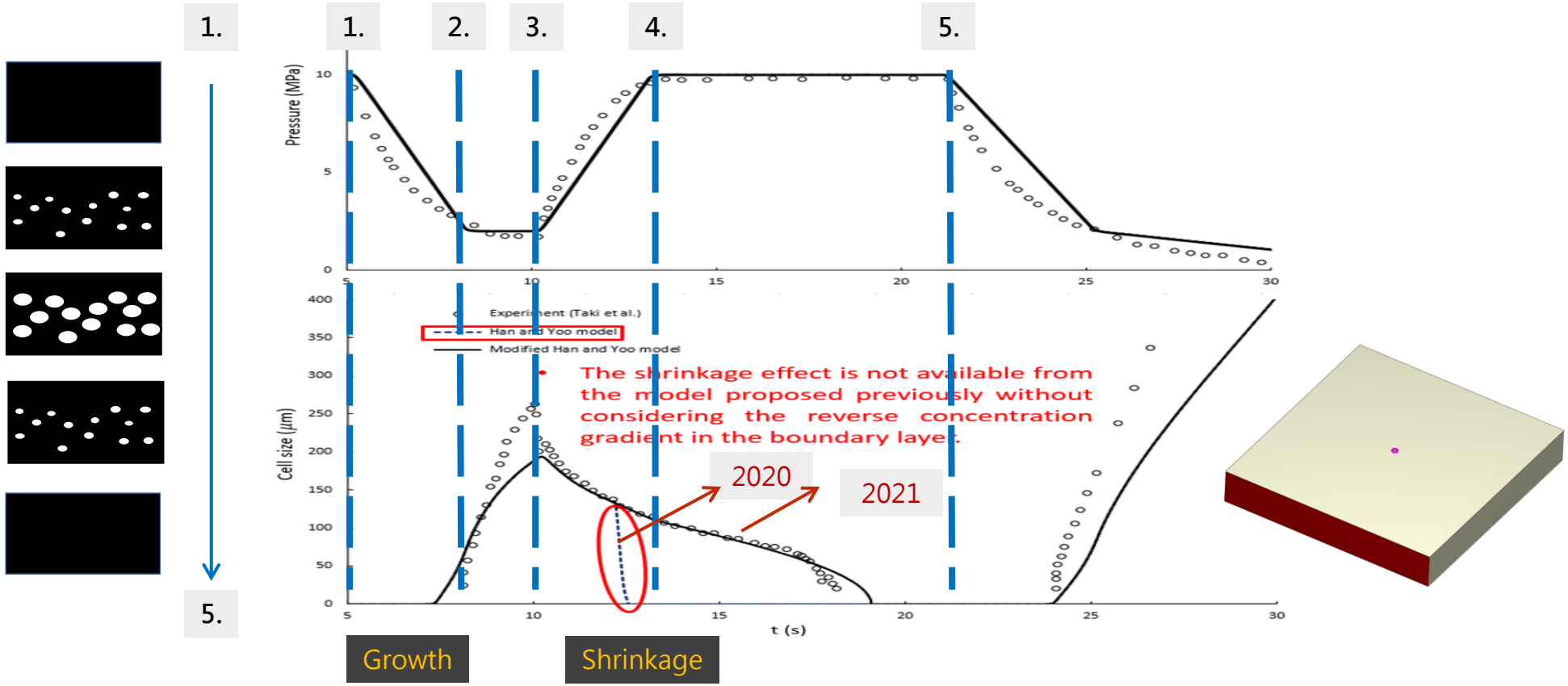




[FIM] Support New Models for Bubble Shrinkage

Improve the accuracy to predict bubble shrinkage behavior during foaming process

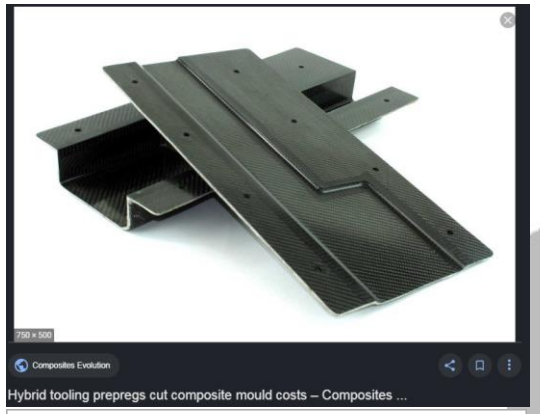
- Will require more computing time for much better results

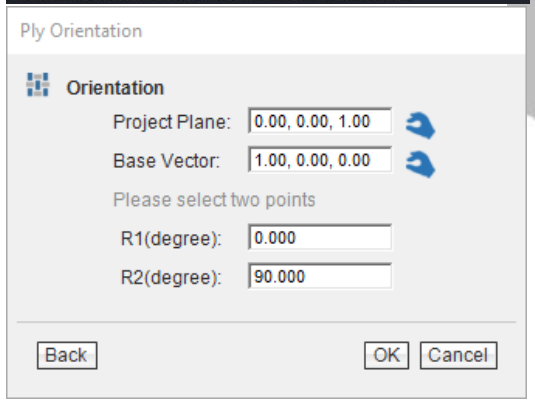


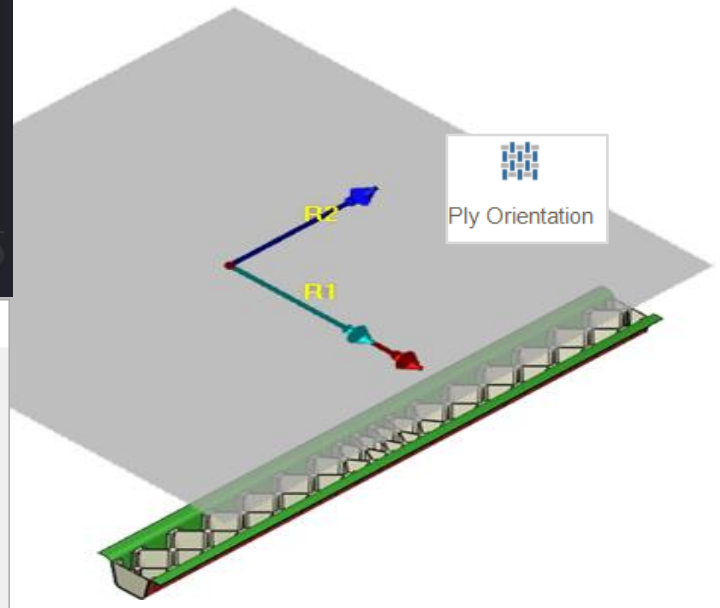
[Fiber] [MCM] [RTM] Enhance BC Setting Workflow for Ply and Fiber Mat

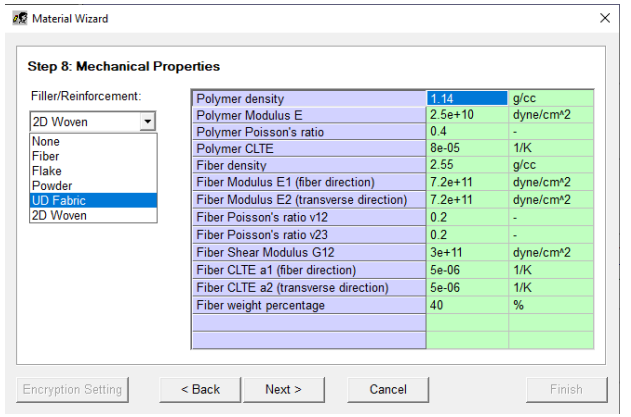
Hybrid molding with CFRTP (Continuous Fiber Reinforced Thermoplastic Composites)

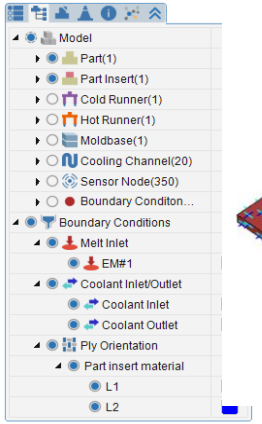
- MCM Over-molding with fiber mat (UD/2D Woven prepregs)

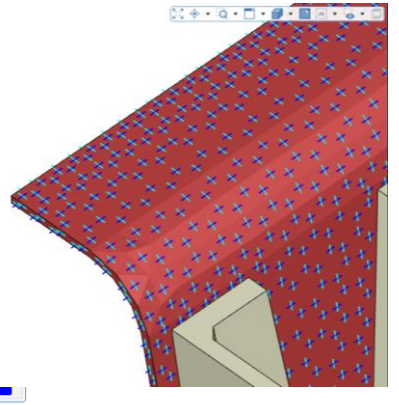








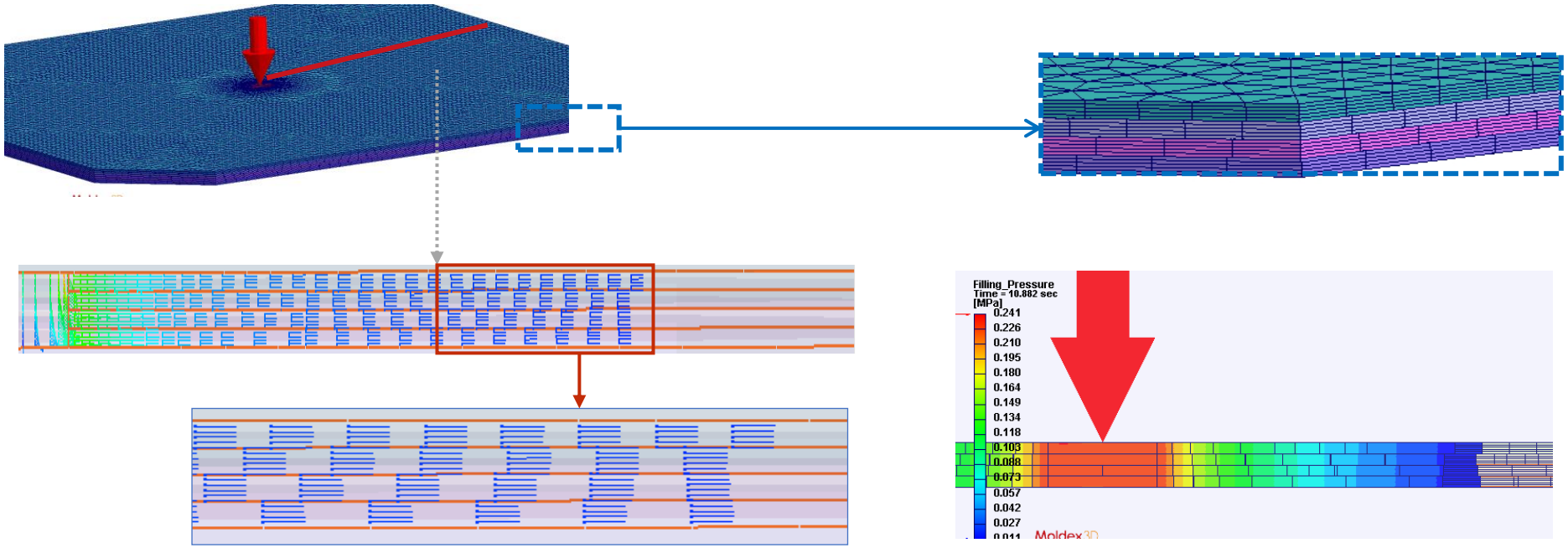




[RTM] Filling/Curing Analysis on Non-matching Mesh

Very smooth continuity in velocity vector and pressure distribution across thickness.

- Even though the non-matching mesh is used in this analysis.

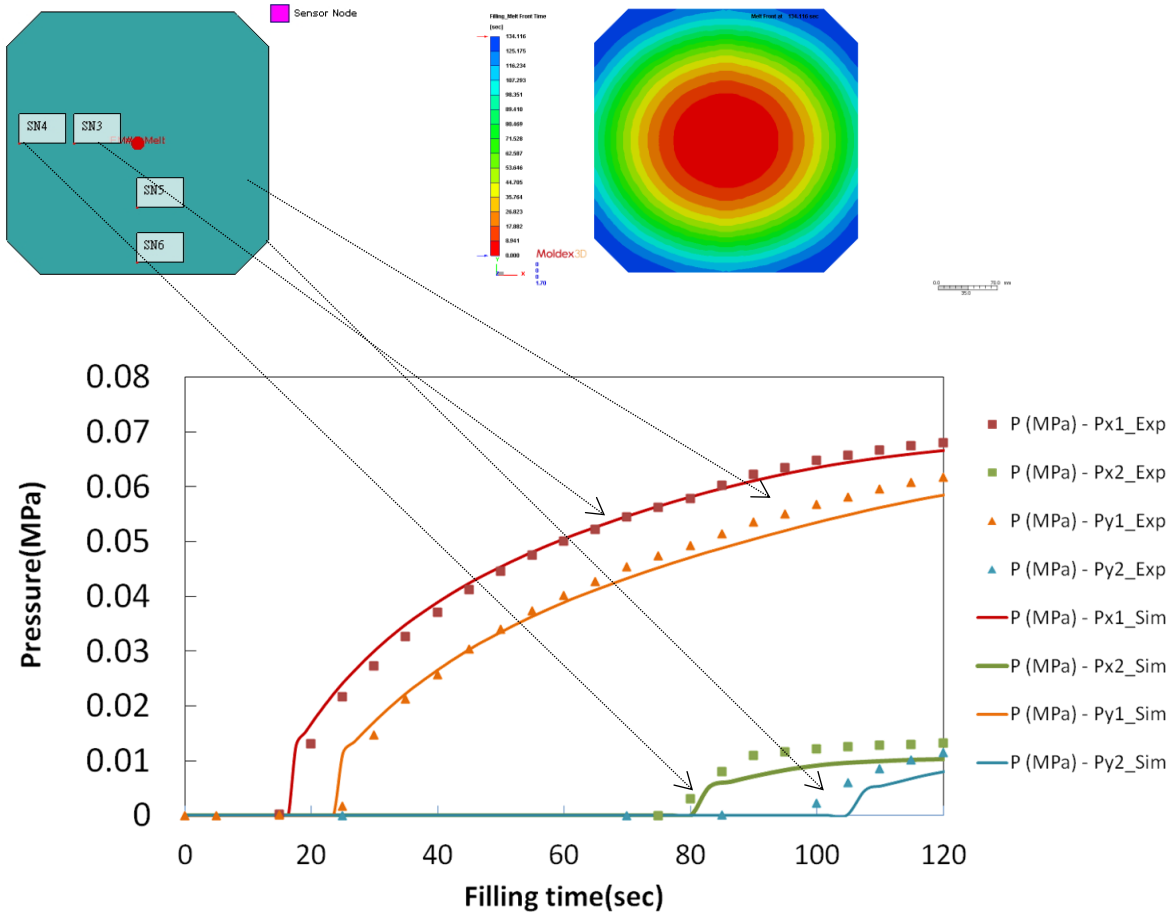


Velocity vector

Pressure

[RTM] Filling/Curing Analysis on Non-matching Mesh

Verification case: Compare with the experimental result



	Easyperm (sec)	Simulation (sec)	Error
SNX1	16	17.8	3%
SNX2	78	77.5	0.8%
SNY1	24	23.9	0.1%
SNY2	99	107.7	14.5%

$$Simulation\ error = \frac{|Simulation\ result\ - Experiment\ result|}{(Total\ process\ time)/2}$$

Molding Innovation

IC Packaging (IC)

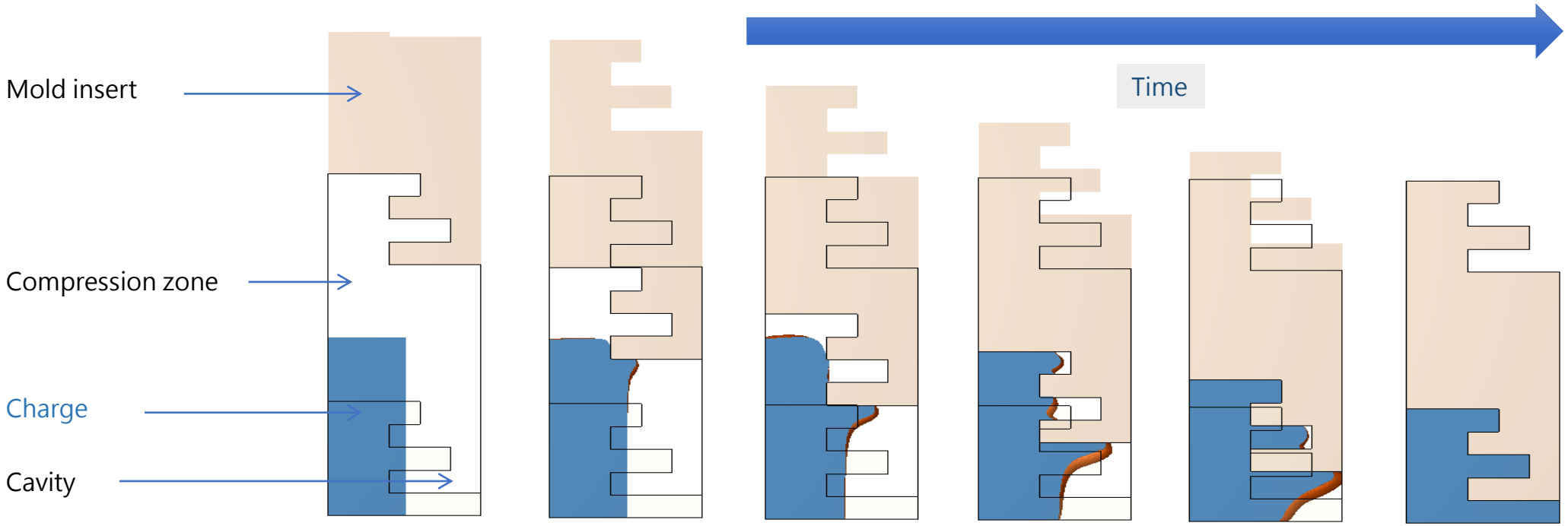
Foam & Composite Molding

Other Molding Types

[CM] [ICM] Enhance for More Detailed Compression Behavior Simulation

Improve the compression simulation with better melt front display and reliability such for undercut structure

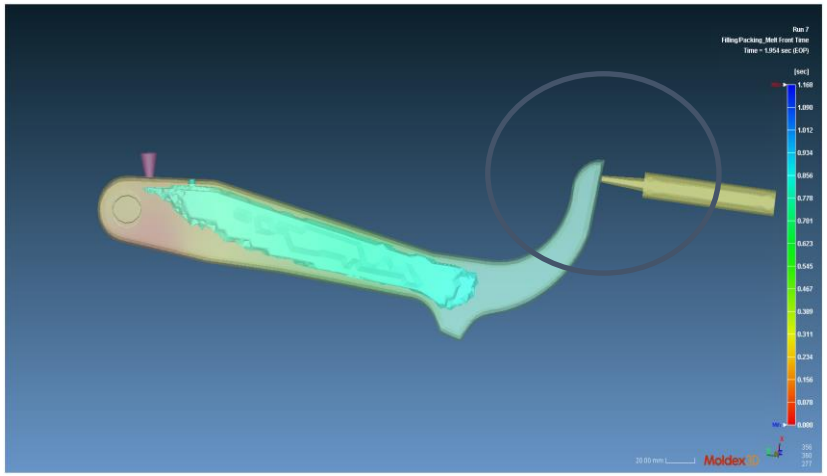
- Mold Insert can move according to the setting of Compression process and Moving Surface BC
- Add “Melt Zone” result for better displaying melt front movement during compression



Other Enhancements on Advanced Molding Process Simulation

[WAIM] [GAIM] Enhance Simulation of Overflow Gate Control

- Better accuracy in the on/off switch timing for any location of Overflow



[Filler] Enhancement for Powder/Filler Analysis

- More stability, more clear concentration distribution
- Also significant time reduction in calculation

Pre & Post Tools

New and Improved CAD Tools

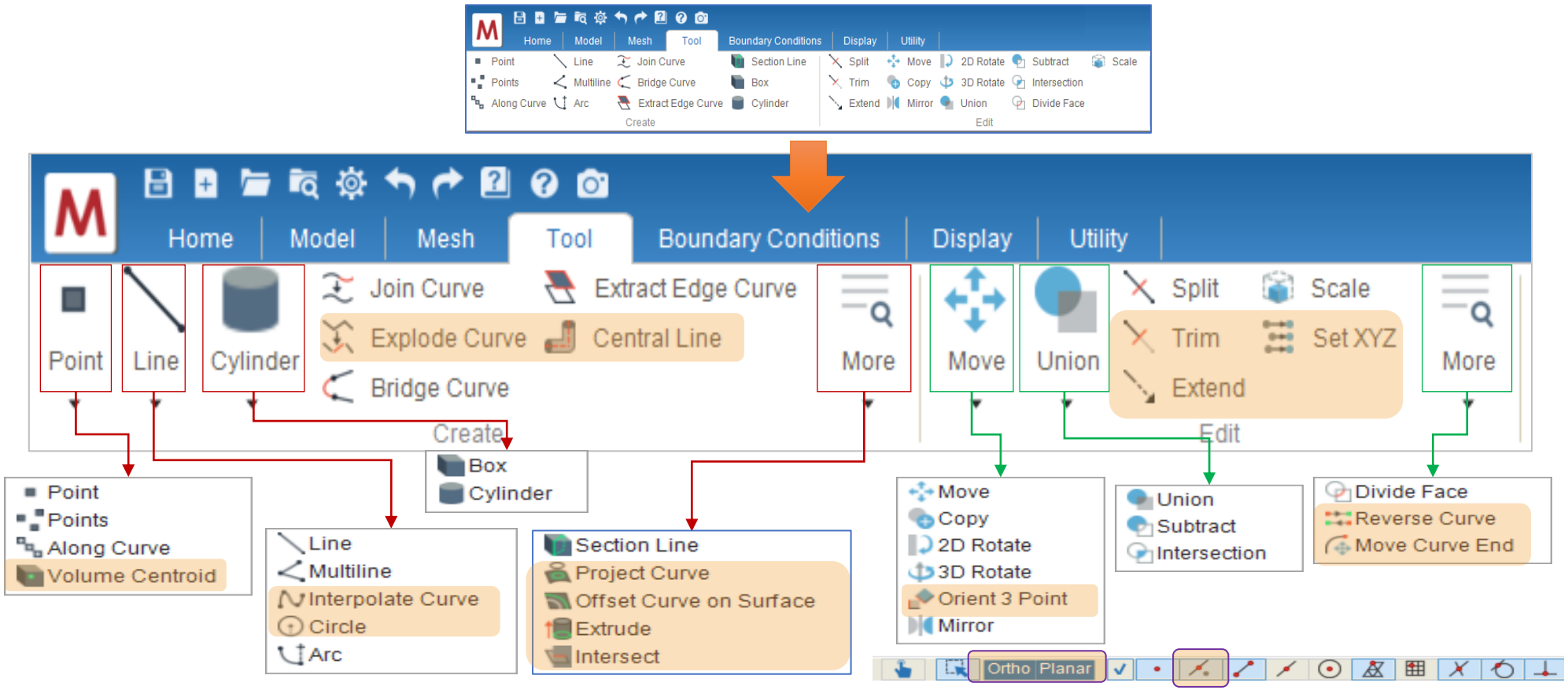
Upgraded Meshing Workflow

Modeling Wizard Enhancement

[CAD] Add More CAD Tools

Upgraded Tool Tab for more CAD tools and capabilities

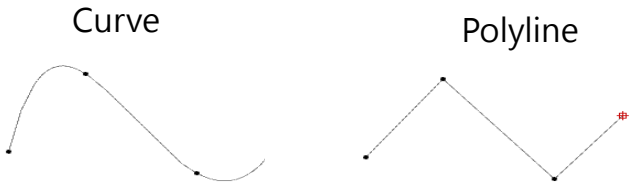
- 9 Create functions, 6 Edit functions, 2 Snap functions



[CAD] New Create CAD Tools

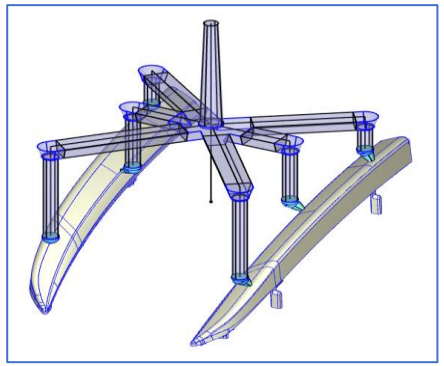
Volume Centroid

- Calculate the center of polysurfaces (no mater closed or not)
- Assist the design such for runner system balance



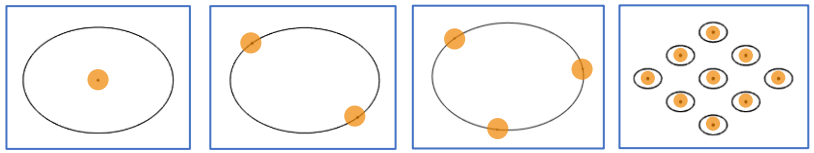
Circle

- Four different ways to define a circle
- For flexible use scenario: runner, cooling channel or IC layout design

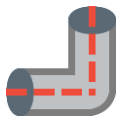


Interpolate Curve

- Draw a curve or polyline through specific location
- Assist the design such as complex cooling channel layout

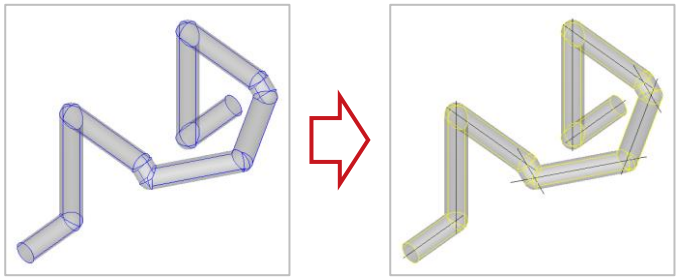


[CAD] New Create CAD Tools



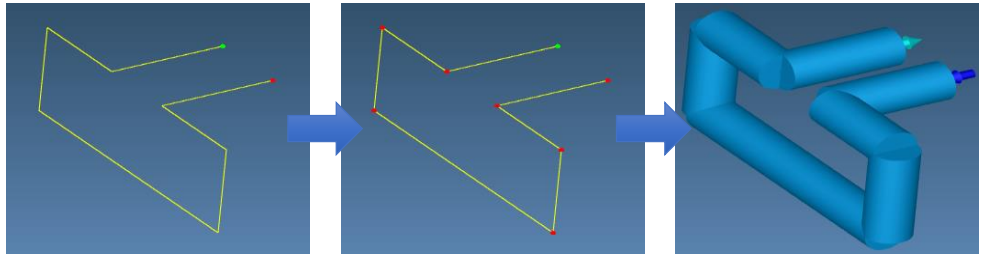
Central Line

- Quick to obtain lines from the center of tubes



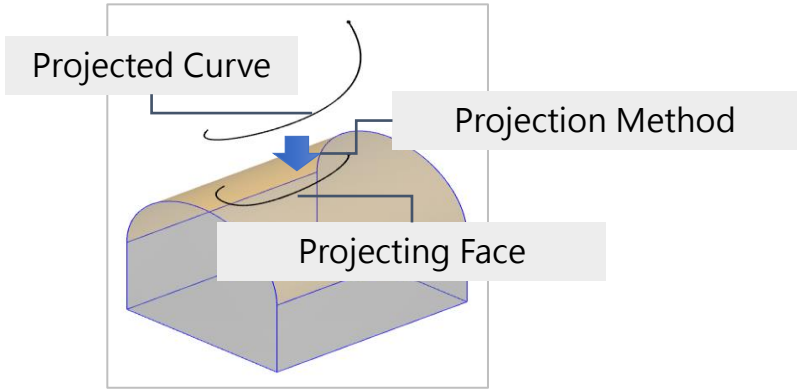
Explode Curve

- Divide the curve at non-smooth location



Project Curve

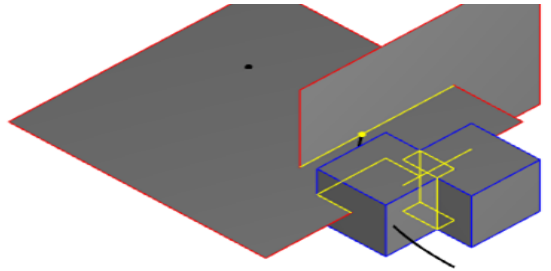
- Project a curve to a face in parallel or normal direction

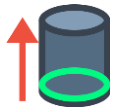


[CAD] New Create CAD Tools

Offset Curve on Surface

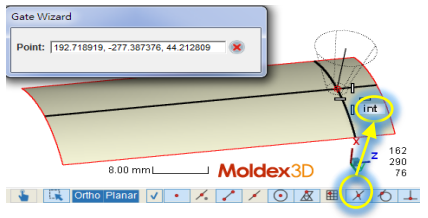
- Create a curve by offset an edge or another curve on or projected to the face
- Assist design change of product or gating location

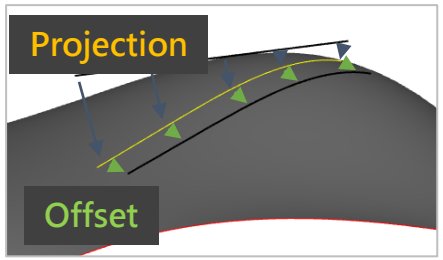




Extrude

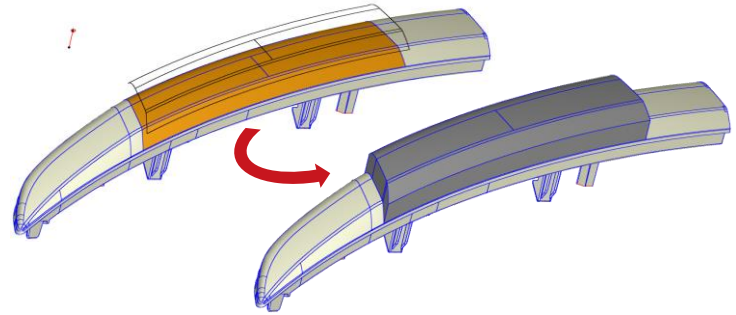
- Extrude an open or closed polysurface with curve loop or surfaces
- Assist to create components such for CM or IC process





Intersect

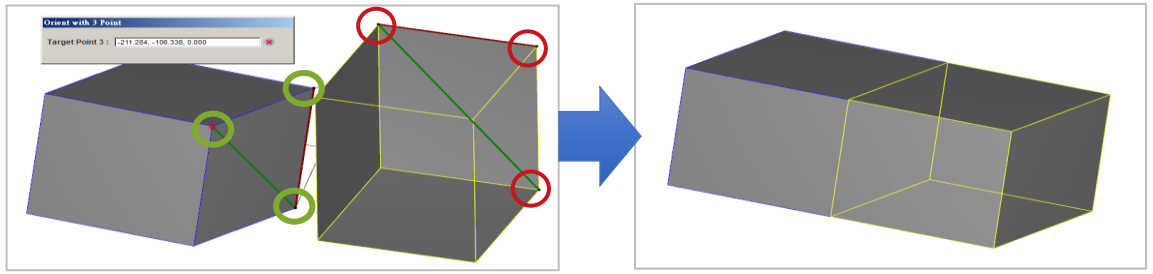
- Create curves or point at the location surfaces or poly-surfaces have intersection



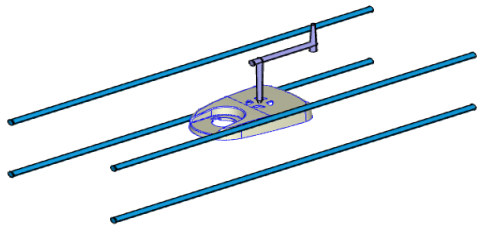
[CAD] New Create CAD Tools

Orient 3 Point

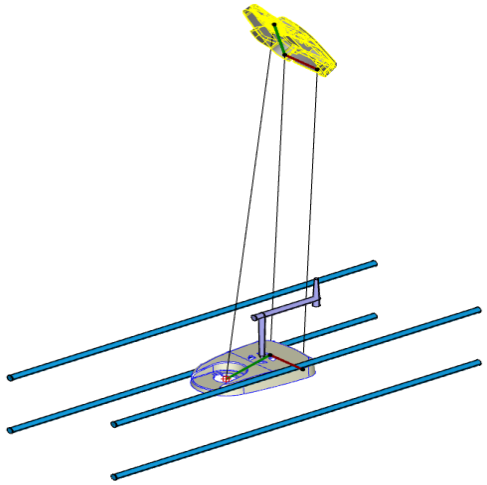
- Quickly move and orient an object by three points



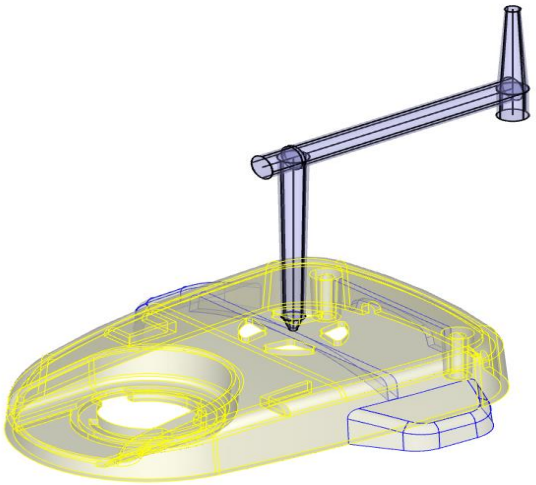
Design Change Model



Want to move the design change product to replacing the old analytics geometry.



Move the geometry using 3 reference points and corresponding 3 target points.

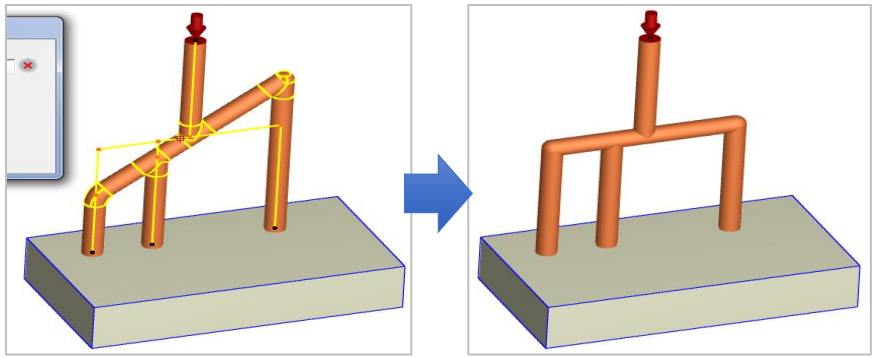


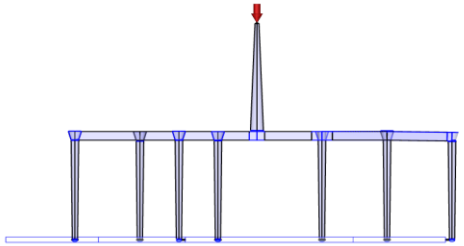
Move done

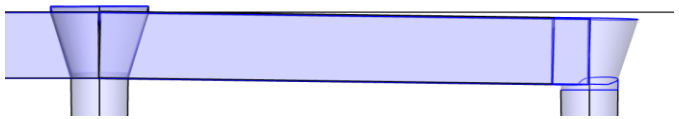
[CAD] New Edit CAD Tools

Set XYZ

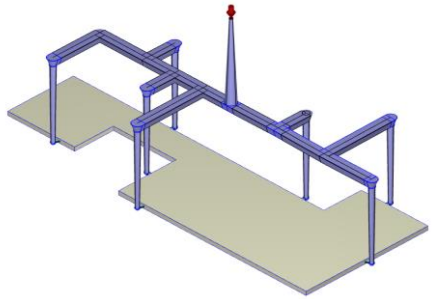
- Shift multiple line ends to the same plane (same x, y or z value)
- Assist the layout modification such for hot runner system

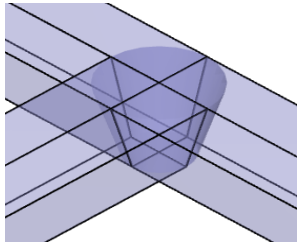


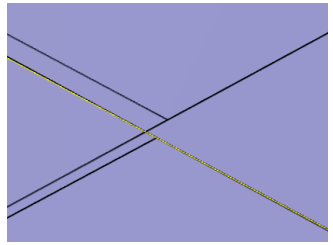




Coplane





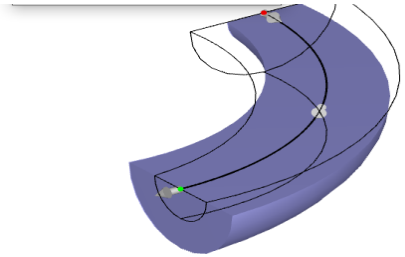


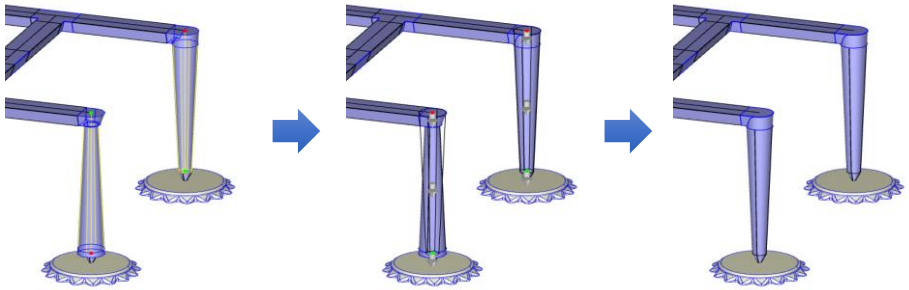
Coaxial

[CAD] New Edit CAD Tools

Reverse Curve

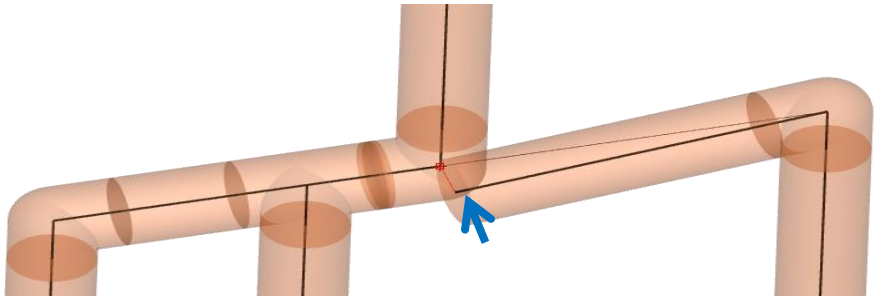
- Quick change on the direction of line components
- Not support Eject pin gate and Tunnel gate yet





Move Curve End

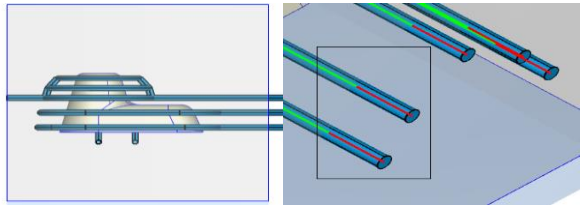
- Quick modification or fixing on the layout of line components

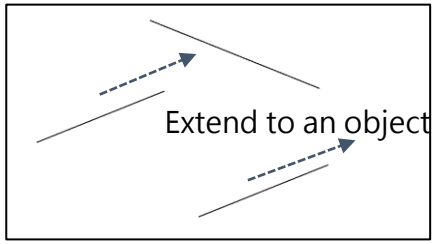


[CAD] New Create CAD Tools

Trim  and Extend 

- Improve the selection usability and ability





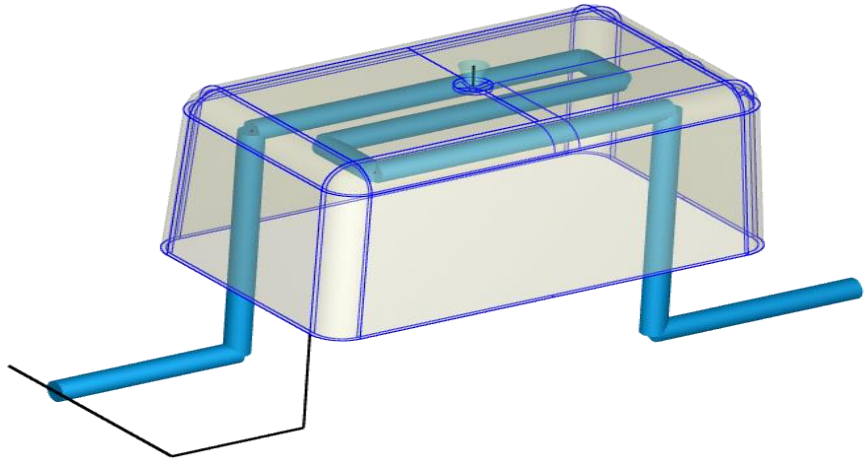
Extend along the tangent direction

Snap 

- Enable the snap to edge capability same as that to curve

Ortho locking 

- Smooth control along X, Y and Z direction
- More convenient to establish model such as conformal cooling system



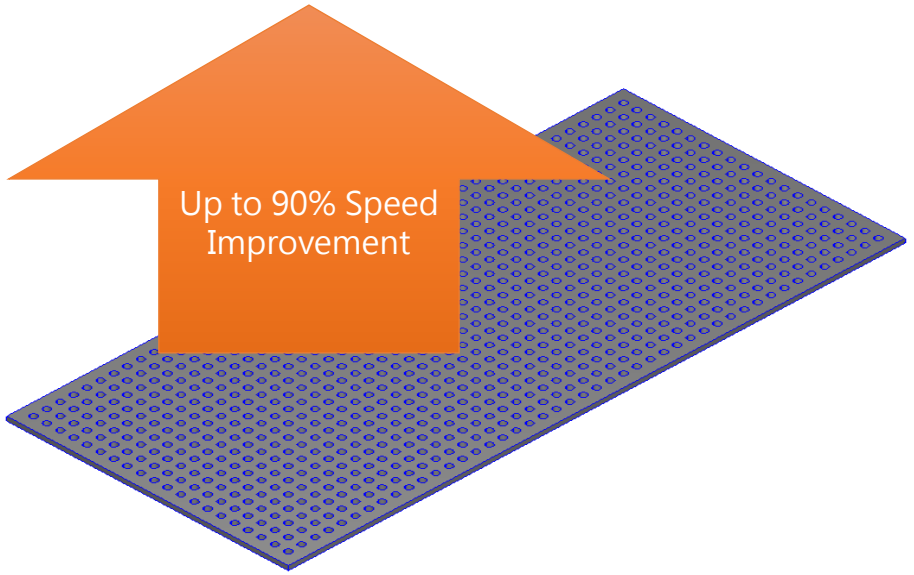
[CAD] Upgraded CAD Data Processing

Support to Import CATIA V5 file (*.catpart)

- Another option for advanced CAD data import

Enhance CAD operation fluency in Studio

- Enhance render performance for dense grid structure model
- Significant time reduction to read the specific complex CAD files



Pre & Post Tools

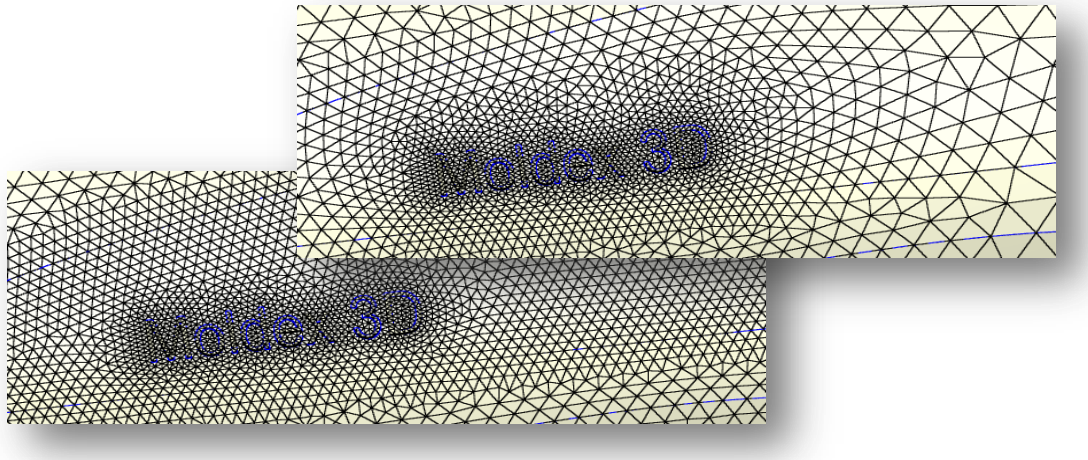
New and Improved CAD Tools

Upgraded Meshing Workflow

Modeling Wizard Enhancement

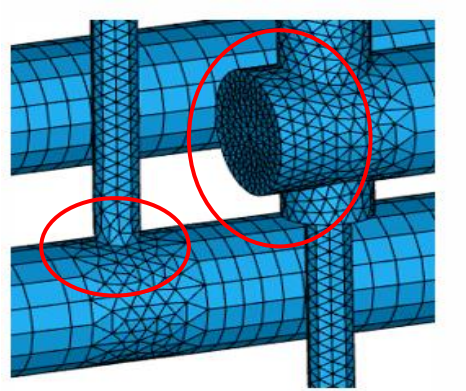
[Mesh] Upgrade Mesh Generation Capability

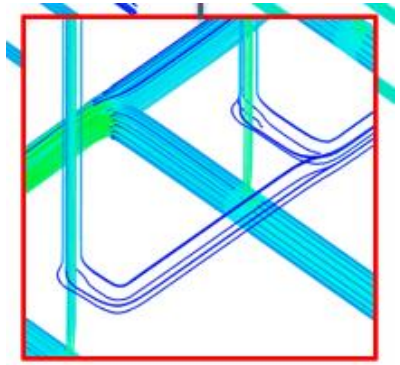
About 15% reduction on surface element count with similar and enough mesh quality

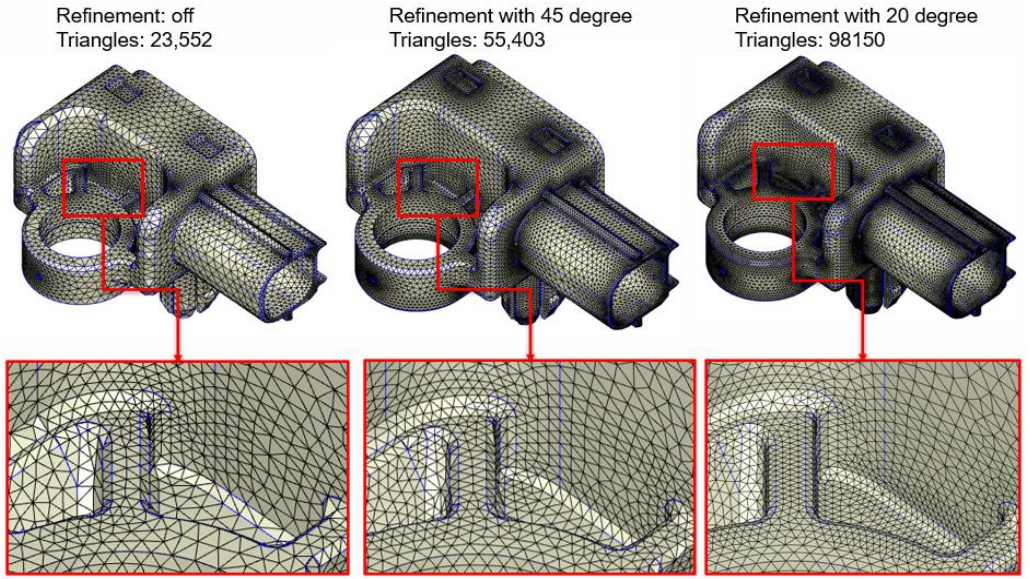


Improve surface mesh quality

- Better meshing performance around curvature areas and joints
  of line-defined component by better treatment for Chord error



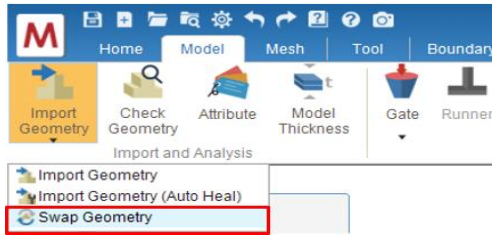


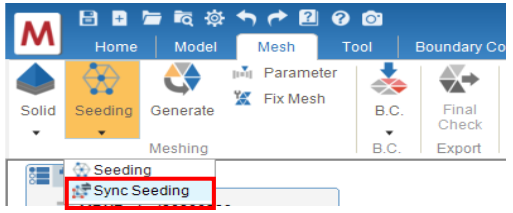


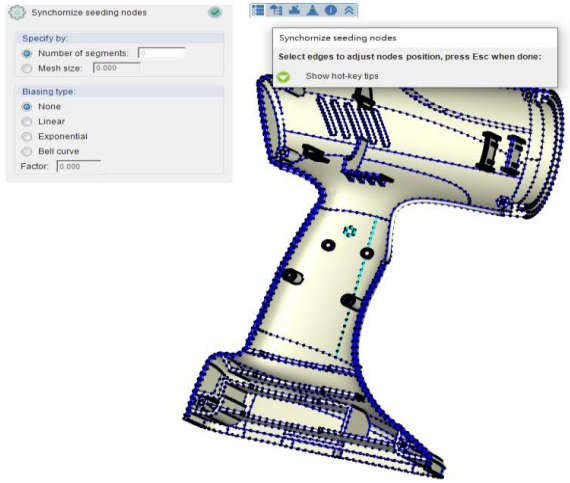
[Mesh] Upgrade Mesh Generation Capability

Support to SYNC Seeding for same model after design change

- Will highlight the edge without sync seeding due to design change
- Quick seeding for similar resolution compared to the original model

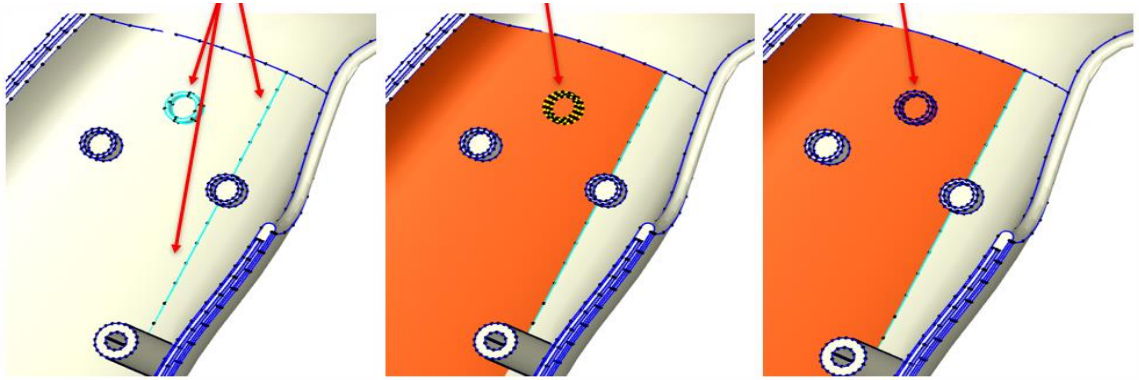






Studio supports Compression Molding with Non-matching Mesh

- Great reduction on model preparation effort and still result in good analysis result
- Matching still required on contact faces between Part, Compression zone and Overflow



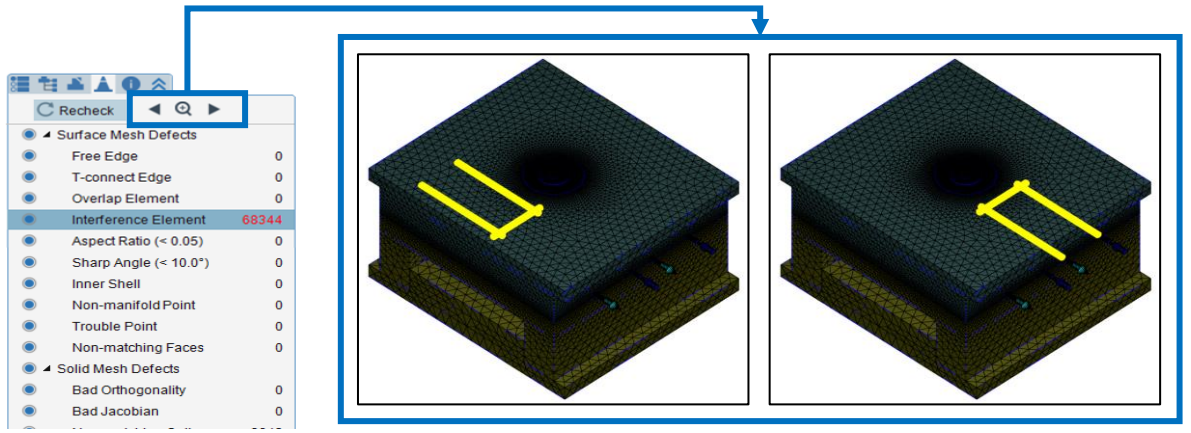
[Mesh] Enhance Usability to Fix Mesh Defect

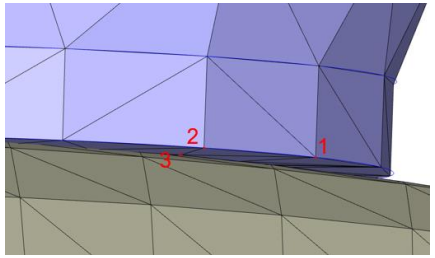
Group defect when looking into mesh defect with navigator

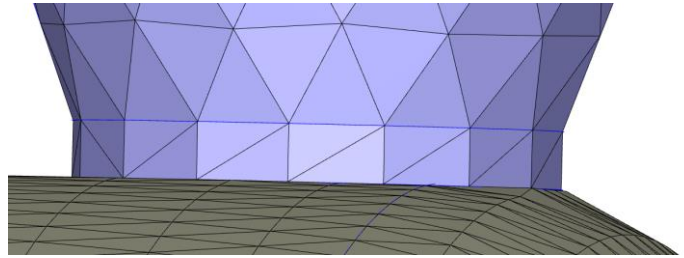
Remove bad element by directly press "Delete" without launching fix surface mesh tool

New Fix Mesh tool: Project Nodes

- Select element nodes and project them onto the same user-defined plane to fix such issues as gap between gate and part



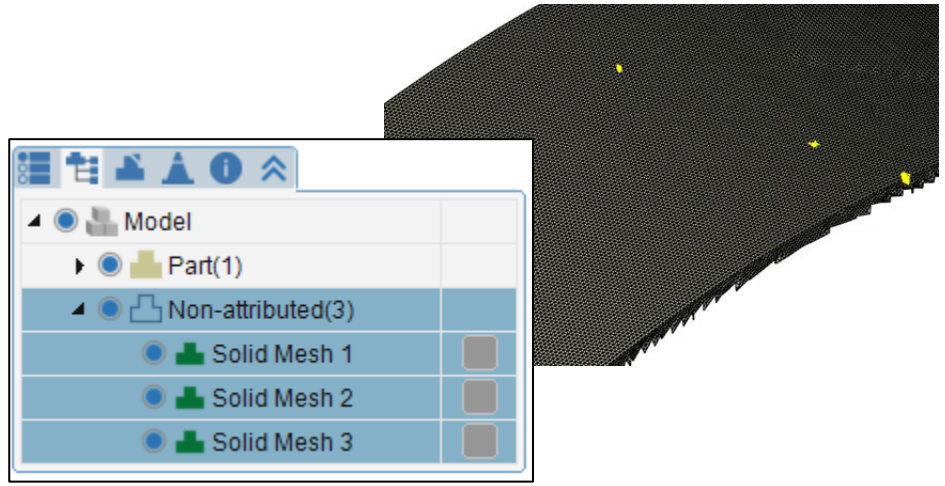




[Mesh] Enhance Usability to Fix Mesh Defect

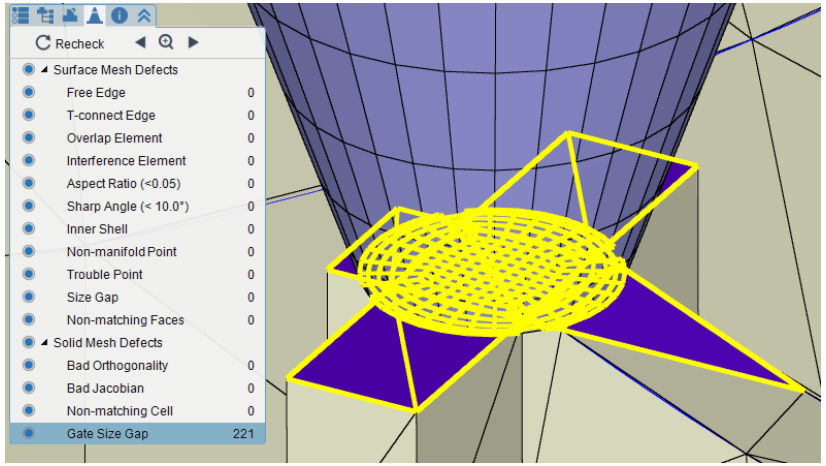
Add solid mesh defect reference object

- Original solid mesh will be removed when fixing surface mesh
- The reference object (non-attributed solid element around solid defect) can assist users to locate the issue



Add two defect check items for solid mesh

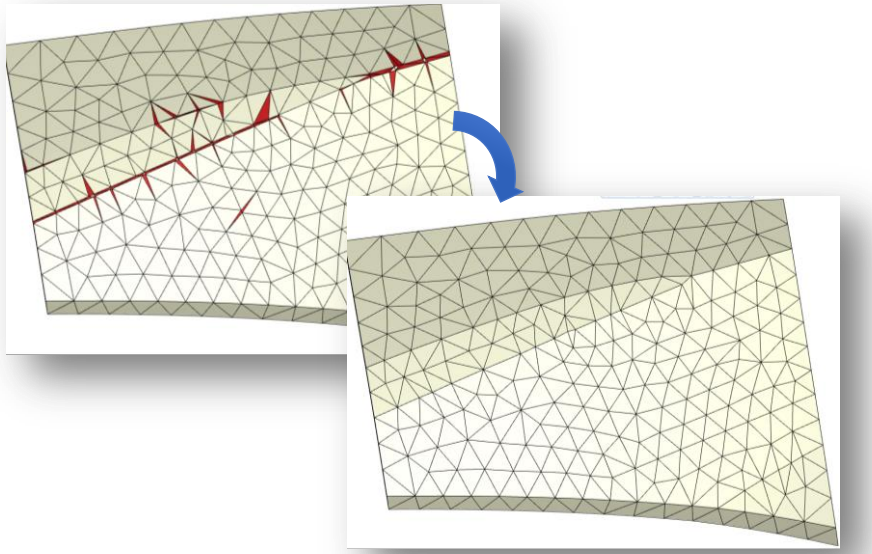
- Non-matching Cell & Gate Size Gap
- Support solid mesh defect reference object



[Mesh] Automatic Fix Function for Surface Mesh

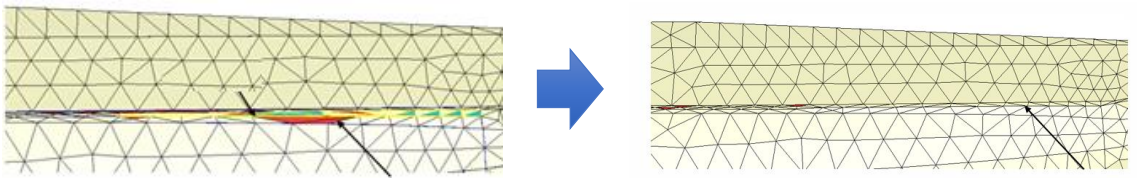
Add Fix Aspect Ratio function

- Quickly fix all bad aspect ratio issues Using the criteria users set on defect list
- Save a lot of time and effort but till keep important model features



Improve Unfillet Capability

- Allow to auto-rebuild neighbor surface mesh at the same time
- Higher Risk to result in failure than not rebuild neighbor mesh



Pre & Post Tools

New and Improved CAD Tools

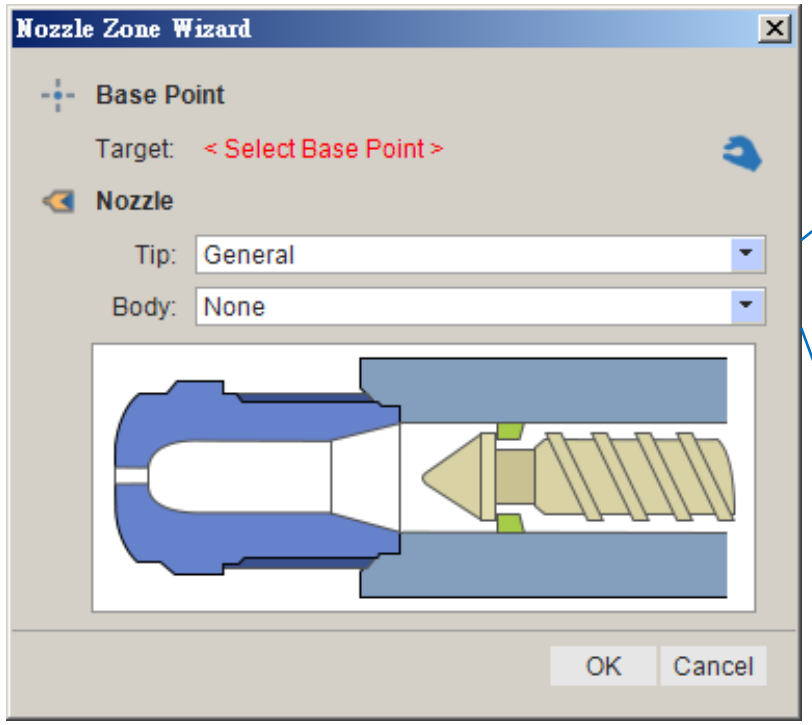
Upgraded Meshing Workflow

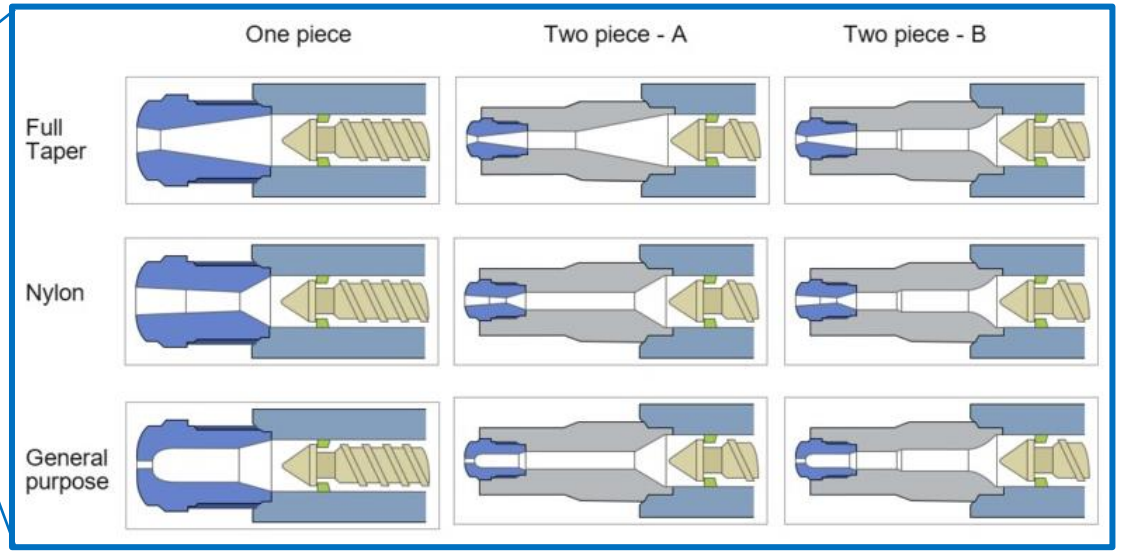
Modeling Wizard Enhancement

[Wizard] Add Nozzle Zone Wizard

Quick and simple workflow to establish 3D Barrel Compression model in Nozzle Wizard

- Provide 9 template to generate structural mesh for Nozzle Zone

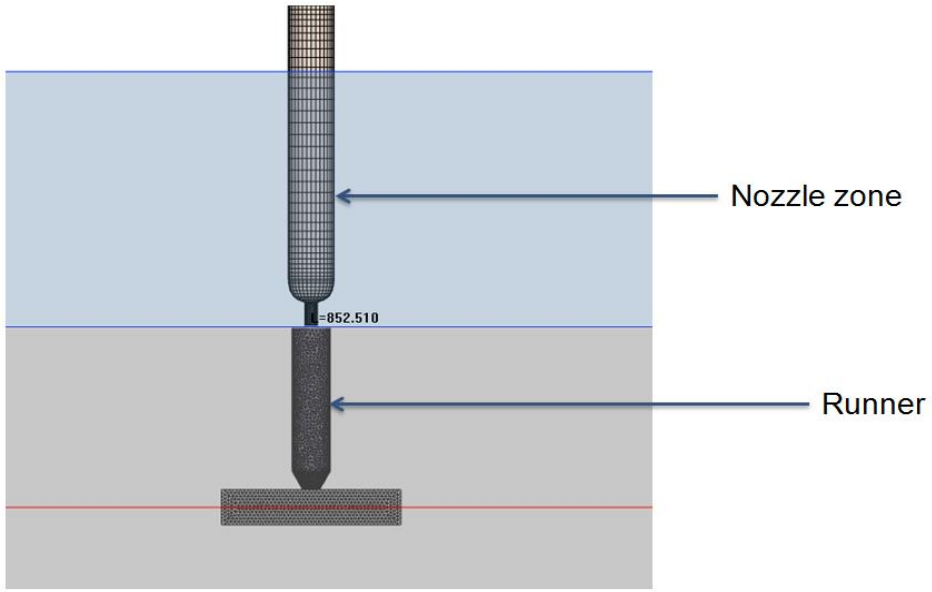


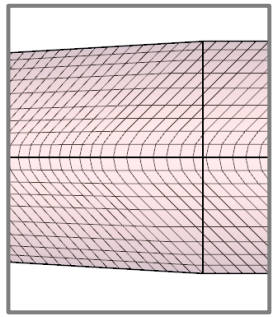


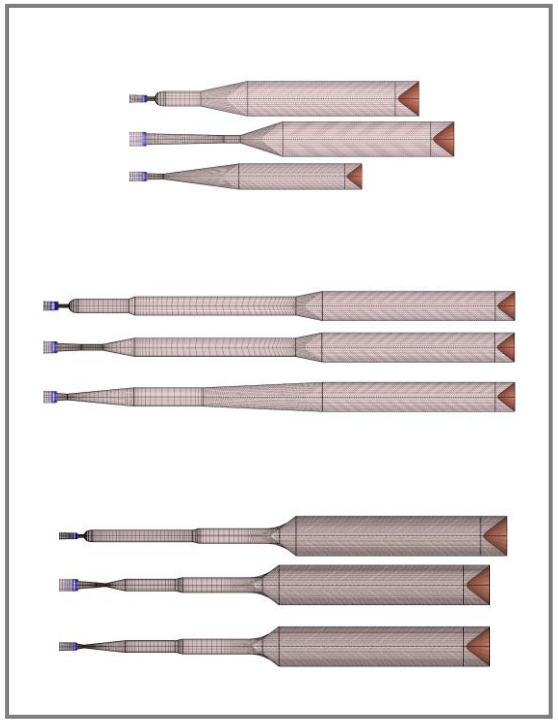
[Wizard] Add Nozzle Zone Wizard

User can manually adjust nozzle model after using Nozzle Zone Wizard

- Hexa-based mesh will be generated to better fit the nozzle dimension and profile
  - Support only Solid Cool mesh with hexa-based runner
- Moldbase will fit the interface between Nozzle zone and runner







[Wizard] Provide Advanced Information and Defect Check of Gate/Runner/Cooling System

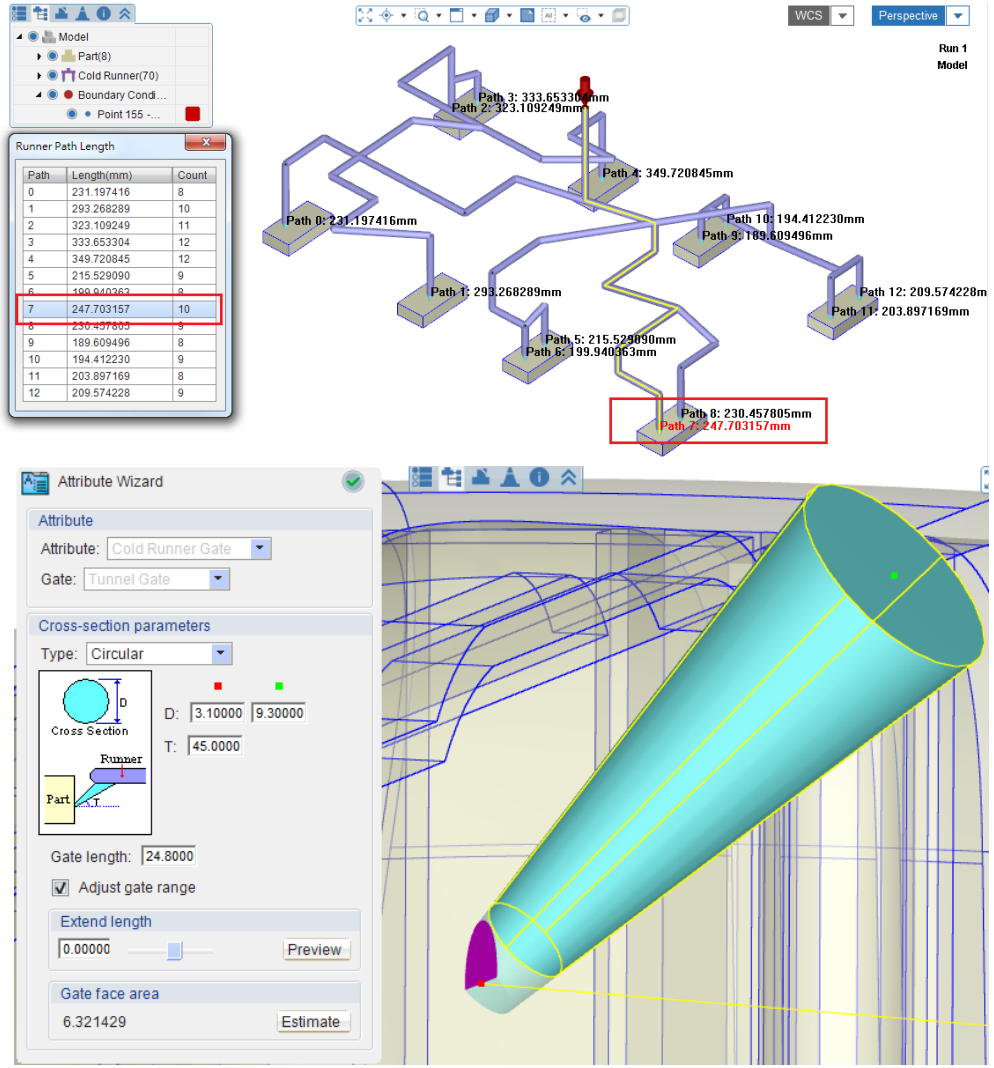
Show the shortest path from melt entrance to each gate

- Select path on the list to highlight it with path length

Allow to estimate gate face area in Gate Wizard

Automatically fix issues for line-defined runners and cooling channels

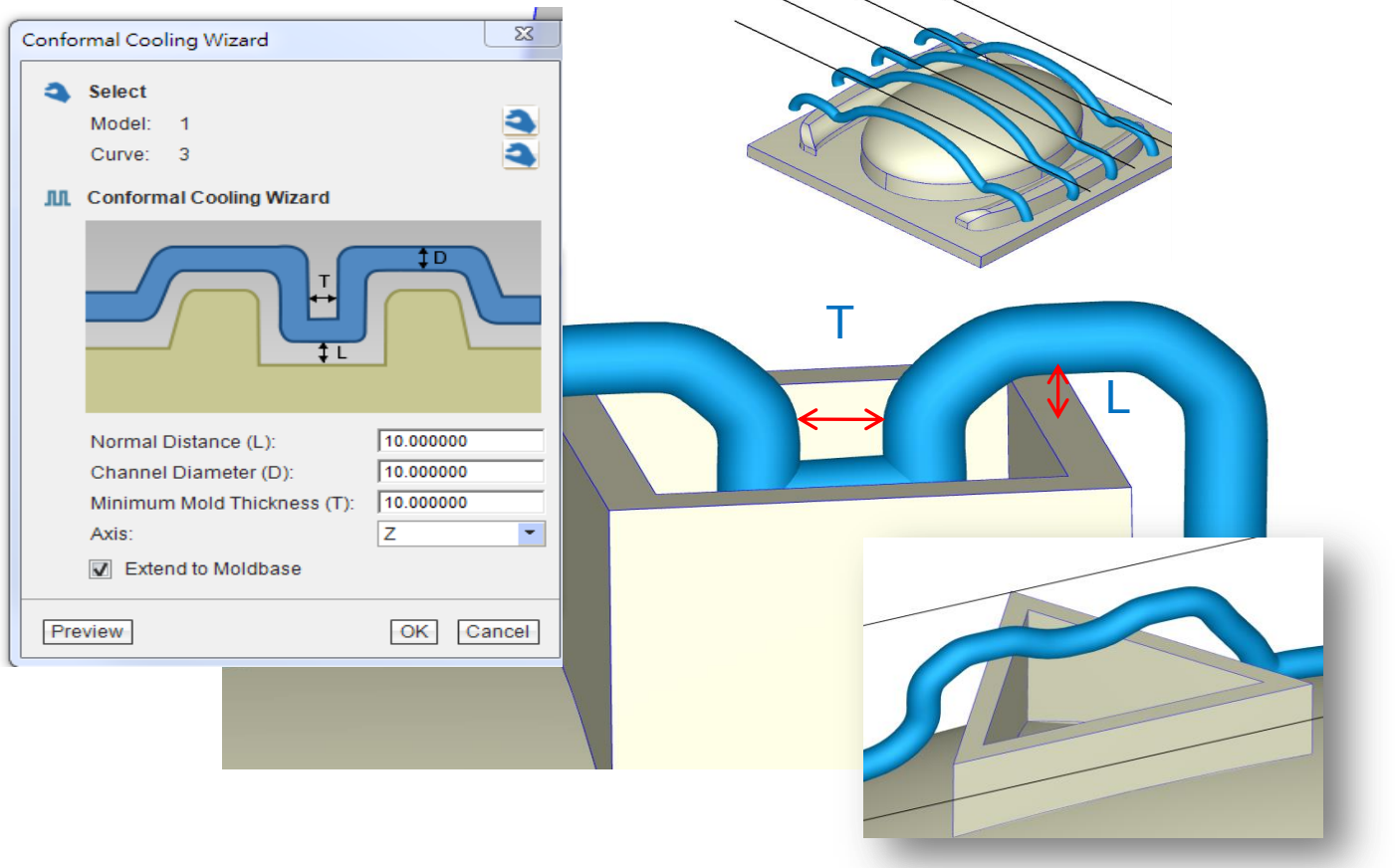
- Option in Preference setting
- Fixing information recorded in LOG

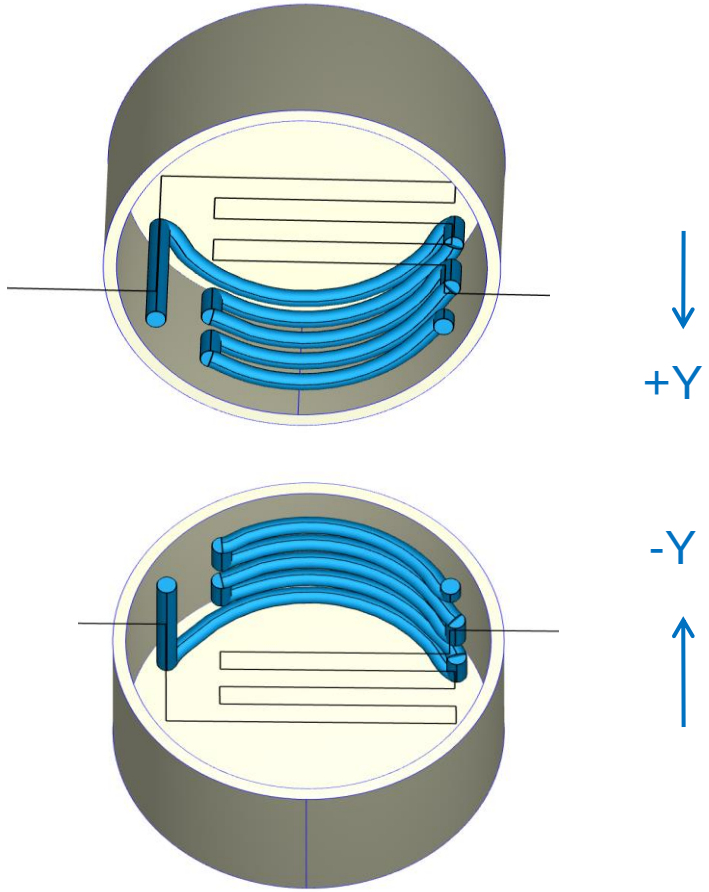


[Wizard] Add New Conformal Cooling Wizard

Quick conformal cooling system established from 2D layout

- CCD license required

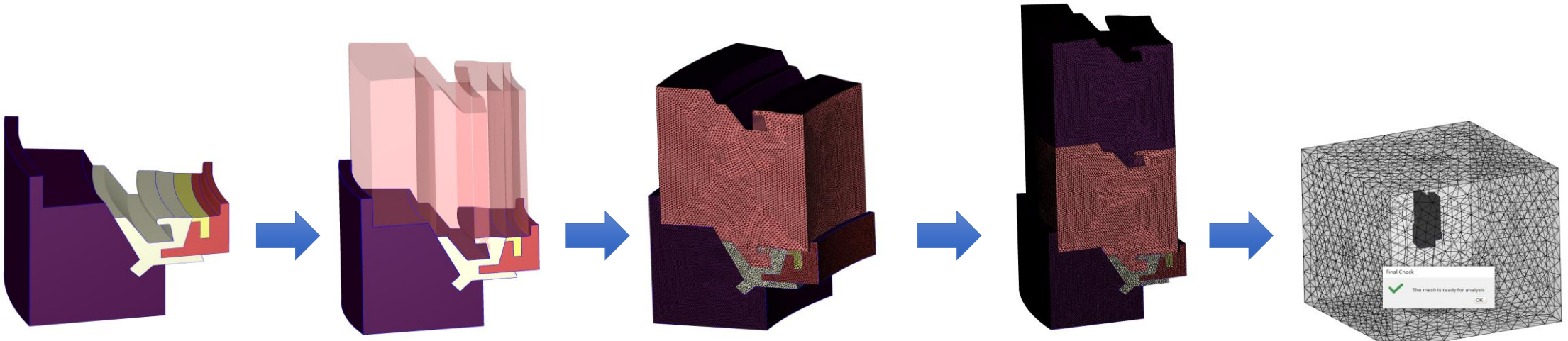




[Wizard] Enhance Compression Zone Wizard

Better surface and solid meshing performance with complex structure and model

- Extend compression region setting onto part/mold insert
- Improve fix workflow when defect found during mesh generation
- Automatically stitch the objects contacting compression zone
- Support import compression zone model from external resource



A.3
Set compression zone

C.1
Generate surface

C.3
Generate surface

[Mesh] Other Pre-processor Enhancement

Support CATIA file import directly in Moldex3d

- No need to install another add-on (extra license required)

Enhance meshing capability on gate rebuild

- Expand rebuild area or apply non-matching gate mesh with refined nearby surface mesh when gate rebuild failed

Upgrade Moldex3D CADdoctor and the capability

- More support for new CAD versions
- Enhanced usability such as view preference

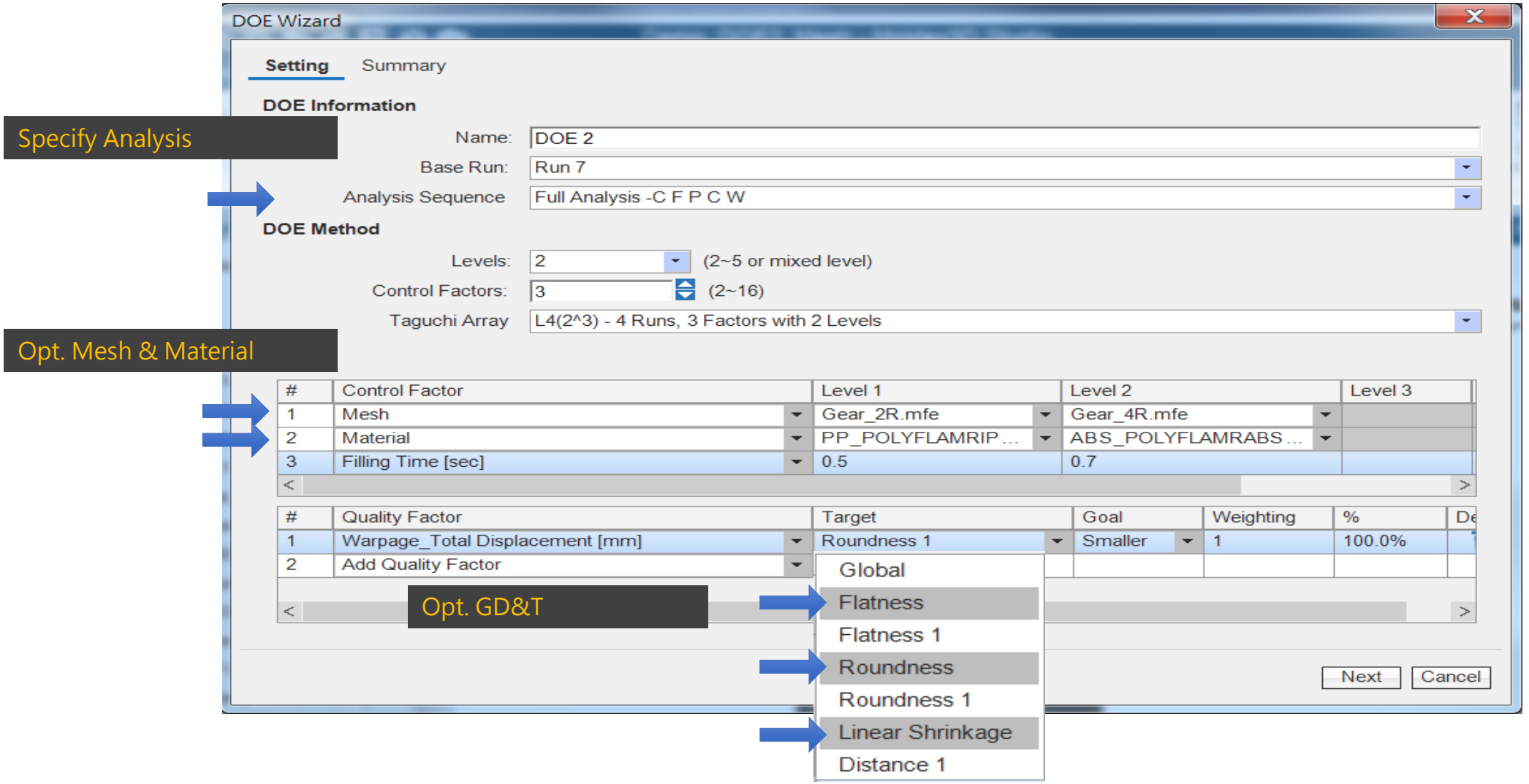
Database & Usability

Intelligent Manufacturing

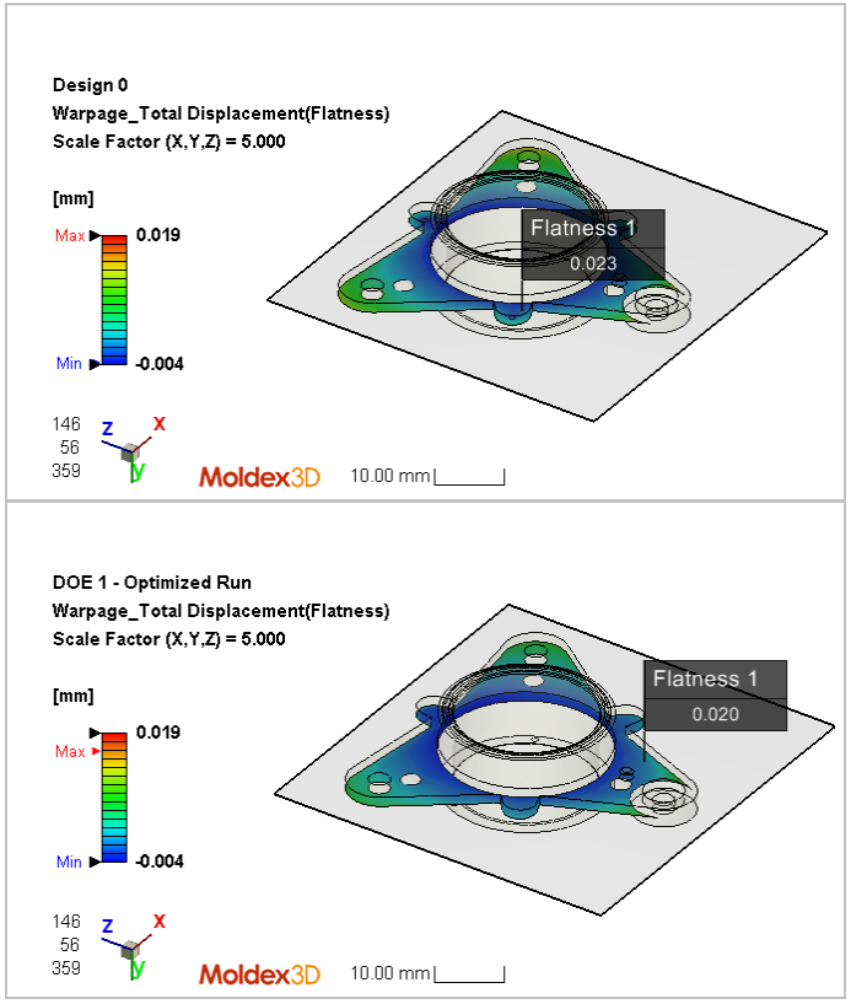
Usability Enhancement

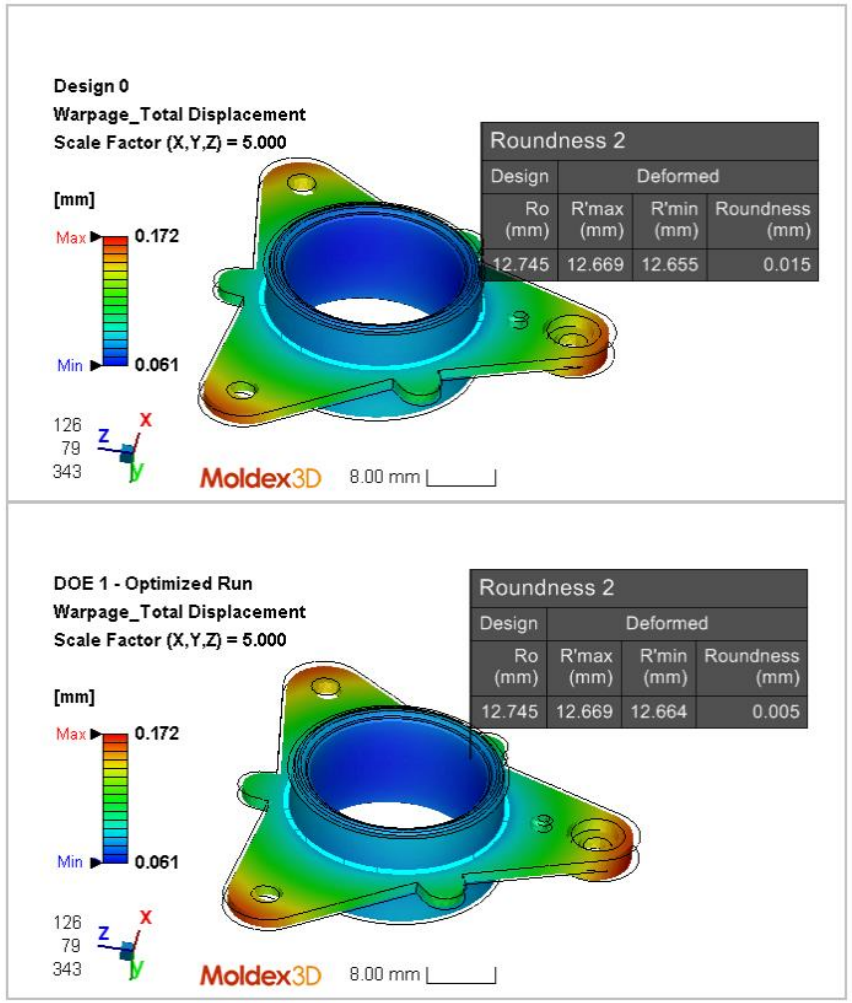
IC Packaging Simulation on Studio

[Expert] DOE Supports Measurement as Quality Factors



[Expert] DOE Supports Measurement as Quality Factors





Opt. Flatness -13%

Opt. Roundness -66%

Moldex3D

[Material] Moldex3D Material Bank Expansion

Update material database

- 19 thermoplastic materials are newly added
  - PA (5), PC (3), PBT (1), SEBS (2), TPV (7), SPECIAL(1)
- 0 thermoset is newly added

[Machine] Moldex3D Machine Bank Expansion

Add 582 machines in Moldex3D Machine Bank

- New machine makers in bank: DAKUMAR, SHUANGSHENG, KAIMING, SUNBUN
- More machine data for other makers: SHUENN JAAN, HAITAI, Hai Tian, JSW, NUOEN

Expand Machine Interface in Moldex3D Machine Bank

- Add Hai Tian controller of AK668 and NUOEN controller of MIM-150
- Update JSW controller of SYSCOM 3000

Database & Usability

Intelligent Manufacturing

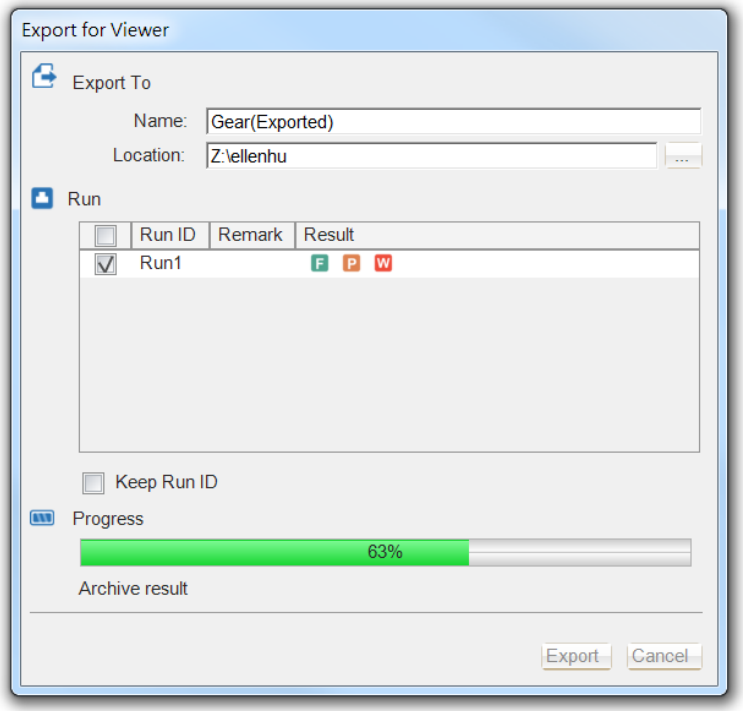
Usability Enhancement

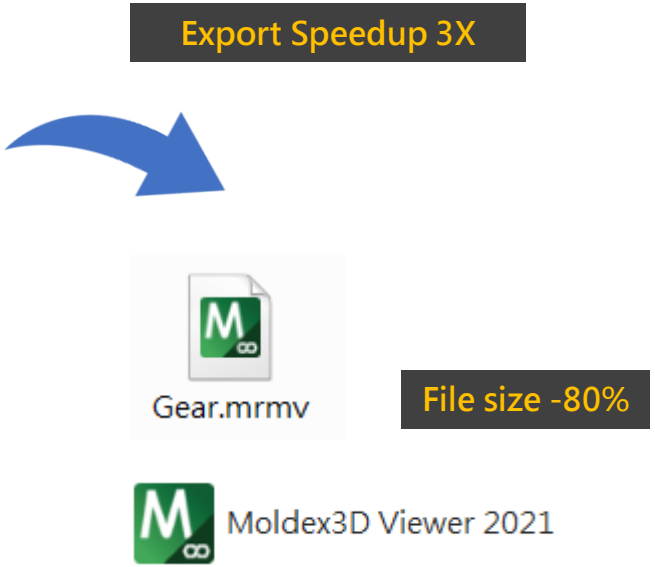
IC Packaging Simulation on Studio

[Studio] [Viewer] Archive Studio Project into Single File

Archive Studio project into single file (*.mrmv)

- Reduced file size during the communication with CAE project
- Only allow result interpretation in Viewer for security purpose
- Support to read in both Moldex3D Studio and Studio Viewer

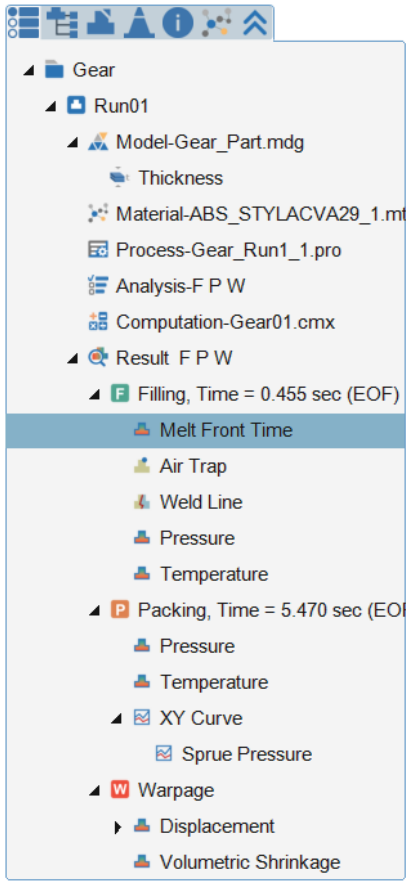


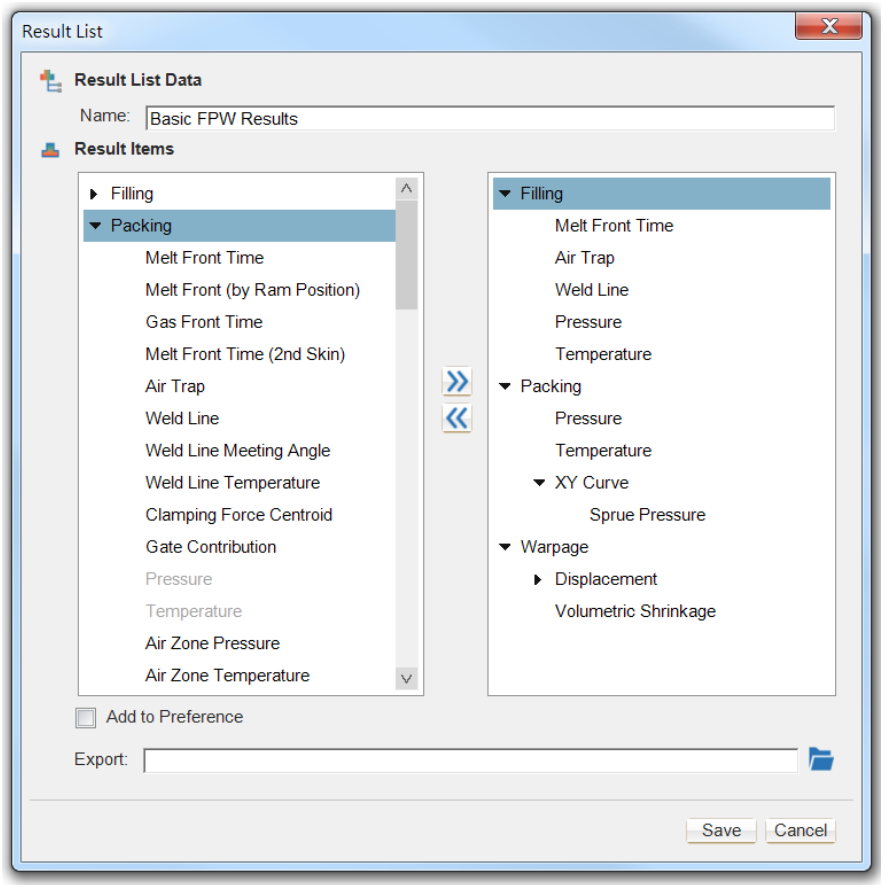


[Studio] Allow Customization to Result Items

Easy management during result interpretation and export

- Set as Preference (on machine) or only for specific project





[Studio] More Enhanced Usability in Studio

Improve Project Tree for more run information

Add option to automatically save MDG once in a while

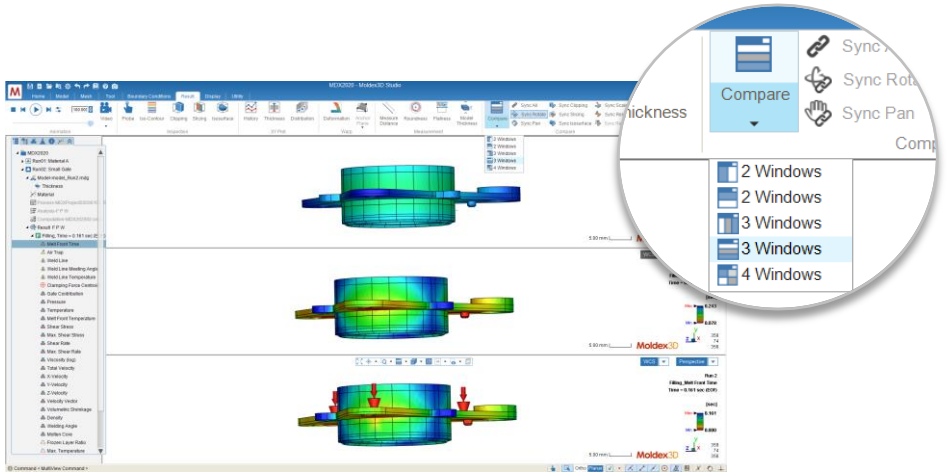
Allow customized color of weldline and feature line

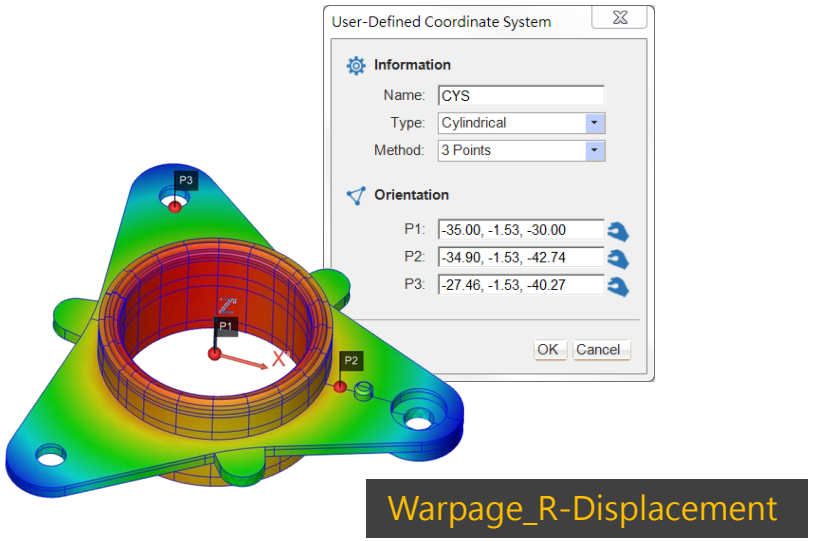
Allow customized range for Result Advisor and Video Wizard

Support 3 window comparison

Support cylindrical coordinate

- Allow user defined coordinate

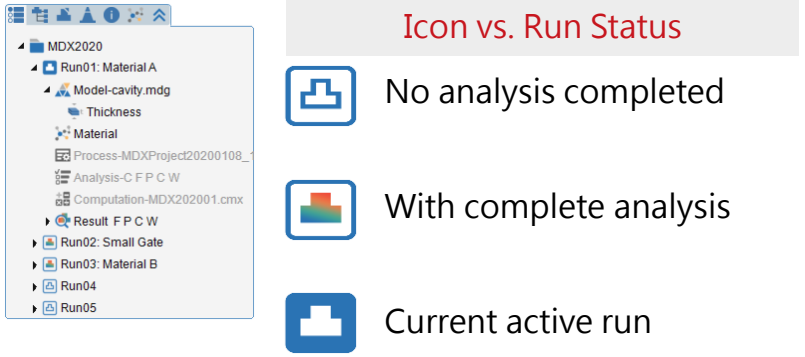




Warpage_R-Displacement

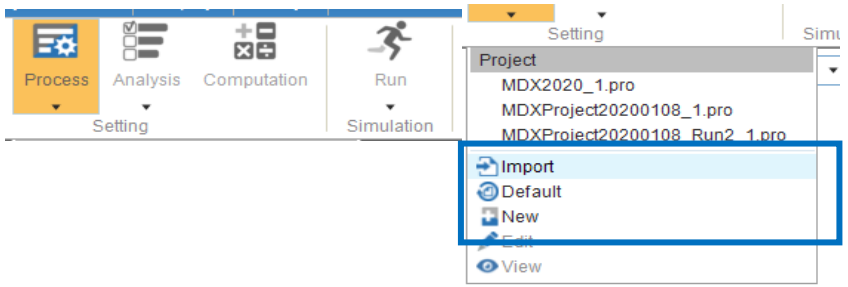
[Studio] More Enhanced Usability in Studio

Updated run icon for clearer status



Not to create default Process file automatically

- Right click on Project Tree to edit Process Condition
- Double click for view-only process information



New mouse operation for shift and rotation

	Rotate	Pan	Zoom
Anytime	Drag	Drag + Shift	Drag + Ctrl
Anytime	Drag	Drag + Shift or Ctrl	
Selection Disabled	Drag	Drag + Shift	

[RC] [LM] Enhanced RC and LM Usability

[RC] Enhanced Remote Computing Usability

- Support resumed and multiple download of analysis job
- Moldex3D Job Scheduler supports job submitting from previous version Computing Manager
- Allow to set Working Folder to a place not under master node

[LM] Enhanced License Management Usability

- Allow license server control by changing Environment Variables
- LM Server and Client support IPv6 monitoring and connection

Database & Usability

Intelligent Manufacturing

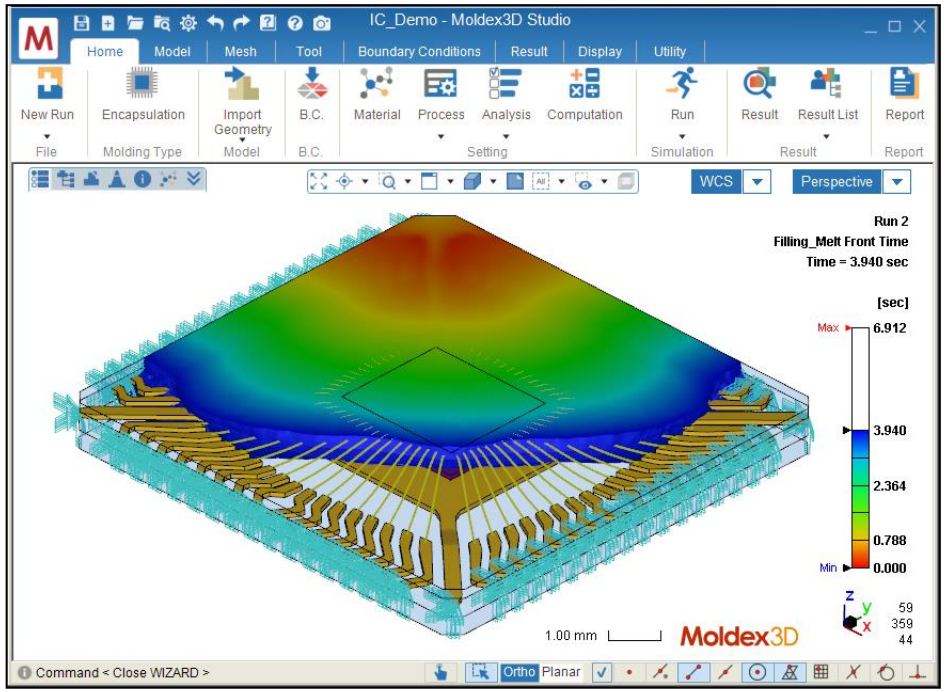
Usability Enhancement

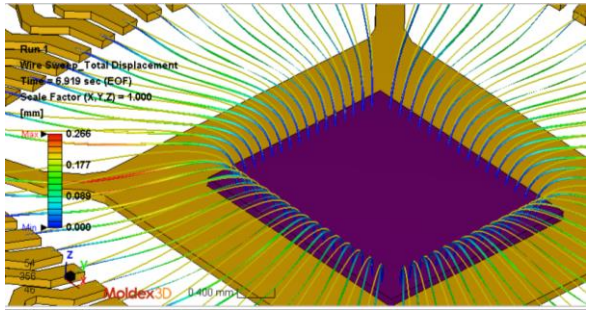
IC Packaging Simulation on Studio

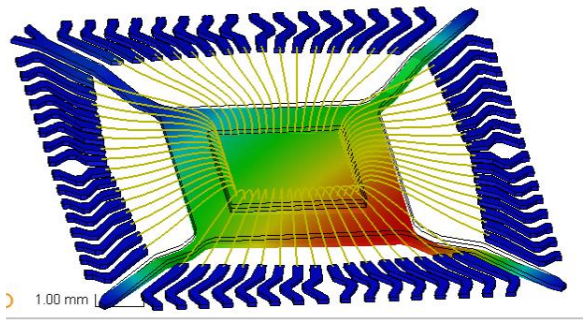
[IC] Support IC Transfer Molding Simulation on Studio

Modeling, Analysis Setting and Result Interpretation on Studio for Transfer Molding type IC Packaging simulation

- Wire Sweep analysis (can export selected wire after)
- Paddle Shift analysis (both 1 and 2 way FSI supported)
- Convenient wizard tool for BC setting during modeling

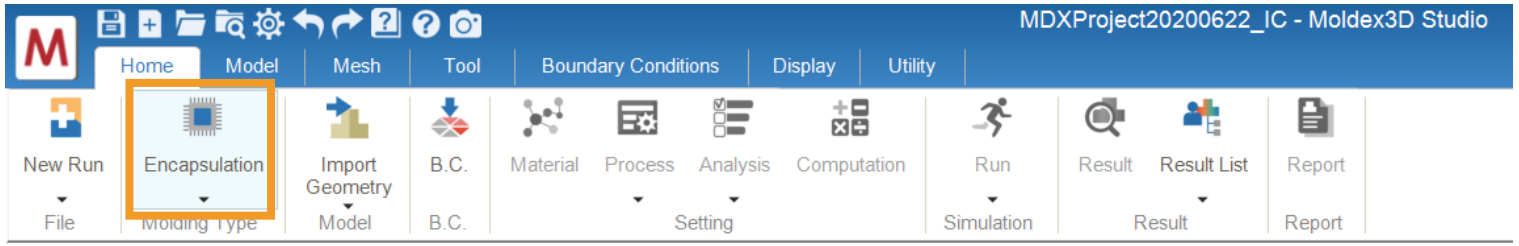


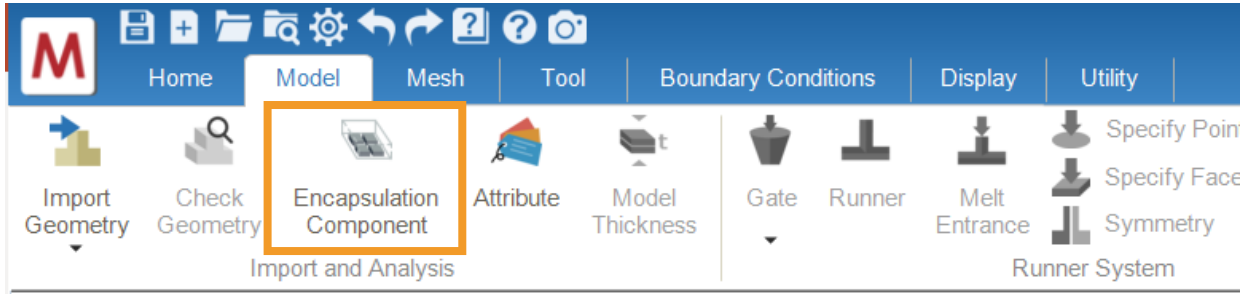


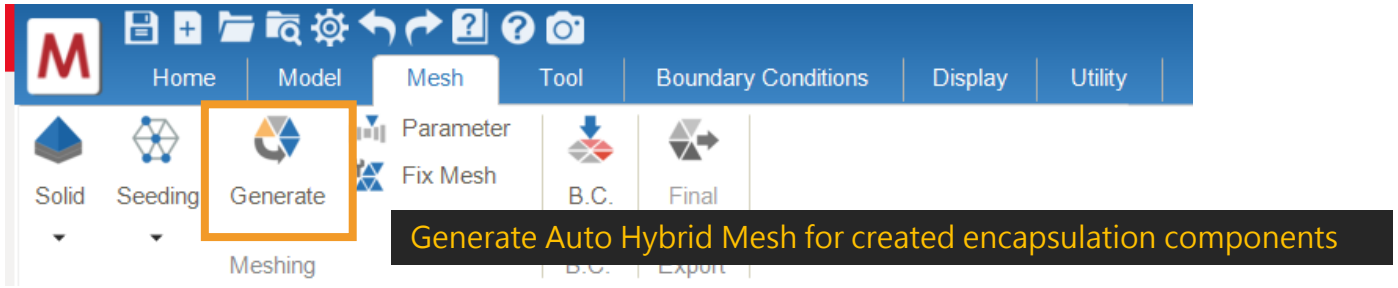


[IC] Auto Hybrid in Studio

Auto Hybrid in Studio (else using Rhino-Mesh for pre-process)







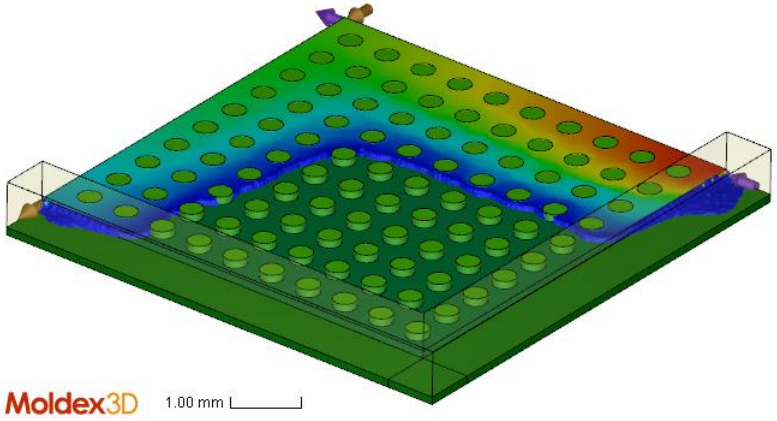
[IC] Support IC Underfill Simulations on Studio

Capillary Underfill (CUF)

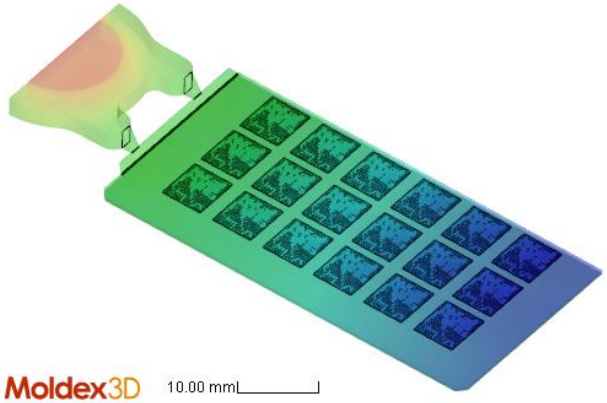
- Infinite Mode
- Dispensing
- Dotting

Potting

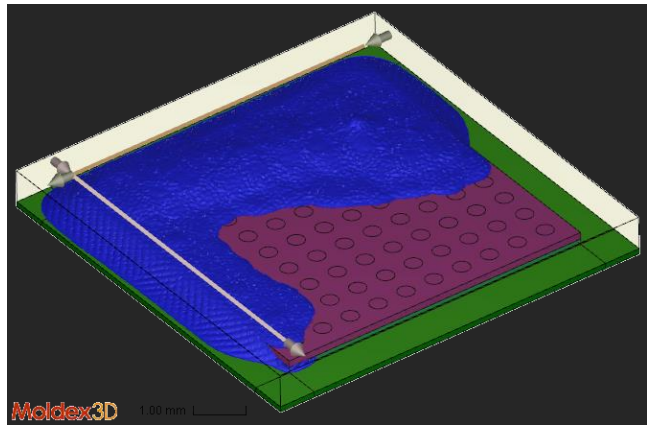
Molded Underfill (MUF)



Dispensing (CUF)

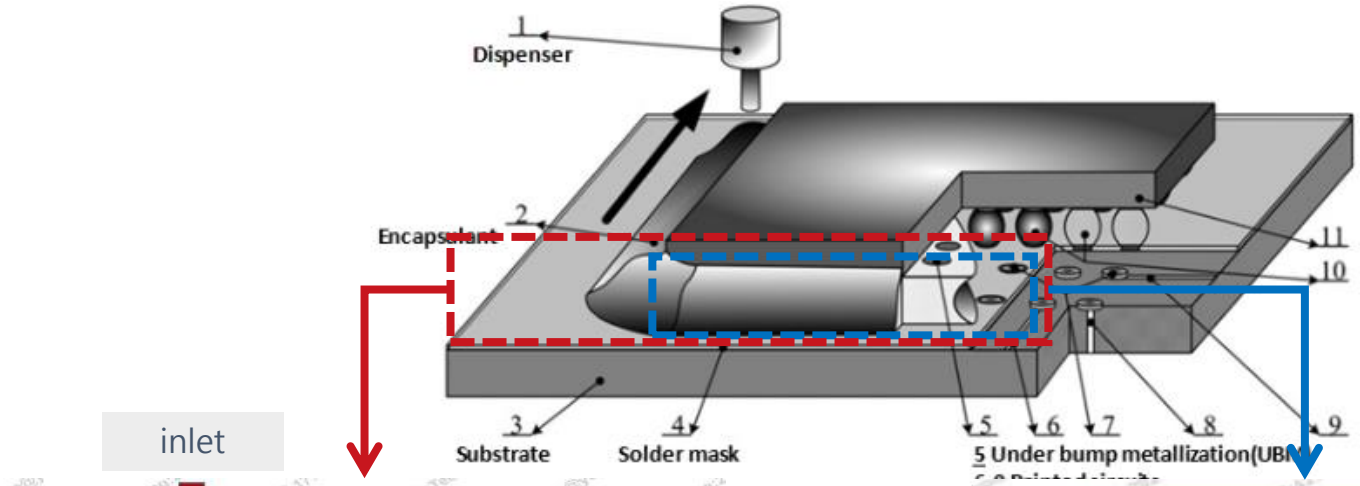


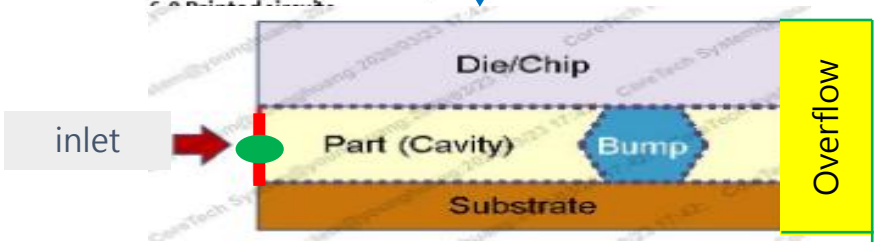
Molded Underfill

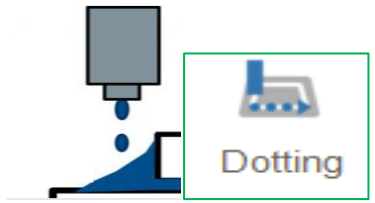


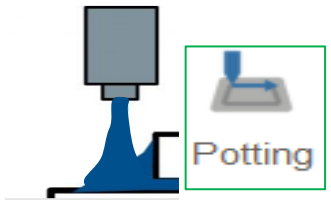
Potting

[IC] Support IC Underfill Simulations on Studio









Simplification 1

Dispensing Pass

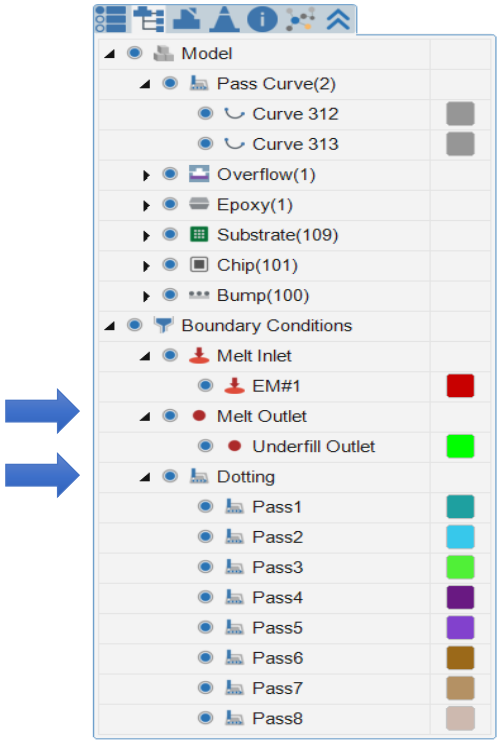
Simplification 2

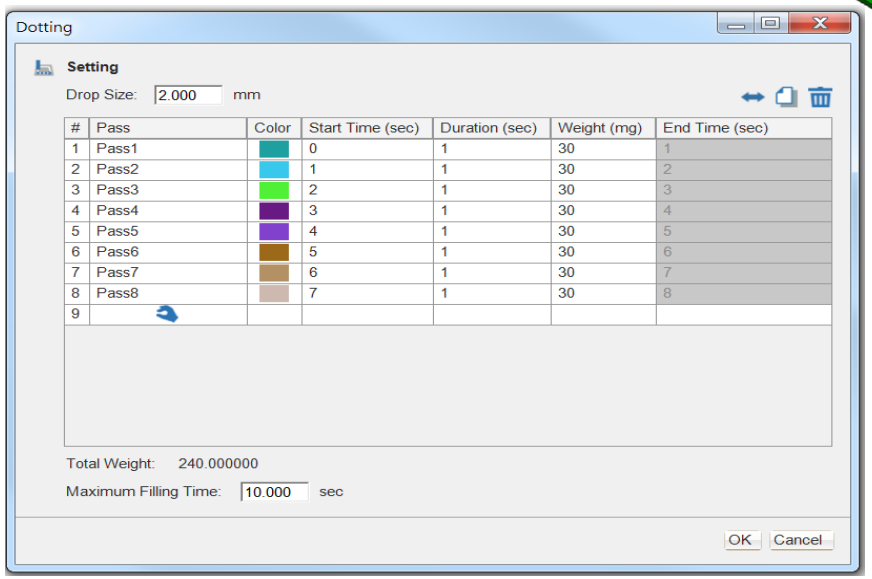
No Pass
Infinite Mode

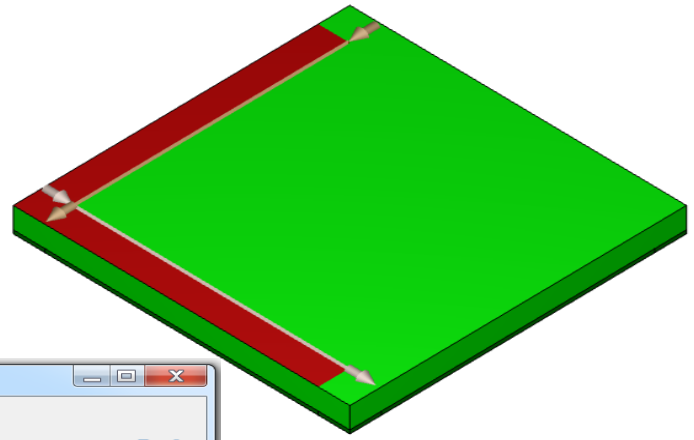
[IC] Support IC Underfill Simulations on Studio

Quick feed pass setting with wizard

- Dispensing (inlet on part)
- Dotting/Potting (inlet on overflow)



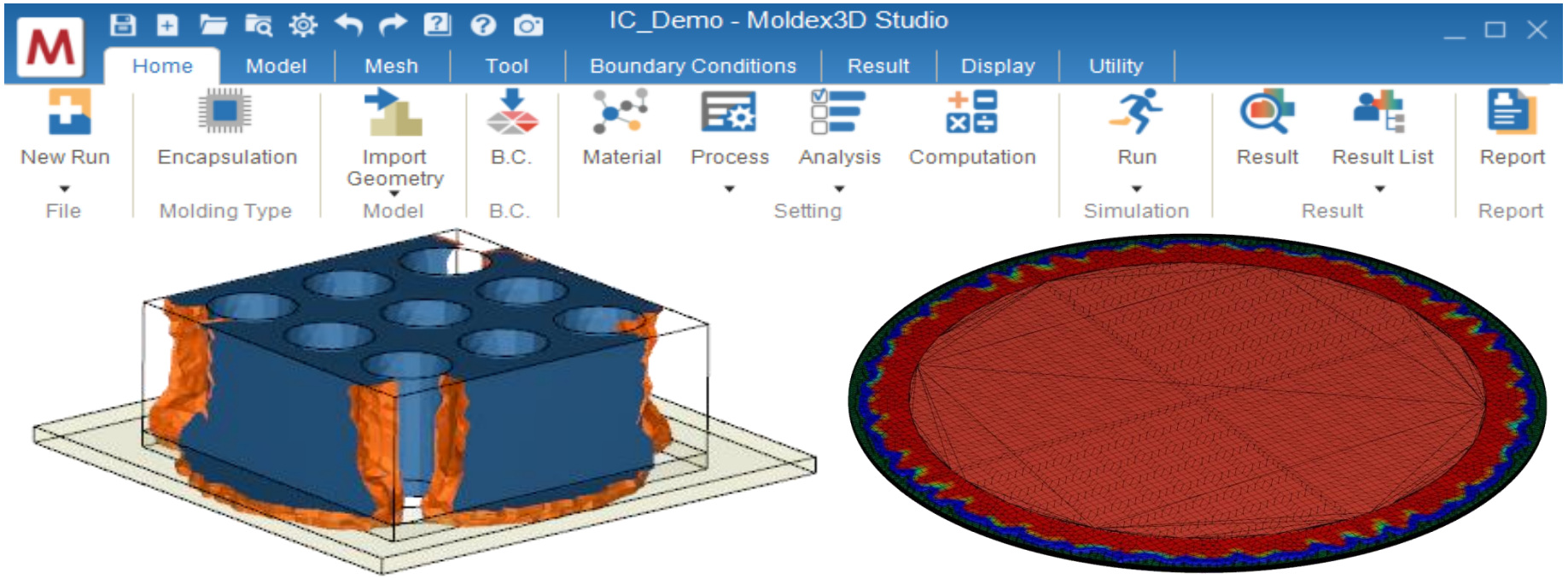




[IC] Support IC Compression Simulations on Studio

Compression Molding

- Compression Molding (include Transfer Molding simulated with pot and plunger)
- No Flow Underfill (NUF)
- Embedded Wafer Level Package (EWLP)



Moldex3D