

**MAGMA**

# Mesh Dummy Blocks

## Local Mesh Refinement

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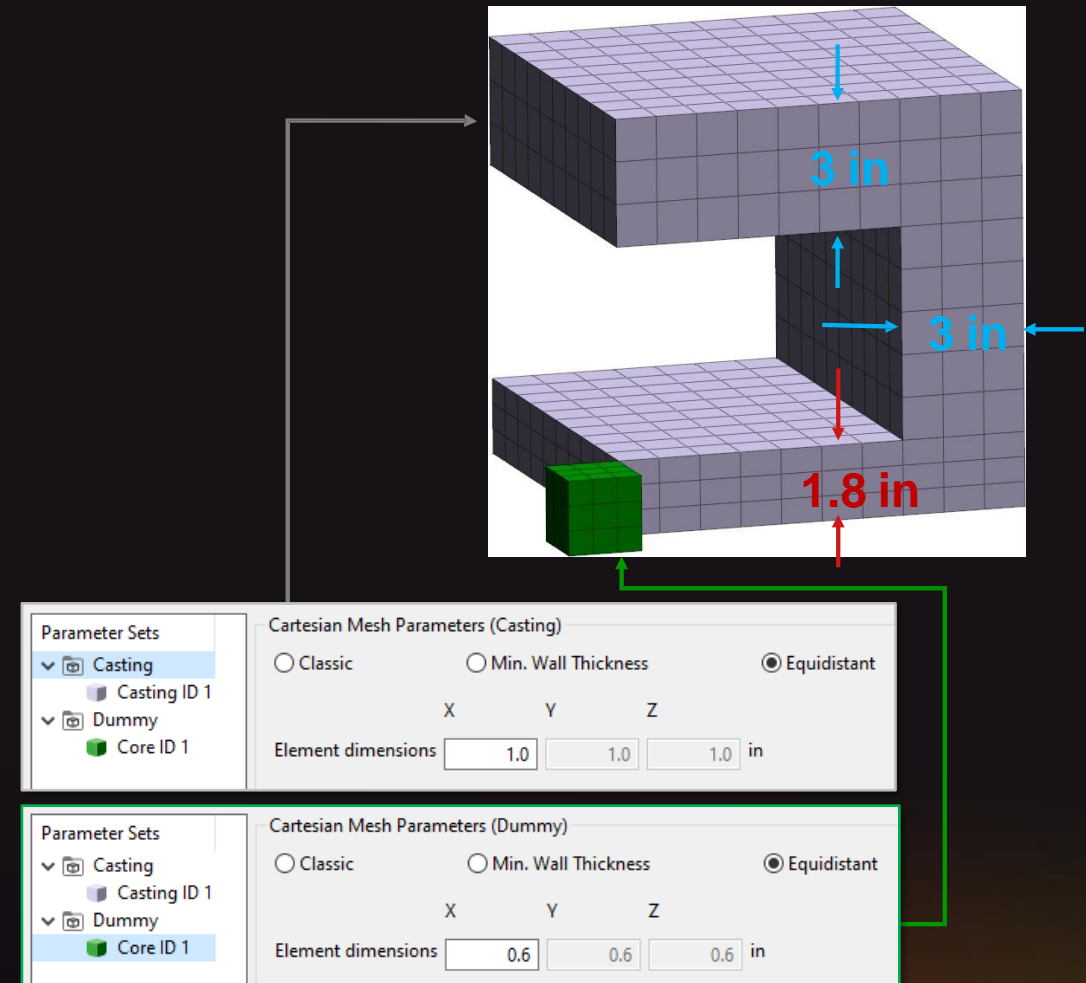
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# Local Mesh Refinement with Dummy Blocks

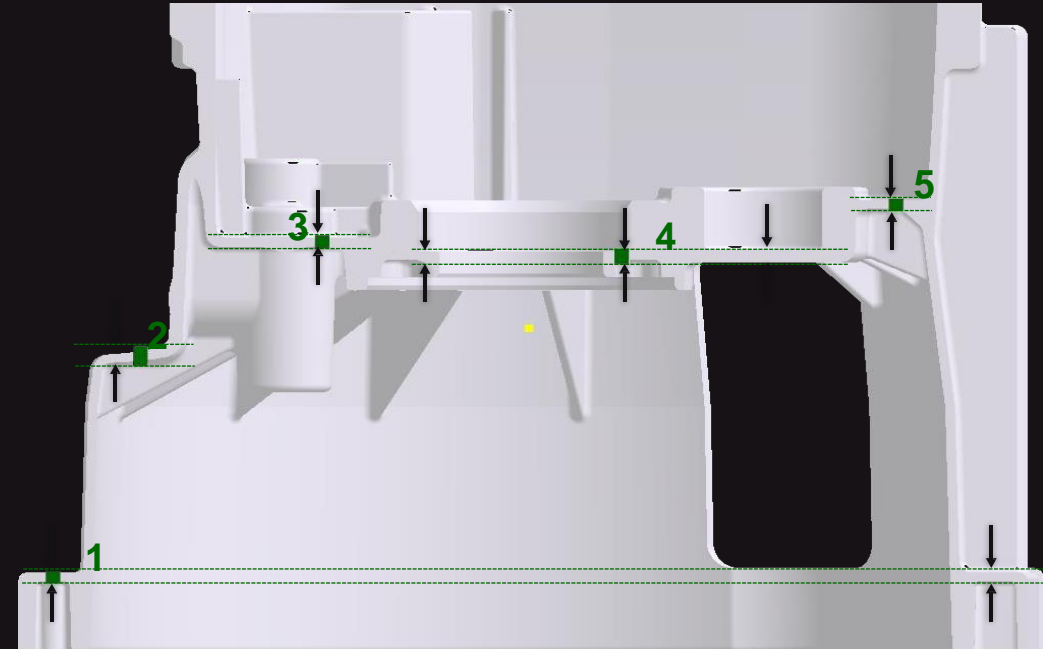
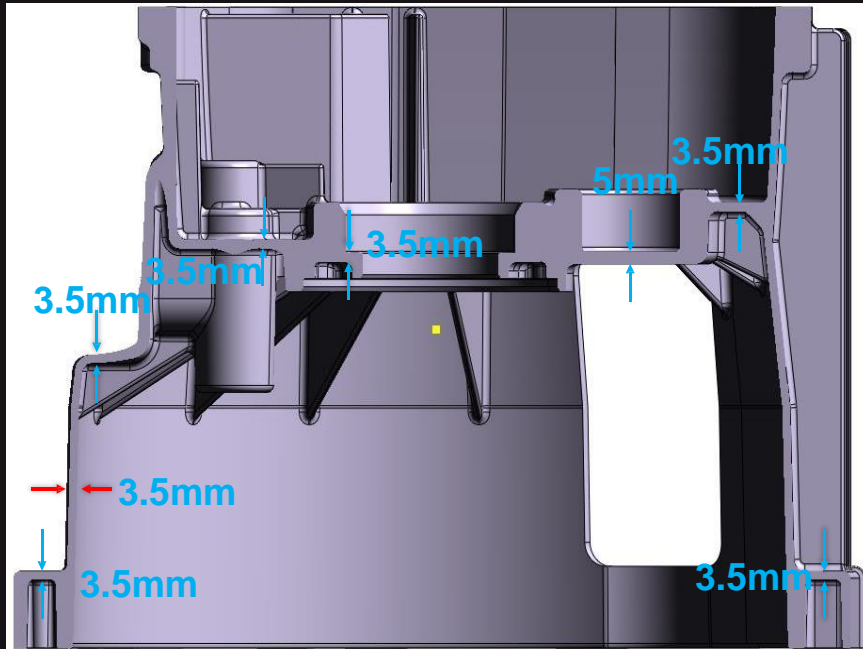
## How to do it?

- Create a cube (or whatever you chose) near critical features of geometry
- Assign a non-cast material ID to this component
- Strategically coarsen the mesh for the casting
- Apply finer mesh parameters to the “dummy” geometry
- Make sure the mesh folder for the “dummy” geometry is at the lowest point on the mesh group list



# Application Example- Complex Casting

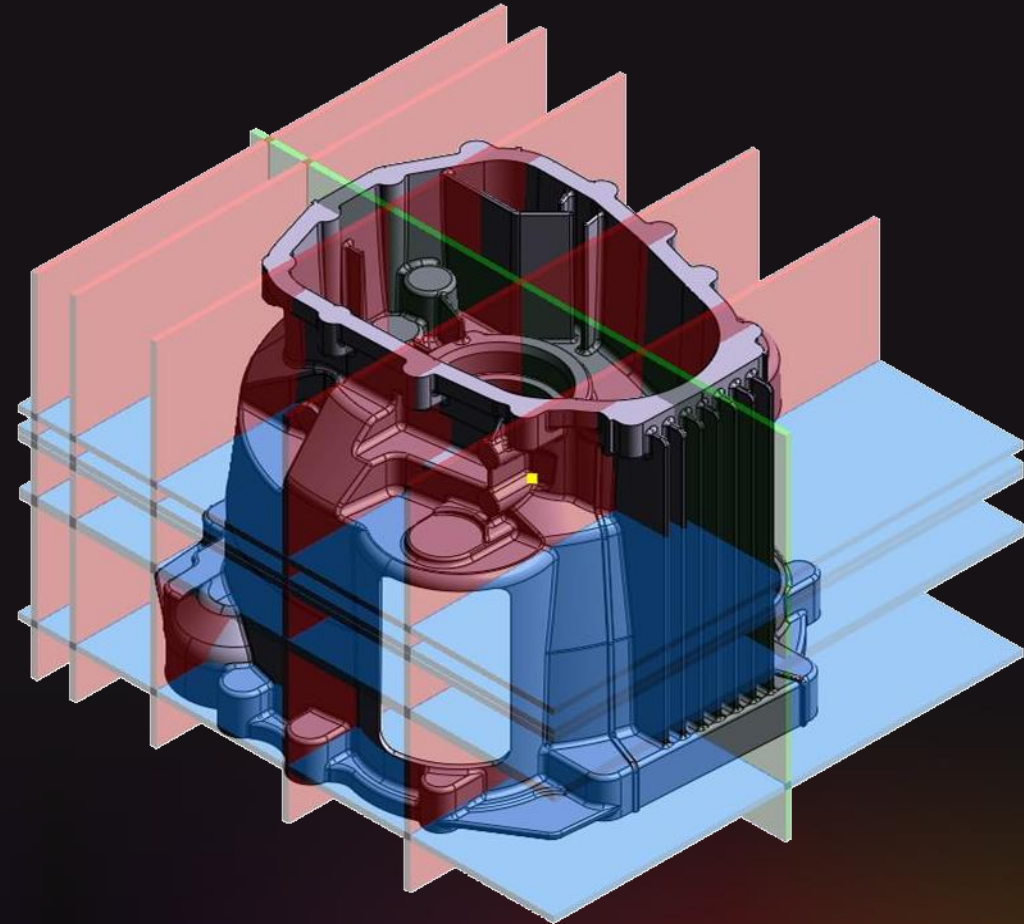
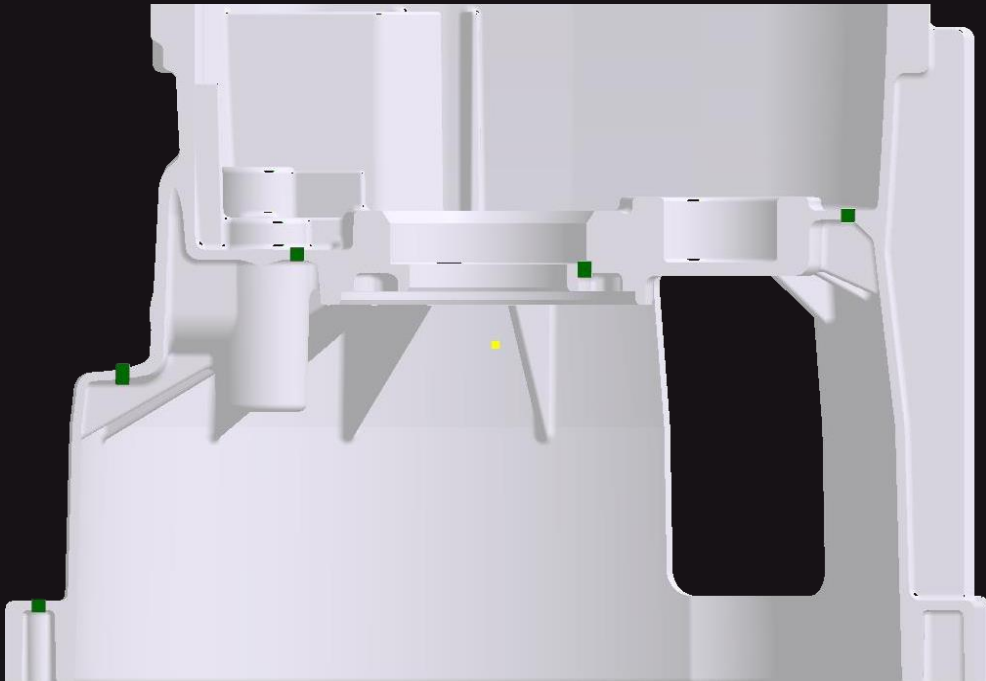
## Identifying thinnest features



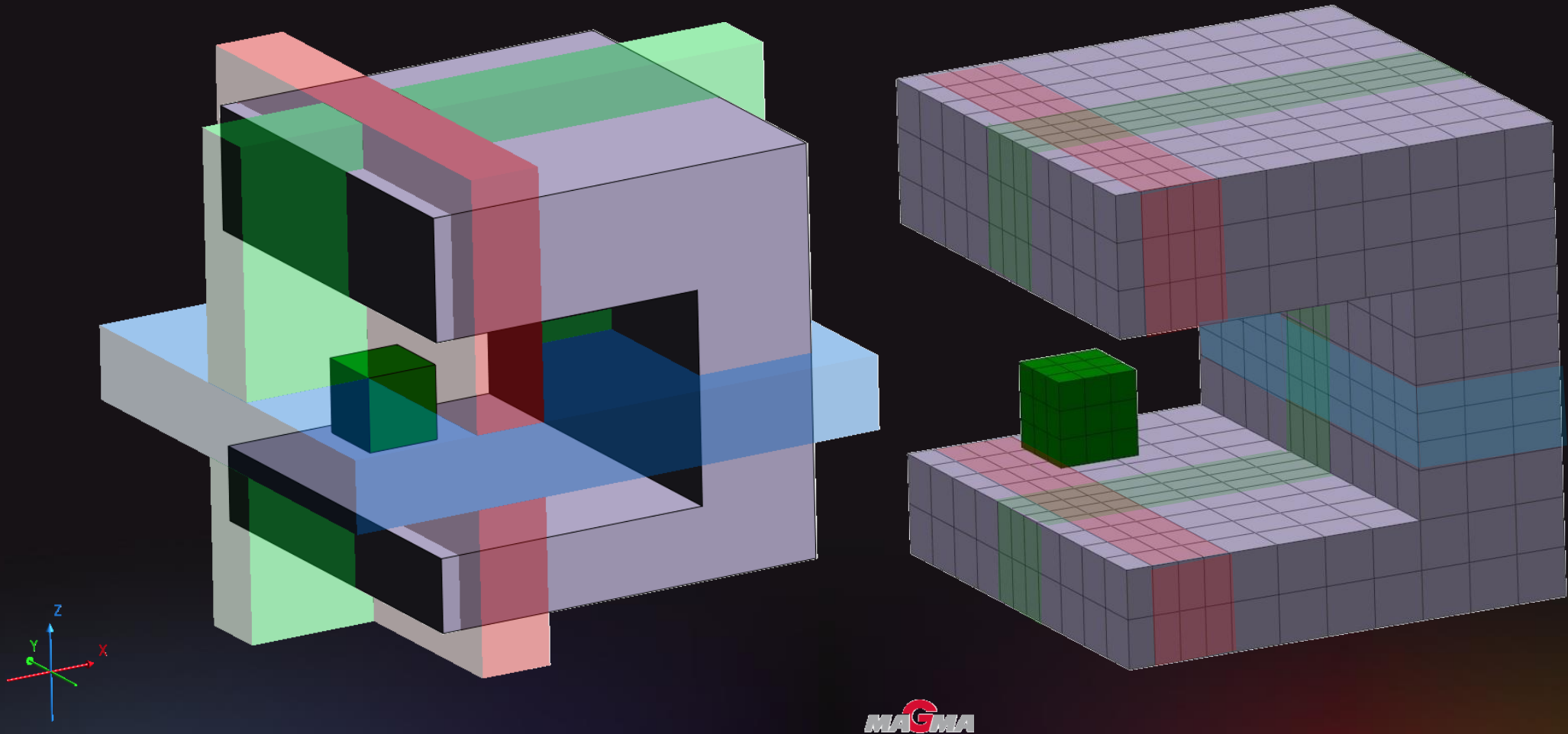
- Uniform wall of 3.5mm is surrounded in X and Y directions.
- Z direction only has 3.5mm thickness where there are horizontal walls.
- Created dummies and assigned as non cast material ID.



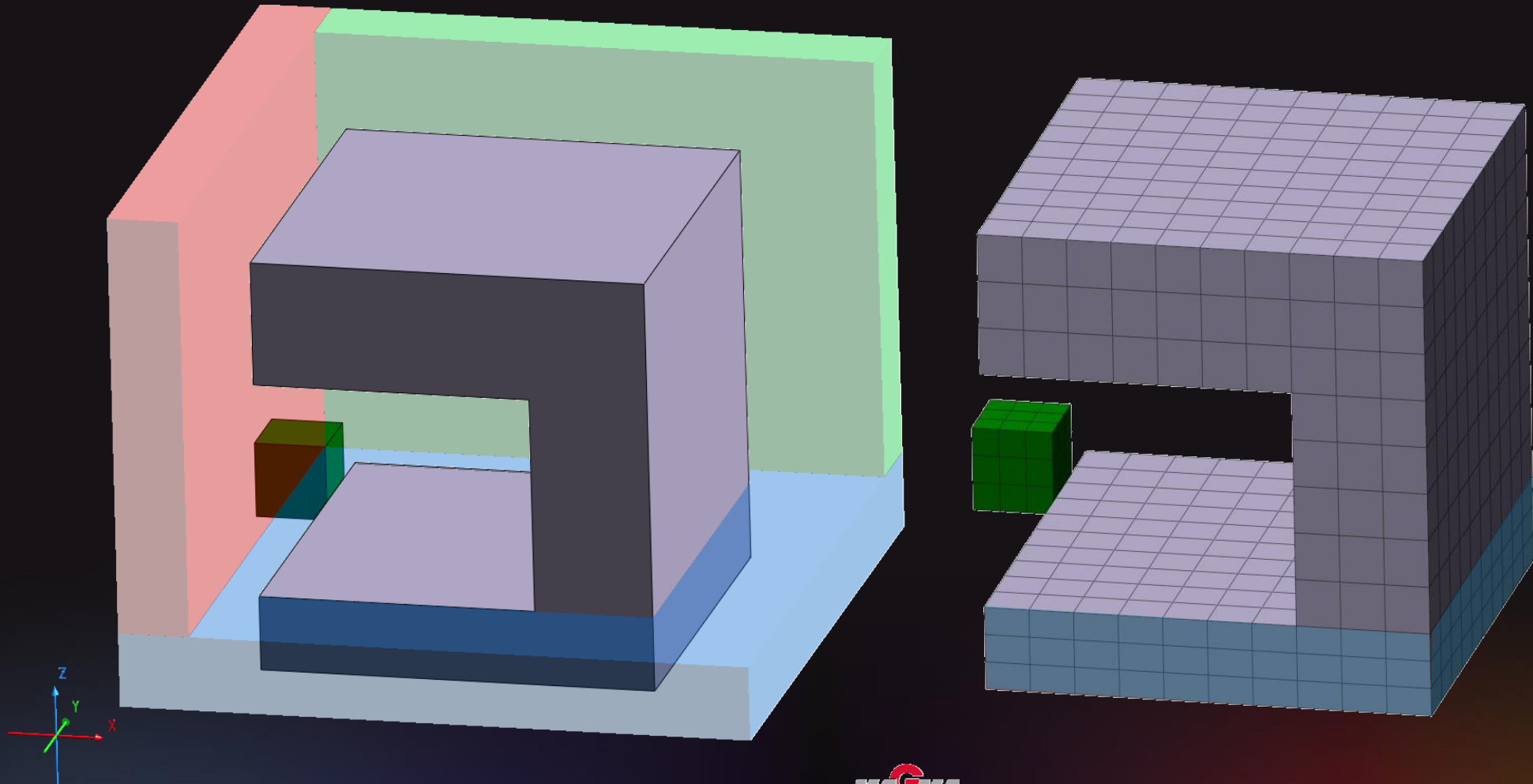
# Mesh Shadow



# Mesh Shadow

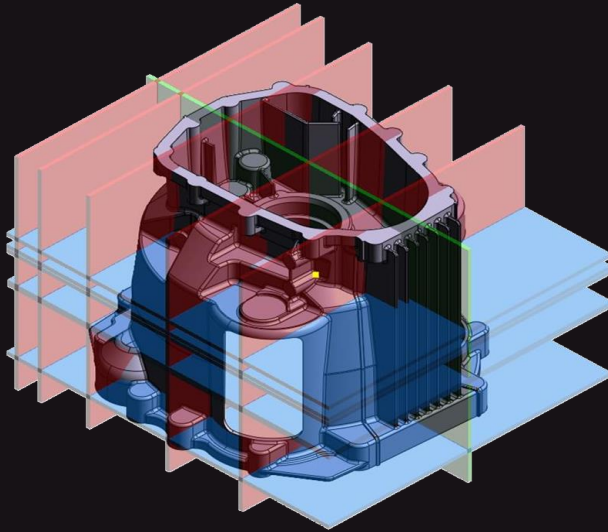


# Mesh Shadow Management



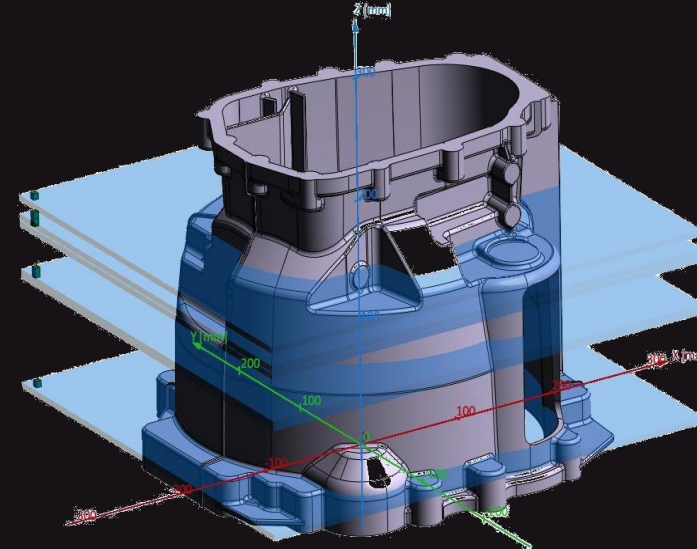
# Mesh shadow management

Before



- With dummy geometry left in its current location, mesh shadow intersects the casting in x, y and z planes.

After



- After moving dummy geometry out away from the casting, the mesh shadow only intersects the casting in the z plane.



# Application Example- Complex Casting

## Standard Equidistant Mesh



## Equidistant mesh with dummies



### Casting Element Dimensions:

X = 1.166 mm  
Y = 1.166 mm  
Z = 1.166 mm

### Casting Element Dimensions:

X = 1.166 mm  
Y = 1.166 mm  
Z = 1.800 mm

### Dummy Element Dimensions:

X = 1.166 mm  
Y = 1.166 mm  
Z = 1.166 mm



# Thank you

