

# Planets X 5.0 Release Notes

May 22, 2015

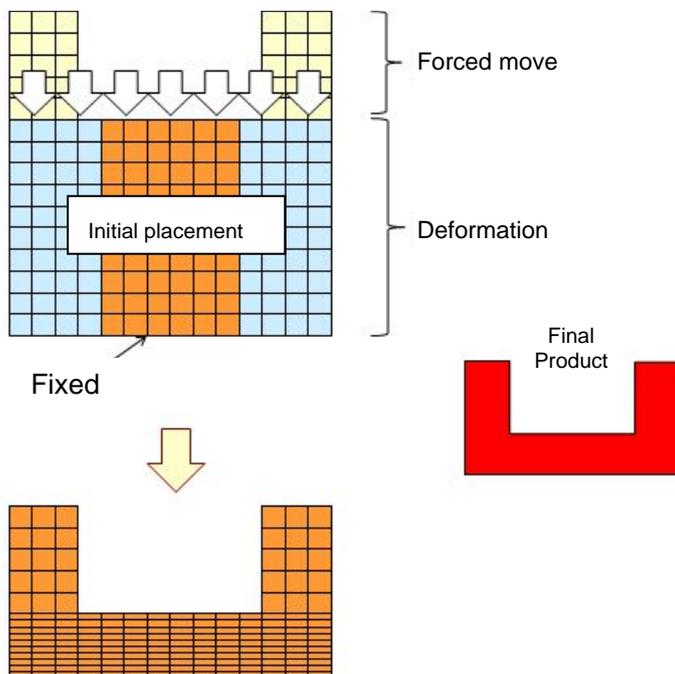
[ANSYS Compatible Version]

Please install and use Planets X 5.0 in ANSYS Workbench 16.0.

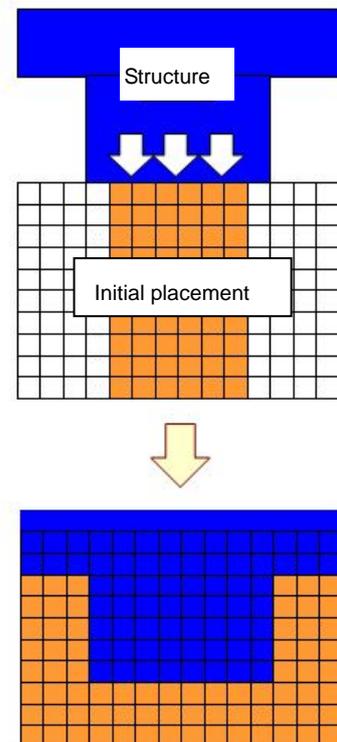
[New Planets X 5.0 Features]

1. A new calculation technique known as the superimpose method has been implemented in the optional function of the existing Injection Compression/Press Molding Analysis. However, an optional Injection Compression/Press Molding Analysis license is required to use this function. Under the existing moving boundary method, the calculation is performed with the compression deformation expressed by distorting the mesh of the flow cavity region without distorting the mesh of the moving structural body region (using the so-called Arbitrary Lagrangian and Eulerian Method). As a result, there used to be a limit in calculating moving boundary problems where the mesh is deformed substantially. On the other hand, since the new technique allows the compression deformation to be expressed without having to distort the mesh, it is thus possible to deal with thin-wall mesh deformation problems which used to face application limits in the past, vertical wall movement problems, and boundary conditions where the mesh is completely crushed (using the so-called Eulerian Method). Besides hexahedral elements, tetrahedral elements and other elements can also be used for the mesh shape of the fluid flow cavity region. However, the superimpose method cannot be used concurrently with the structural body temperature coupling function in the current version. Please read "Section 6\_ Injection Compression/Press Molding Analysis Manual" for details.

## Conventional Injection Compression



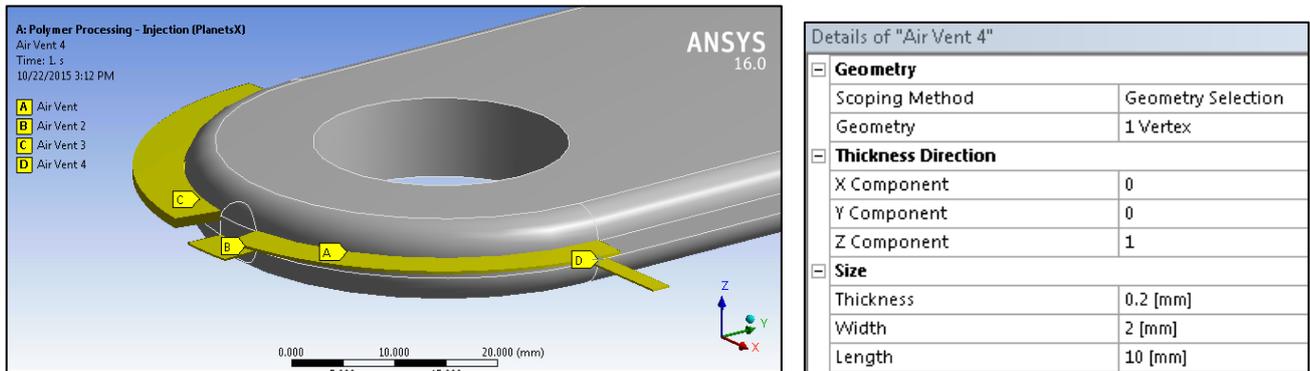
## Superimpose



Analysis Image Diagram of the Superimpose Method (Comparison with Existing Functions)

- An air vent shape display function, and a function to install air vents collectively on the parting line have been implemented.

The display function allows a cuboid-shaped air vent to be displayed in the model according to the specified size. The previous air vent function selects the vertices of the geometry model one by one to set the air vent individually but the new function allows the air vents to be set collectively for the vertices on lines such as the parting lines as well. Please read 4. Polymer Processing - Injection Analysis Manual for details.



Display of the air vent shape and size setting screen (sets vertex A and D on line B and C respectively)

#### [Improved Planets X 5.0 Features]

##### <Pre-Processing>

- The setting of the inlet points has been reviewed.
  - The setting of the maximum injection pressure has been moved from the analysis condition to the inlet point condition.
  - The setting of the initial placement has been reviewed (however, an optional Injection Compression/Press Molding Analysis license is required to use this function). Input of the initial placement by selecting the element name has been integrated with the initial placement in the geometry.

##### <Post-Processing>

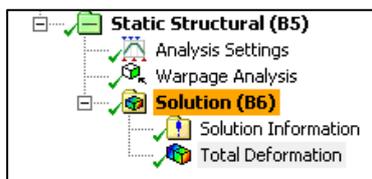
- Even if the calculation is terminated mid-way, or if it is forced to terminate due to an error, it is now possible to view the calculation results up to that point.

#### [Precautions]

If tetrahedron elements are used in the warpage analysis of the same mesh, at the end of the warpage analysis, the "Results" field in the tree outline will be shaded in orange, and the following warning message will appear shaded in orange. In reality, midside nodes are generated immediately before running the warpage analysis of the same mesh and the warpage analysis is carried out as a secondary tetrahedral element. There is no change with regards to the previous analysis results.

**"Linear tetrahedron elements are used in the regions of a linear material. This is not recommended. Please consider changing the mesh setting so as to use a different element type"**

for these regions.”



Tree outline figure after warpage analysis

Messages	
	Text
Warninc	Linear Tetrahedral elements have been used in regions with linear materials. This is not recommended. Please consider changing your mesh s
Warninc	One or more bodies may be underconstrained and experiencing rigid body motion. Weak springs have been added to attain a solution. Refer
Info	+++ READ RESIN DATA                      OK !!! +++

Warning messages after warpage analysis