

MAGMA

Geometry / Mesh

Sand Casting

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Geometry / Mesh

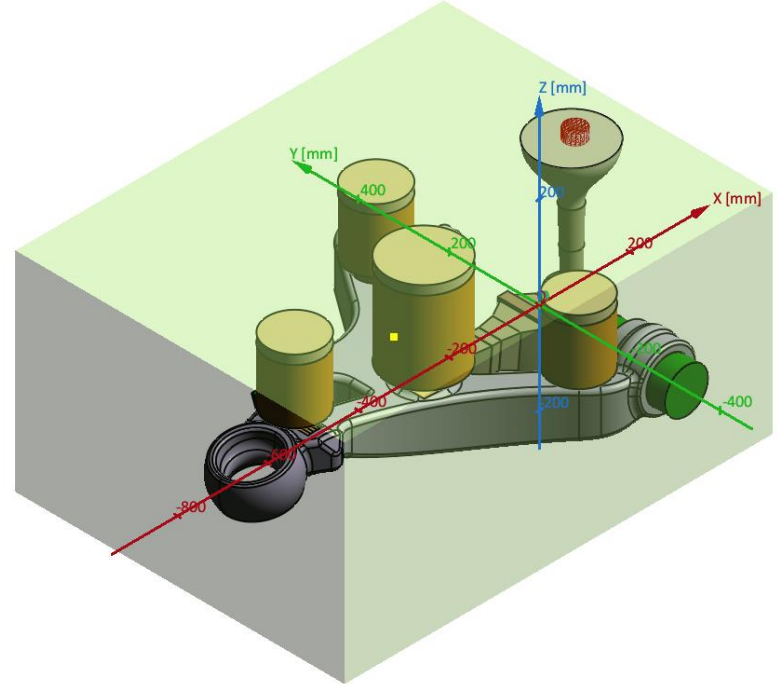
Sand casting

- Boolean Operations
- Geometry Accuracy
- Advanced Cutting Knife

Boolean Operations

A closer look

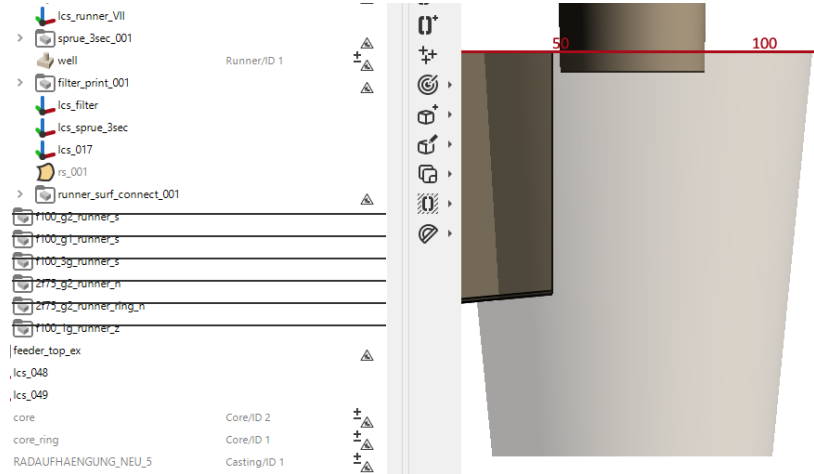
- How do boolean operations work in MAGMASOFT?
- How do boolean modes work?
- Why is 'Boolean blocked' a default for geometry import?



Boolean Operations





How do boolean operations work in MAGMASOFT?

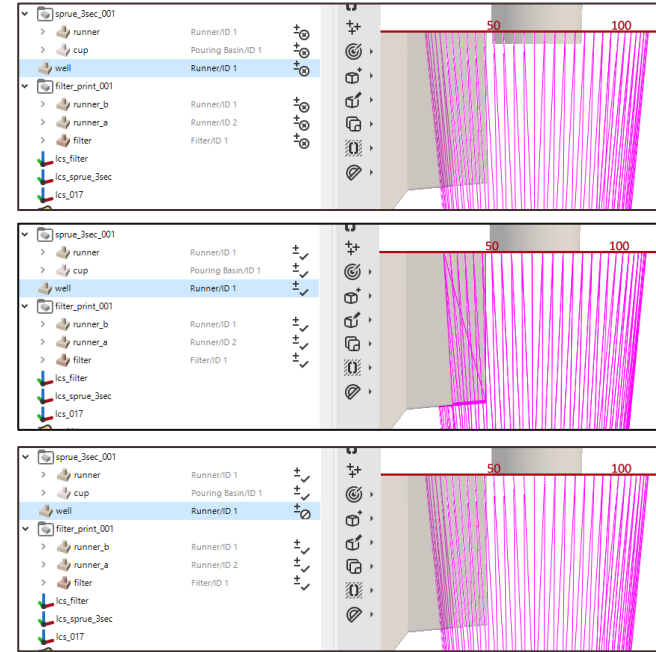
- ❑ The ordering of geometries in the geometry tree is important
- ❑ Upper geometries will be overlaid by lower geometries
- ➔ More important geometries are placed lower in the geometry tree



Boolean Operations

How do boolean modes work?

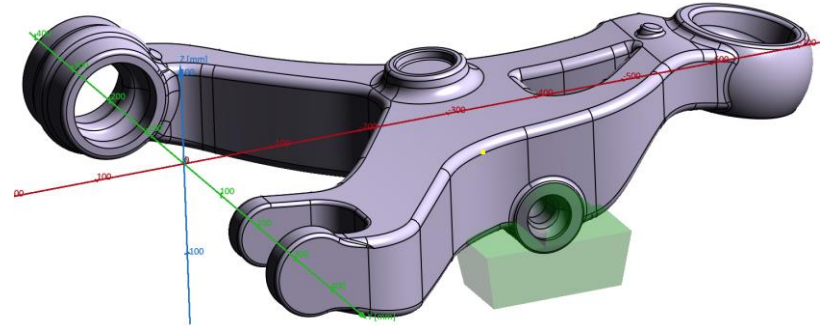
- Block Booleans 
 - Don't participate in boolean operations
- Manual Booleans 
 - Participate in boolean operations
- Skip Booleans 
 - Participate in boolean operations for other geometries
- Up to Limit 
 - Participate in boolean operations, only if triangulation faces are below a set limit
 - Limit can be set in preferences



Boolean Operations

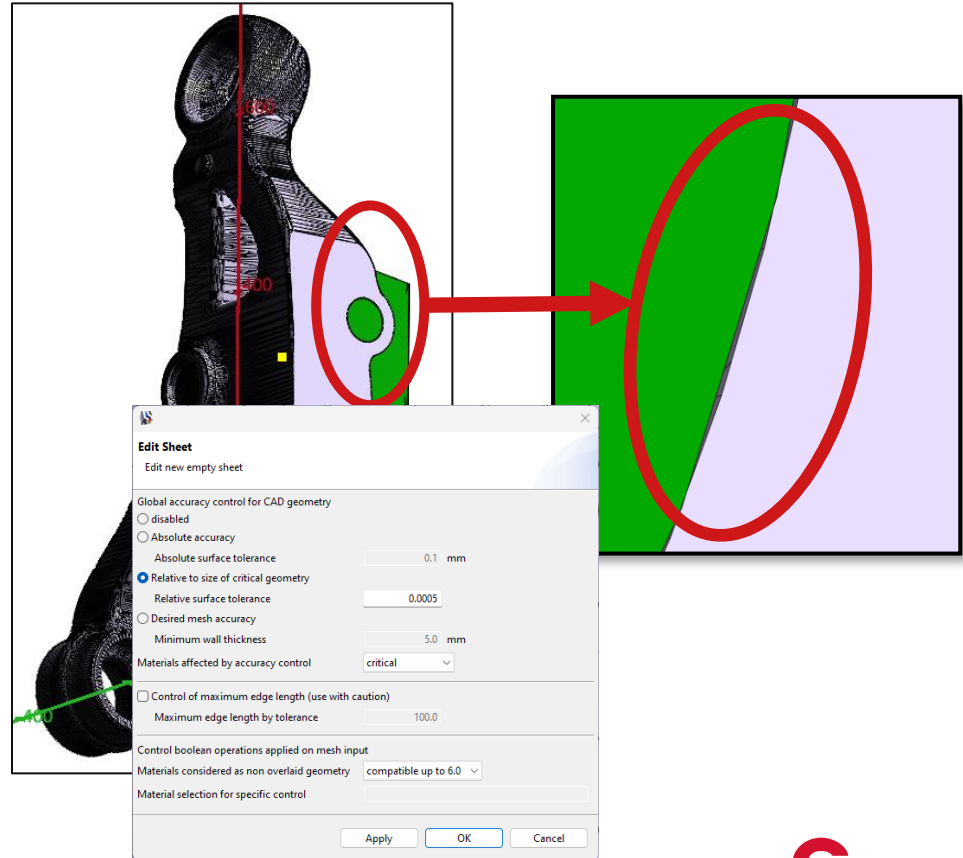
Why is ‚Boolean blocked‘ a default for geometry import?

- Imported geometry originates most of the times from an external CAD system
 - All of these geometries are often created as non-overlaid geometries
- Non-overlaid geometries don't need to participate in boolean operations and are therefore ‚blocked‘

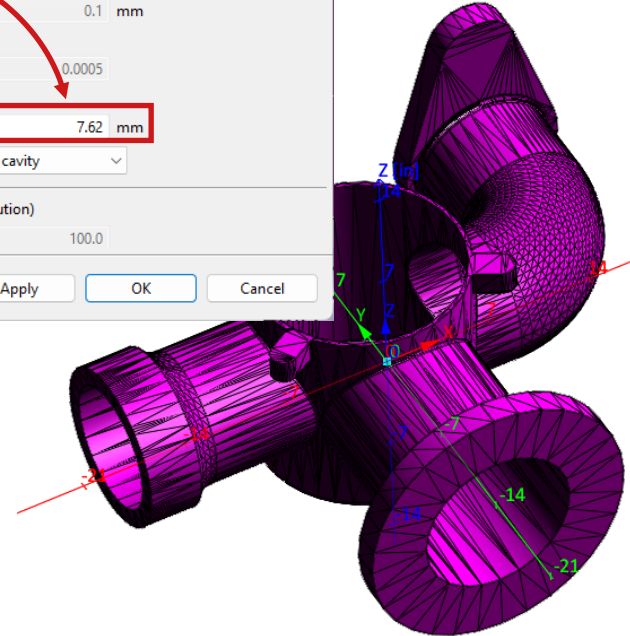
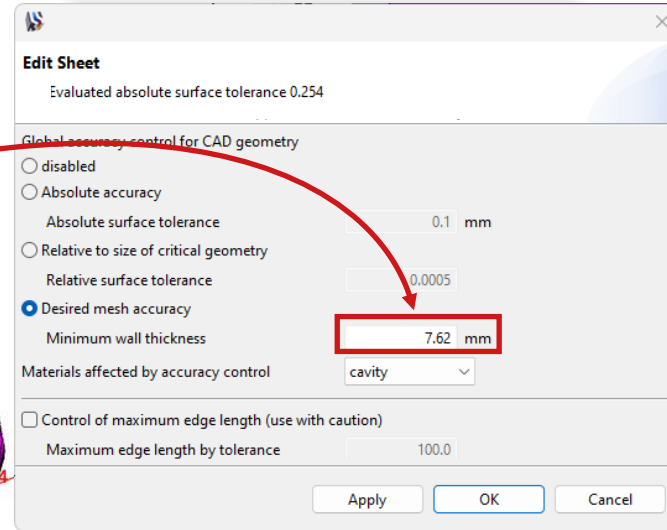
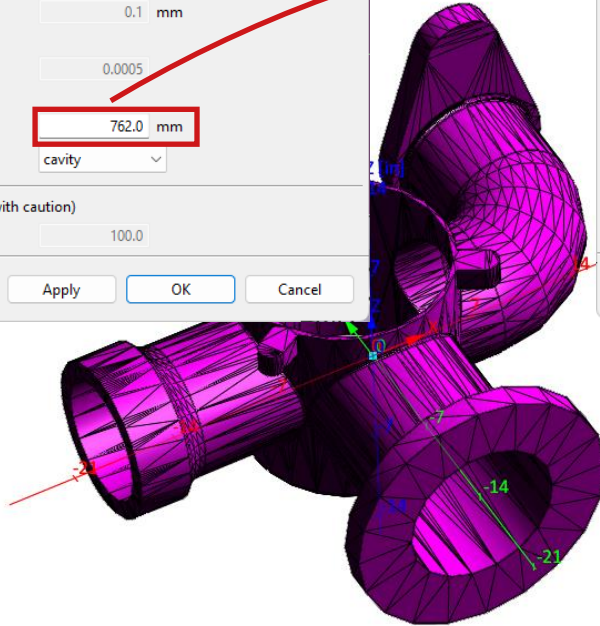
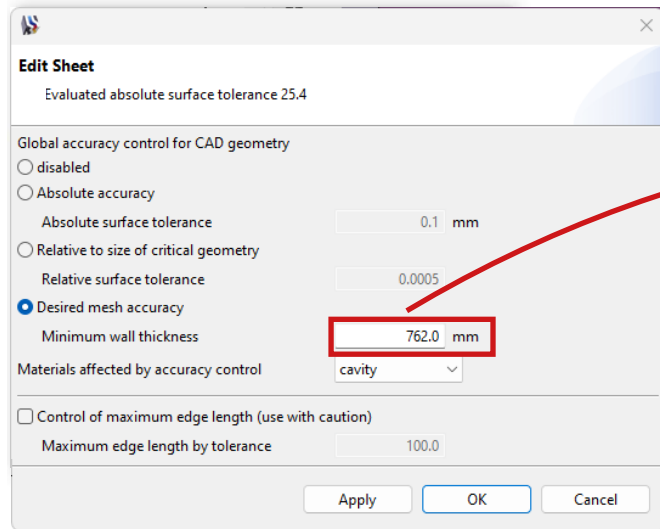


Geometry Accuracy

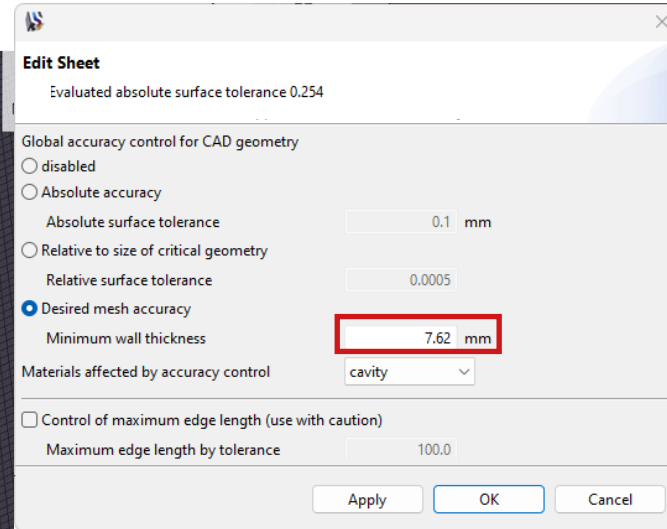
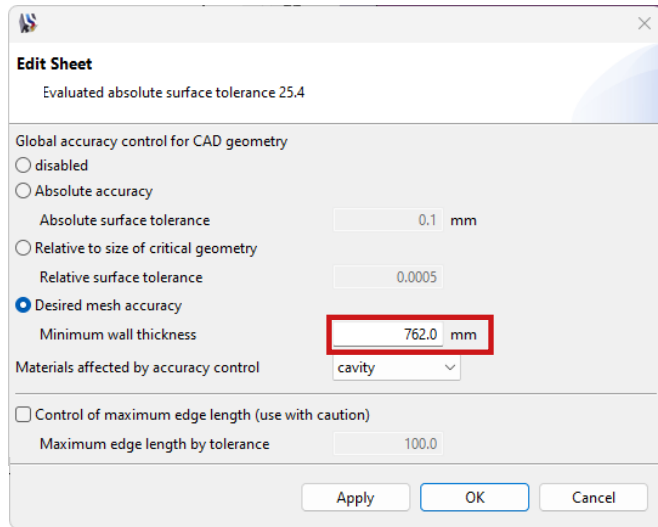
- ❑ In cases where the imported geometry has a specific curvature, the default triangulation for the visualization might be too coarse
- ❑ A coarse triangulation can lead to gaps in the mesh
- ❑ By editing the mastersheet it is possible to change the triangulation



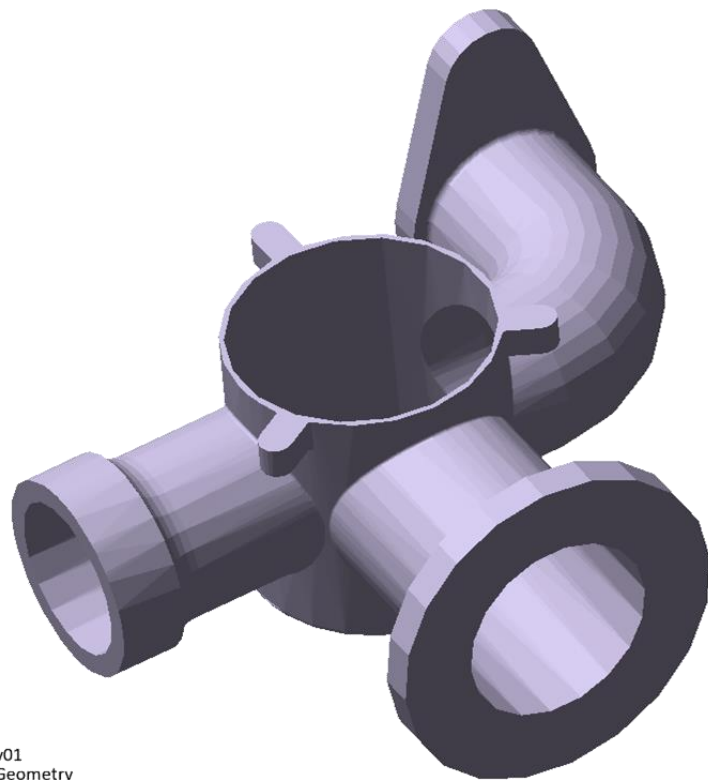
HOW TO CHANGE IT BEFORE RUNNING SIMULATION



IMPACT ON MESH

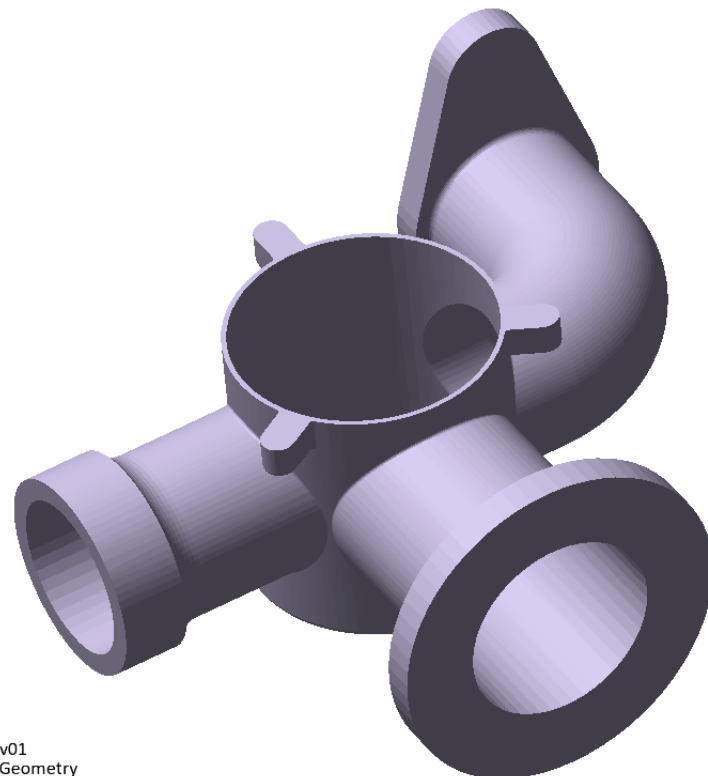


IMPACT ON RESULT PERSPECTIVE



v01
Geometry

Minimum Wall Thickness @ **762.0 mm**



v01
Geometry

Minimum Wall Thickness @ **7.62 mm**

Advanced Cutting Knife

- ▢ Several volumes can be cut at once
 - ▢ Ctrl + Click on geometry in geometry tree
 - ▢ Shift + Click on geometry in workspace
- ▢ All surfaces can be used as knives
 - ▢ Curves can be turned into surfaces with the extrusion function
 - ▢ A contour can be turned into a surface
- ▢ Several knives can be used at once
 - ▢ Drag and drop your knife surfaces into the knife list of the cutting knife dialog

