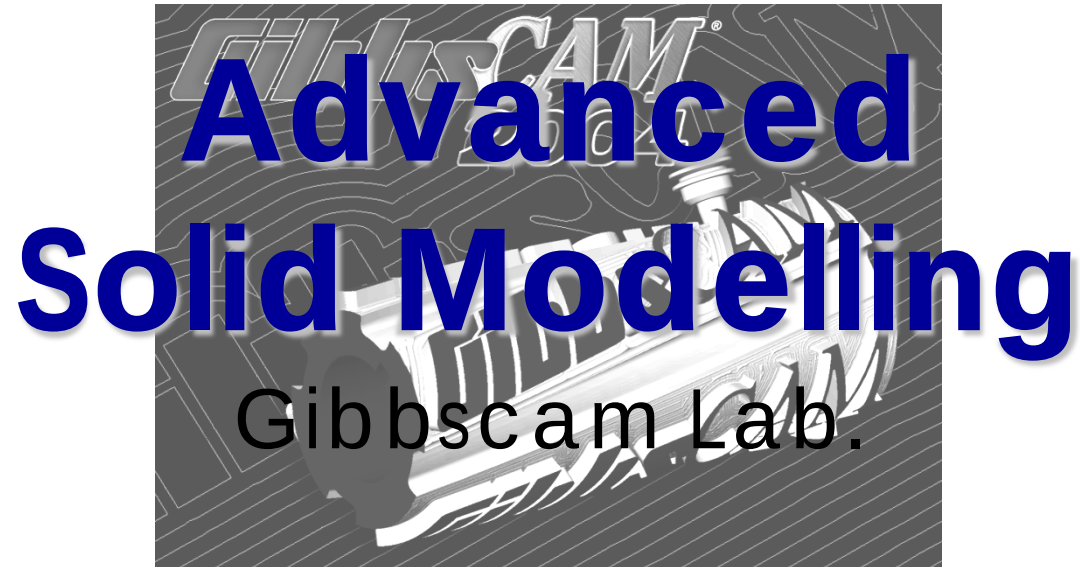


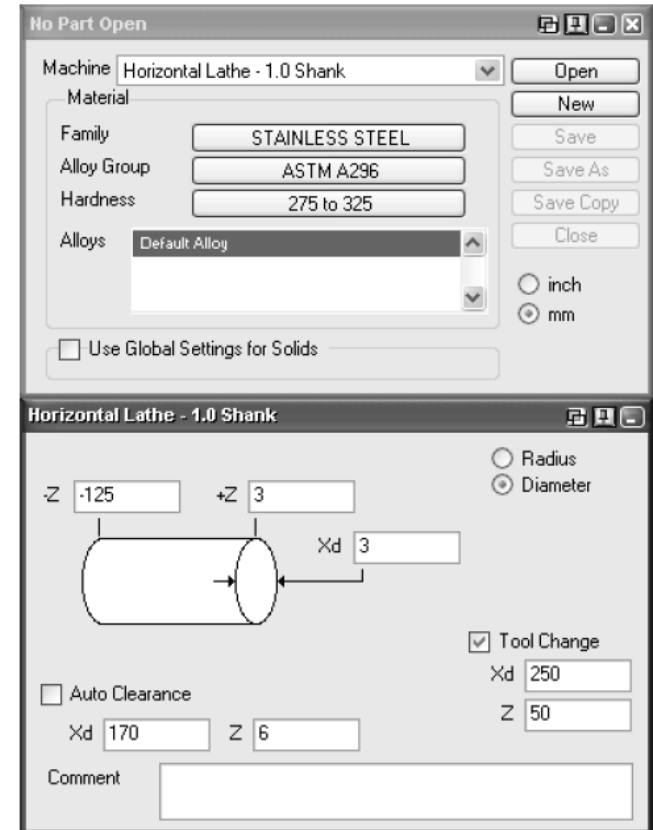


DEPARTMENT OF MECHATRONICS

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Create or Open a File 
 - This is commonly done through the Document Control dialog.
 - This dialog provides file management, part measurements and settings and the option for a part comment.
- Make Or Modify a Model 
 - Make a model of the part, or to modify an existing model.
 - Modeling is accomplished with geometry or solids, or a combination of the two.



CREATION PALETTES

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Create Operations  
 - Once a model is created, machining functions need to be applied to the part.
 - This includes setting the available tools, defining processes and creating operations, after tools are defined.
- Render the Part 
 - This provides a visual check of the part to ensure that the results are as expected.
- Post the Part 
 - The last step is to generate the output from the part file and create NC-code.
 - This is called Post Processing.



Machining PALETTES



Render PALETTES



Tool List

GibbsCAM Lab

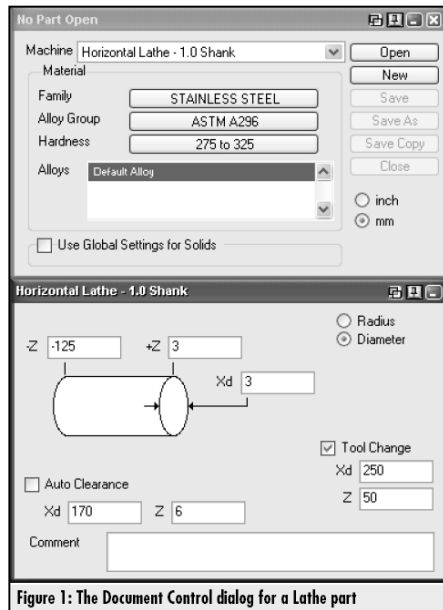


Figure 1: The Document Control dialog for a Lathe part

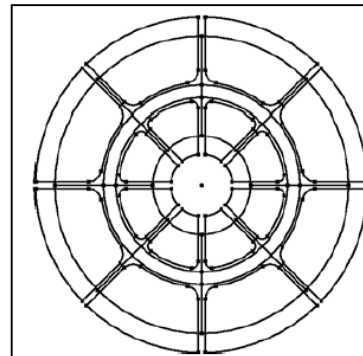
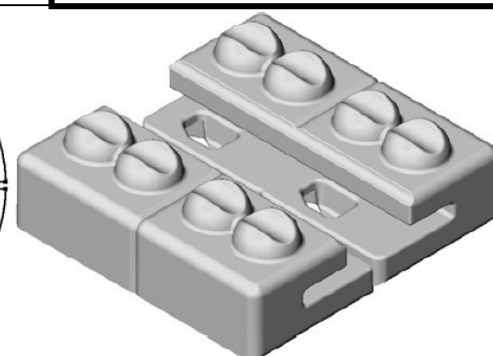


Figure 2: Part Models: Geometry and a Solid



palette

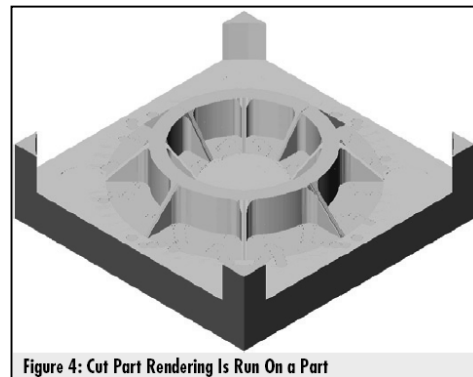
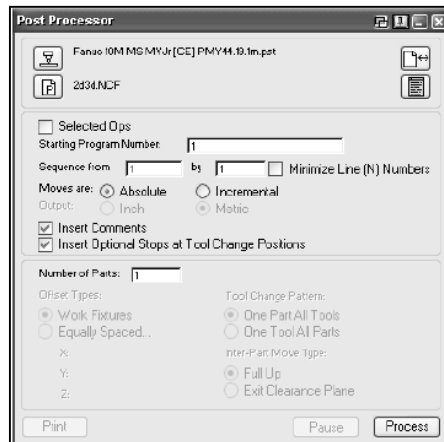
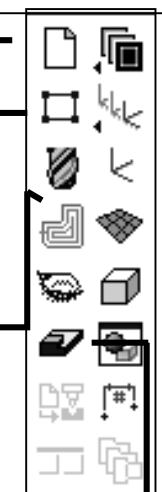


Figure 4: Cut Part Rendering Is Run On a Part

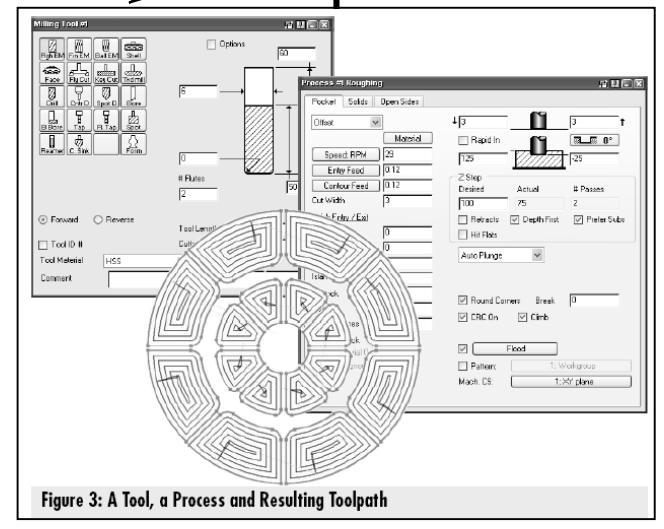
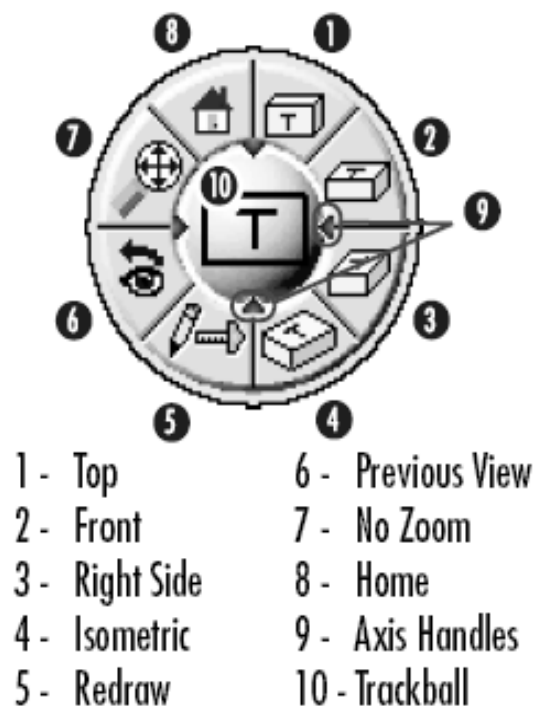
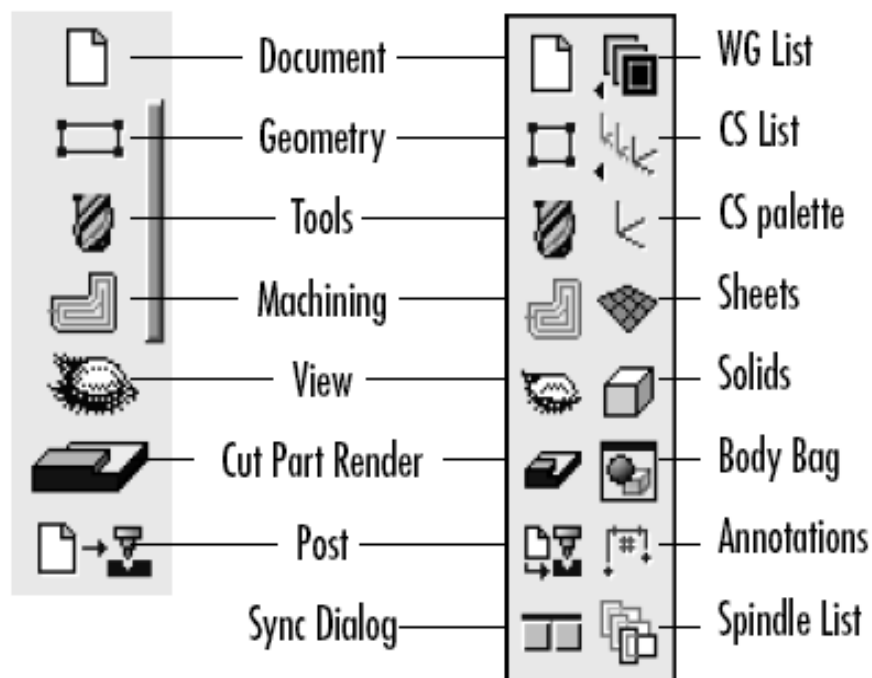


Figure 3: A Tool, a Process and Resulting Toolpath

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Top level palette & View control palette



GibbsCAM Lab

- The basic steps for using GibbsCAM

- Lists

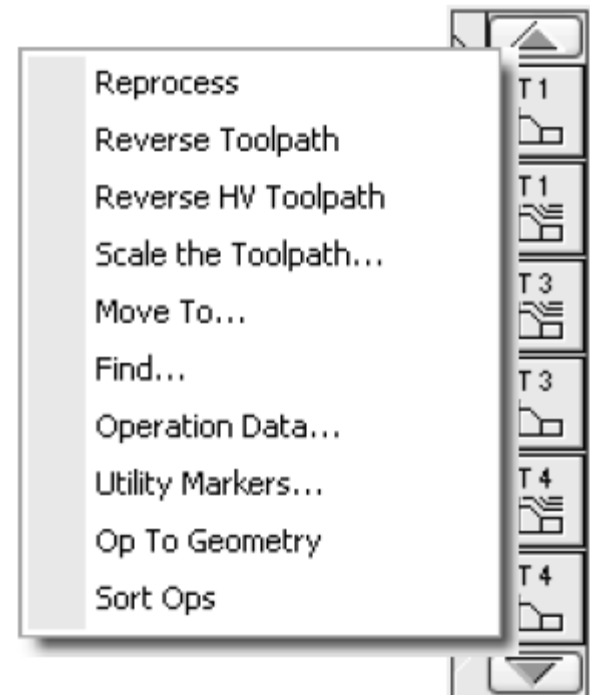


Tool List



Process List

Operation List



GibbsCAM Lab

- The basic steps for using GibbsCAM

- Cursors



Black Pointer: This cursor is used to select objects and geometry by clicking on them. Zoom by dragging a rectangle around an area on the screen.



Area Select: This item is accessed by holding down the Shift key, mouse dragging or the *Edit > Select > Mouse Drag* command, this cursor appears when selecting or zooming.



Pointing Finger: This indicates that the cursor is over a button or clickable object. Move the object by clicking on it once and dragging it to the desired location. When you do so the cursor will change to the Hand cursor.



Hand: This indicates that the cursor is over an object, such as a tile, that is being moved. This cursor is also used to roll the trackball, and when using the Ctrl+Drag panning method.



Text Edit: This indicates that the cursor is over a text input location. Clicking in the text box will produce a flashing text cursor to enter or edit the field.



Interrogation Cursor: This cursor appears when the Alt key or Shift+Alt keys are held down. The Interrogation cursor is used to automatically enter values from geometry and solids into text boxes.



Spot: The cursor changes to this while rolling the trackball in the View palette.



White Pointer: This cursor functions the same as the black pointer, except it is in multiple selection mode. The white pointer appears when the Ctrl key is held down or when a geometry sub-palette is open. It allows for more than one item to be selected at a time.

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Modifying the current view

Rotating



This key combination rotates the part towards you by about 10%.



This key combination rotates the part away from you by about 10%.



This key combination rotates the part to the right by about 10%.



This key combination rotates the part to the left by about 10%.

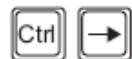
Panning



This key combination moves the part up by about 10% of the screen.



This key combination moves the part down by about 10% of the screen.



This key combination moves the part to the right by about 10% of the screen.



This key combination moves the part to the left by about 10% of the screen.

Zooming



This key combination zooms in on the part by about 10%.



This key combination zooms out from the part by about 10%.



This key combination zooms in on the part by about 10%.

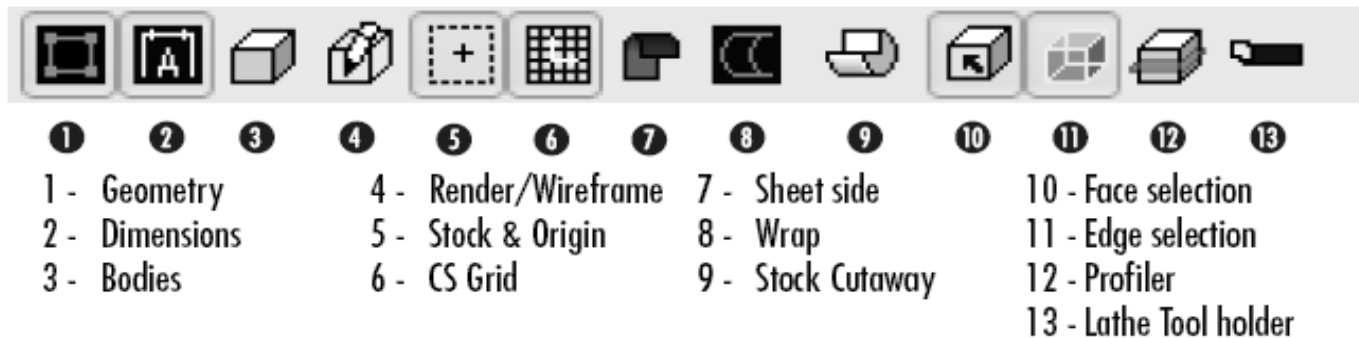


This key combination zooms out from the part by about 10%.

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Task Bar

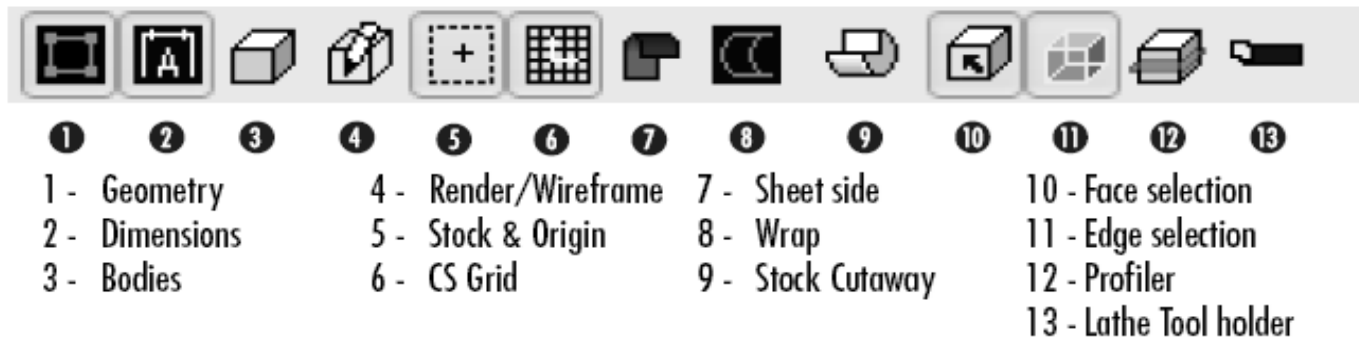


1. All geometry in the currently selected coordinate systems and workgroups will be shown.
2. Show Dimensions
3. Similar to the Show Geometry button, except that it affects solids and sheets. When turned on, all solids and sheets will be displayed in the Workspace.
4. The faces of solids and sheets will be rendered.
5. The stock outline (the workspace) and origin will be drawn on the screen.
6. Show CS Grid

GibbsCAM Lab

- The basic steps for using GibbsCAM

- Task Bar

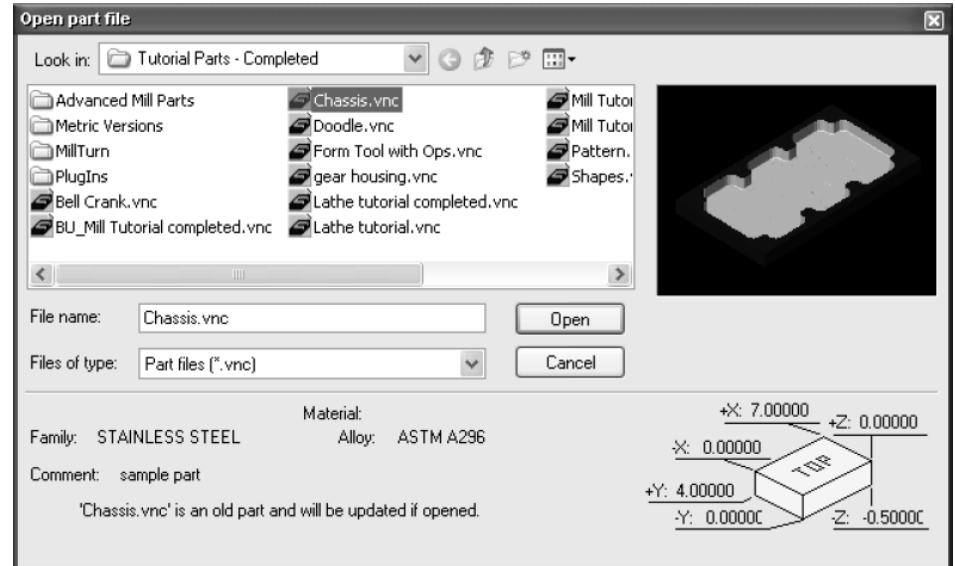
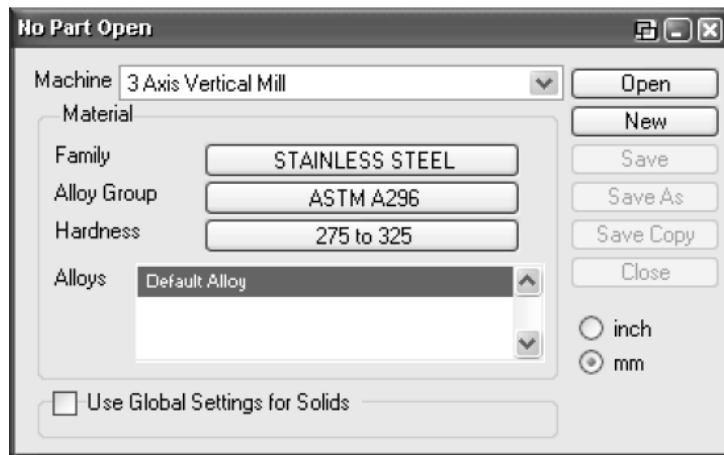


7. Indicate Sheet Side: It differentiates between the outside and inside of a sheet by displaying them in different colors.
8. Wrap Geometry: Available with Rotary Mill. Geometry in the current workgroup at a depth other than Depth 0 will be wrapped on a radius equal to the geometry's depth.
9. In Lathe, Mill/Turn or Multi-Task Machining modules, there are three cutaway states for the stock cut part rendering.
10. Face Selection, 11. Edge Selection
12. Profiler
13. Toolholder display

GibbsCAM Lab

- Simple Example

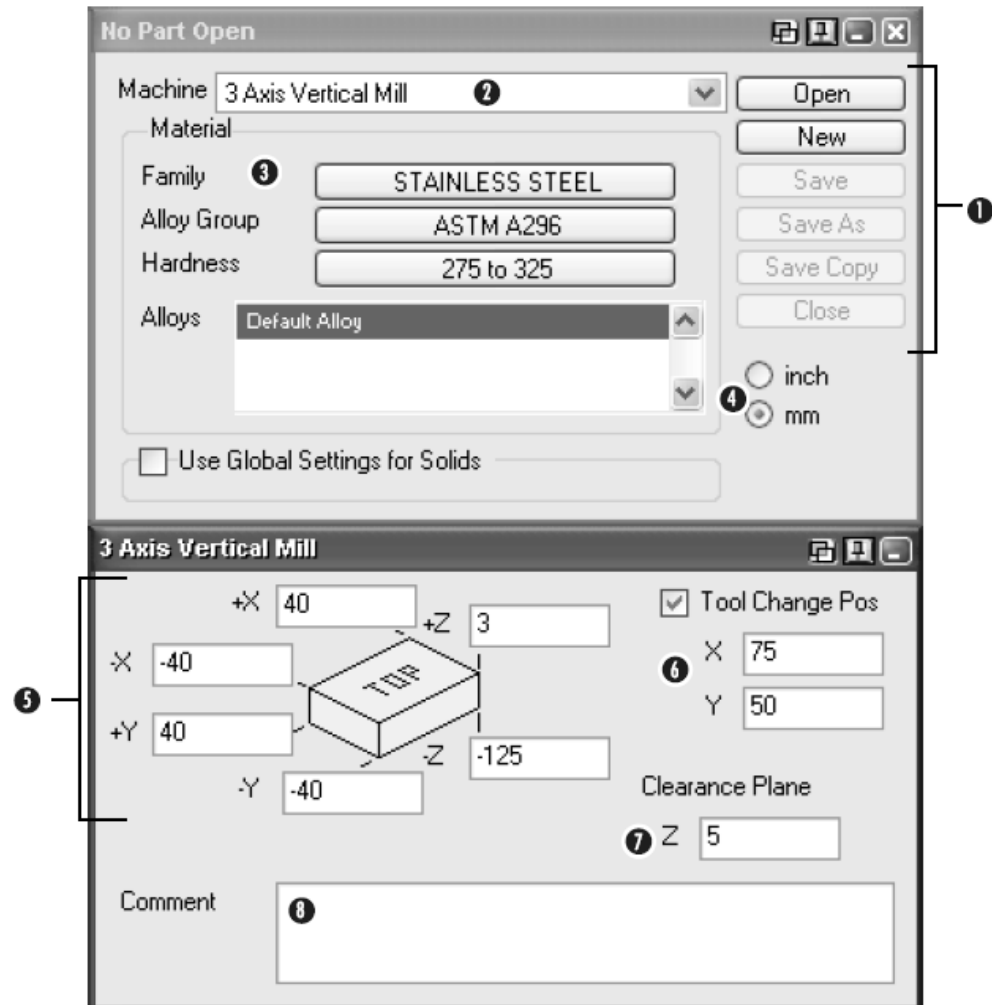
- Create new file or Open an existing File



GibbsCAM Lab

- Simple Example

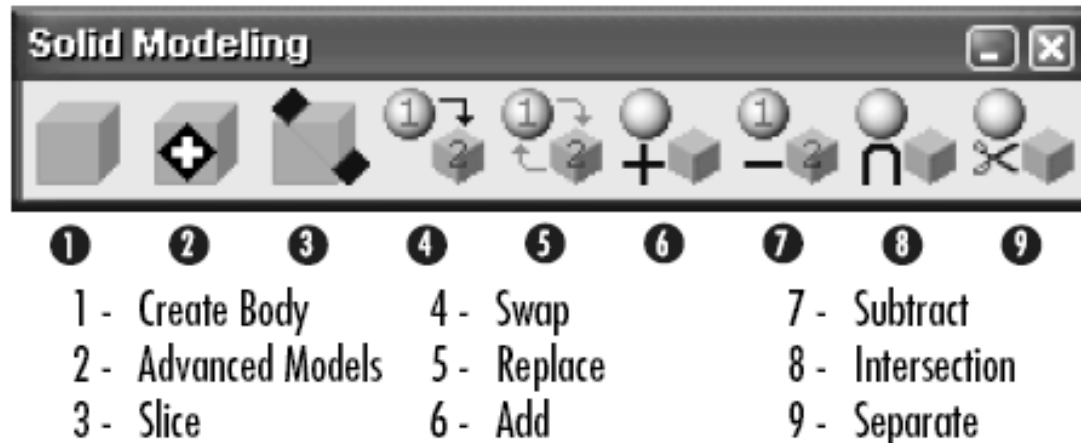
- Setting up a part
 1. File Control
 2. Machine type pop-up menu
 3. Part Material : default
 4. Measurement units
 5. Part / Stock dimensions
 6. Tool change position
 7. Master clearance position
 8. Part comment



GibbsCAM Lab

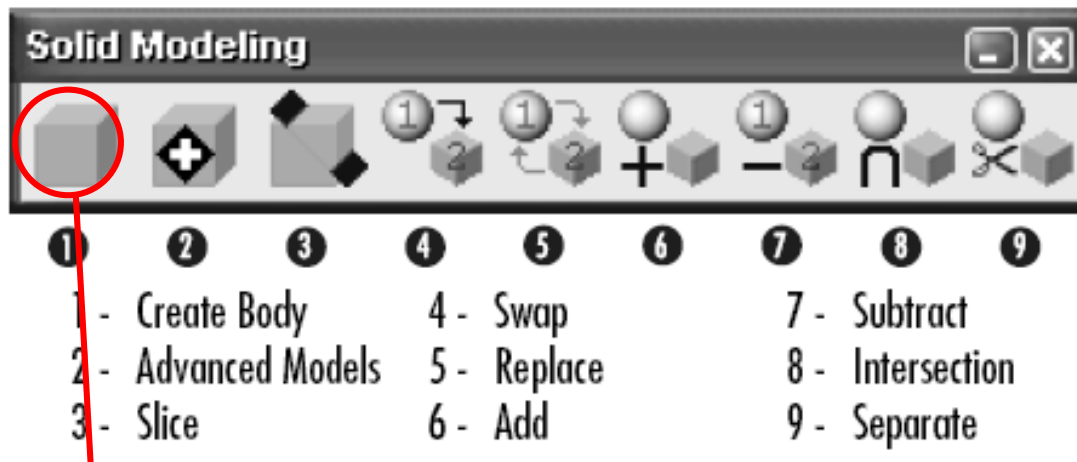
- Solid body Creation

- **Solid bodies or sheet bodies**, may be used in addition to or in place of geometry for a part model.
- Solid modeling starts with the creation of a simple body referred to as **an primitive body** including a sphere, a cube, a revolved or extruded 2D shape, etc.
- The basic operations, often referred to as **Boolean operations**, are to **add, subtract or intersect**.

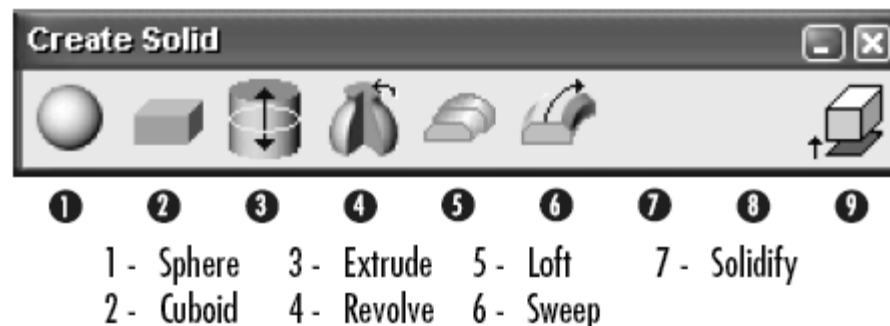


GibbsCAM Lab

- Solid body Creation

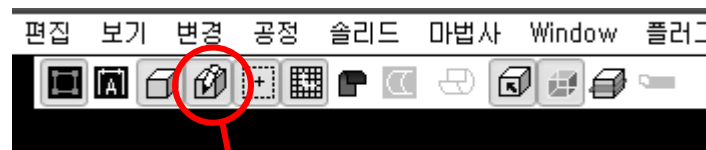
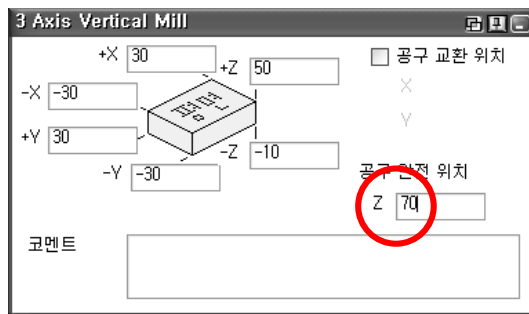


Solid body Creation (similar to Solidworks)

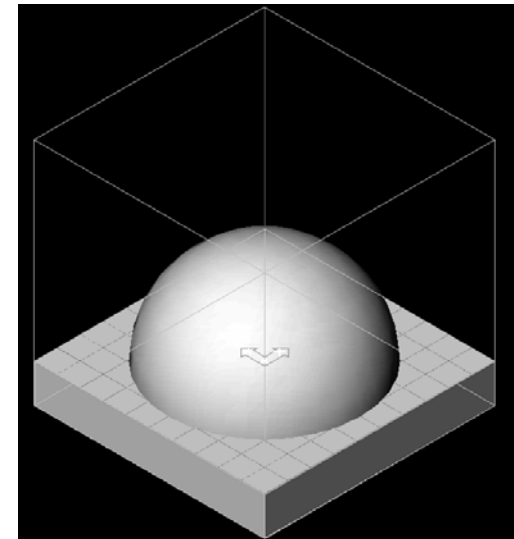
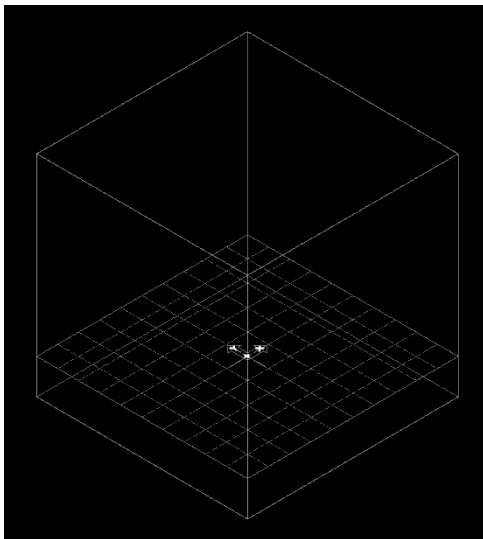
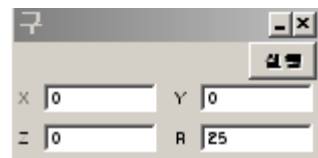
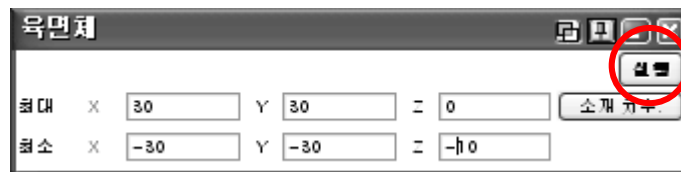


GibbsCAM Lab

- Solid body Creation
 - Body Creation Exercise 1

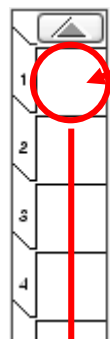


Wireframe/Solid change



GibbsCAM Lab

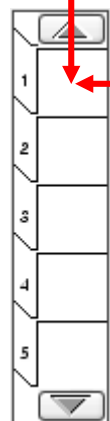
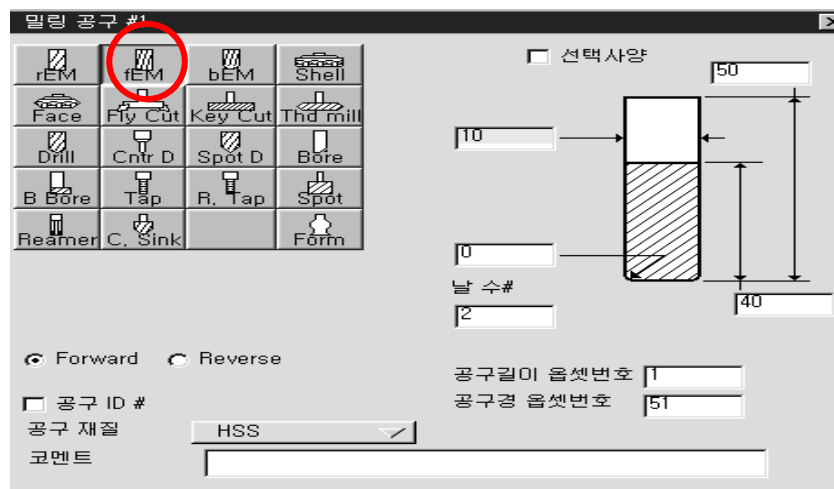
- Solid body Machining Exercise



Double click

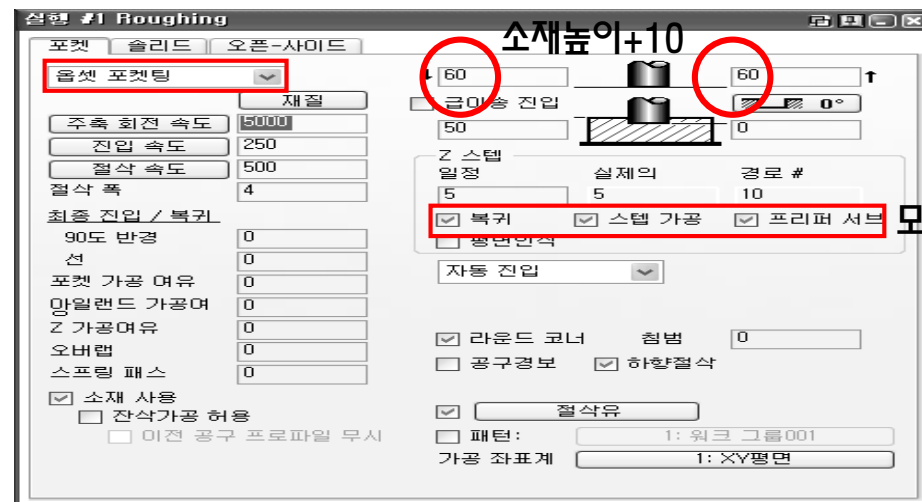
Tool List

Drag tool 1 pocketing tile drop on 1st process list



Drag the roughing tile drop on 1st process list

Process List

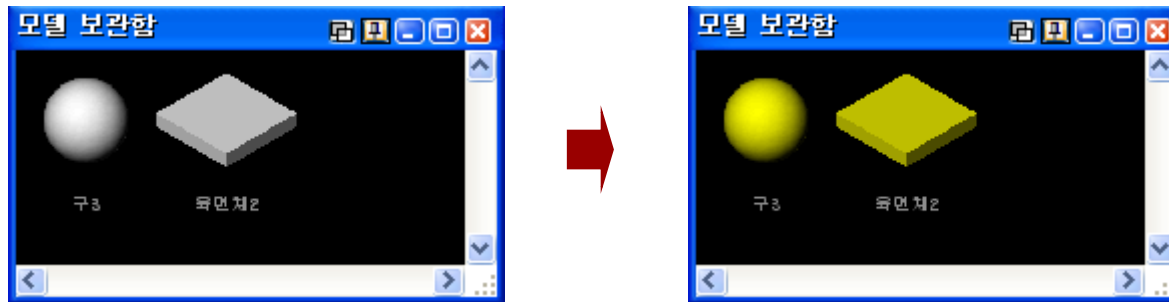


모두 선택

GibbsCAM Lab

- Solid body Machining Exercise (Roughing)

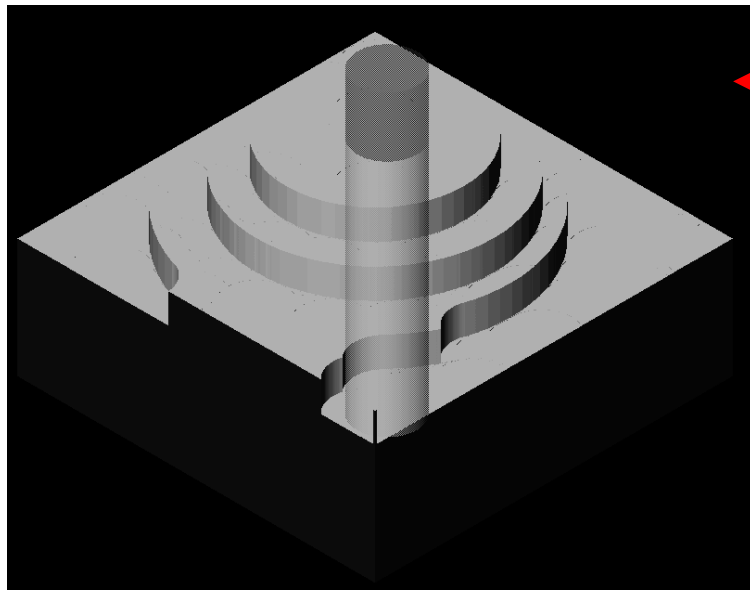
- Double click the solid model
- Select the two features (Ctrl + click/click)



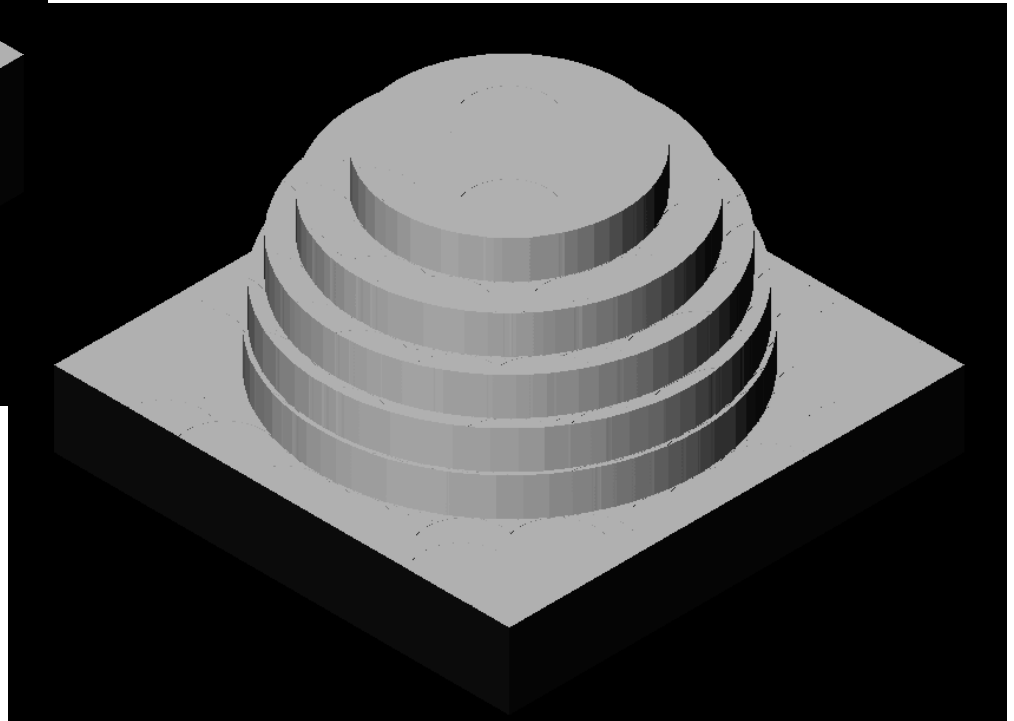
- press 실행 (Execute)
- Create Operation

GibbsCAM Lab

- Solid body Machining Exercise (Roughing)

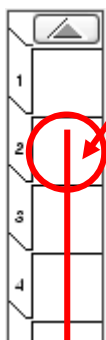


투명한 공구



GibbsCAM Lab

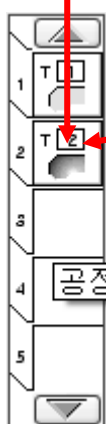
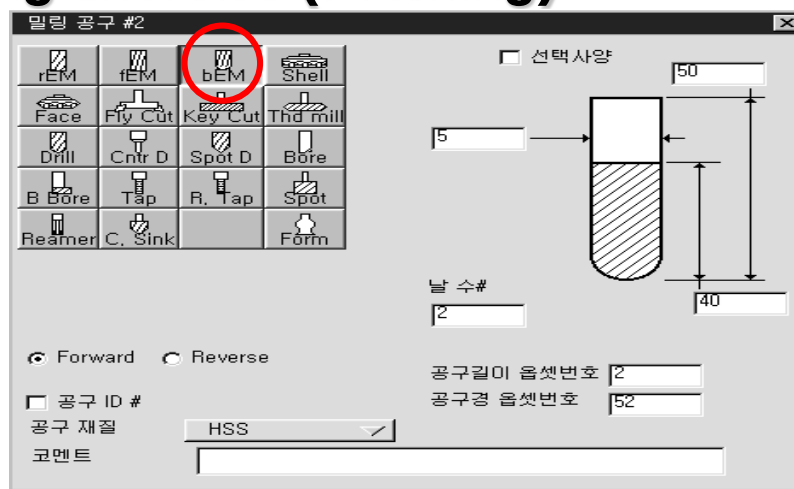
- Solid body Machining Exercise (Finishing)



Double click

Tool List

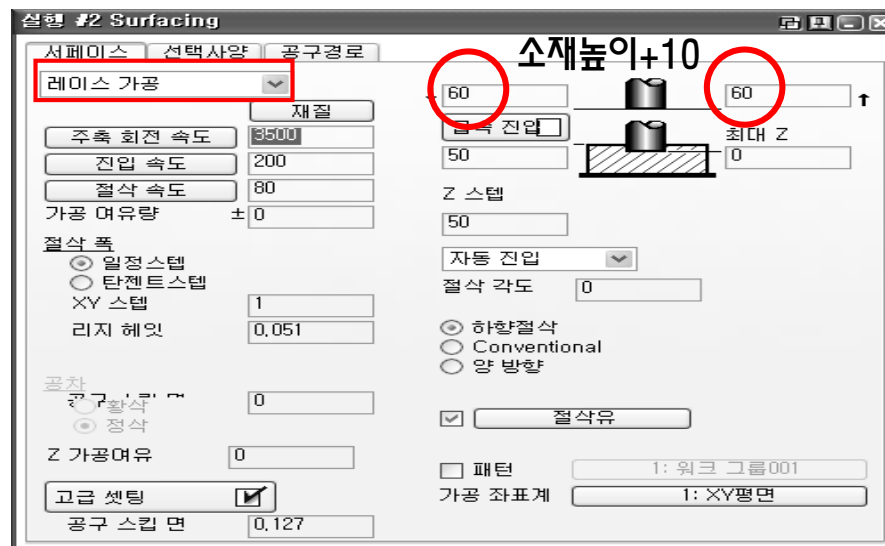
Drag tool 1 pocketing tile drop on 2nd process list



Process List

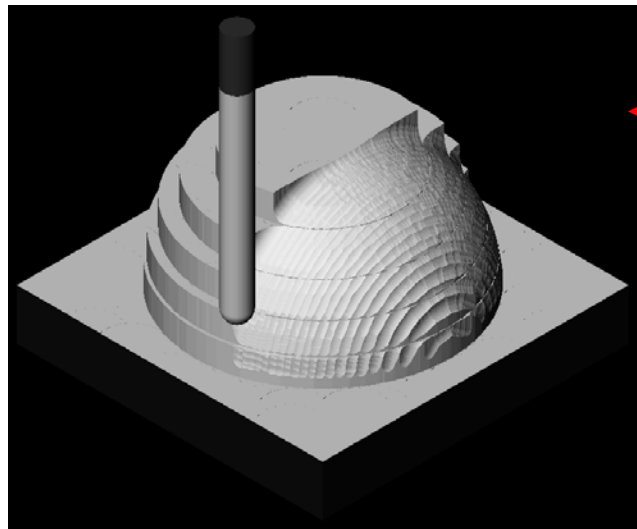


Drag the surfacing tile drop on 2nd process list

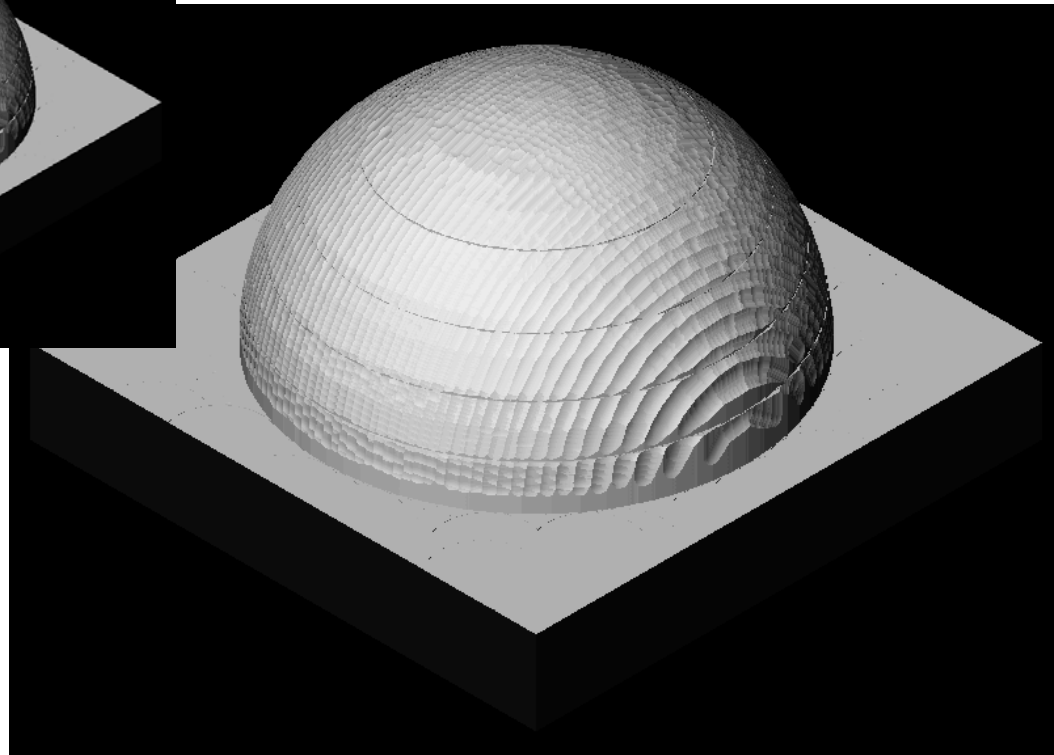


GibbsCAM Lab

- Solid body Machining Exercise

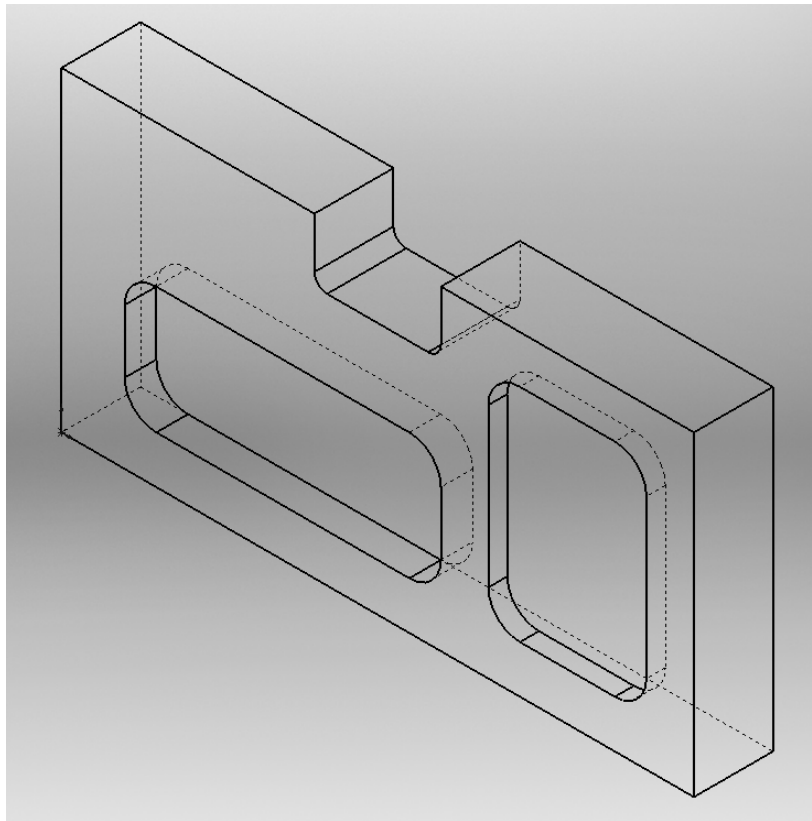


솔리드 공구



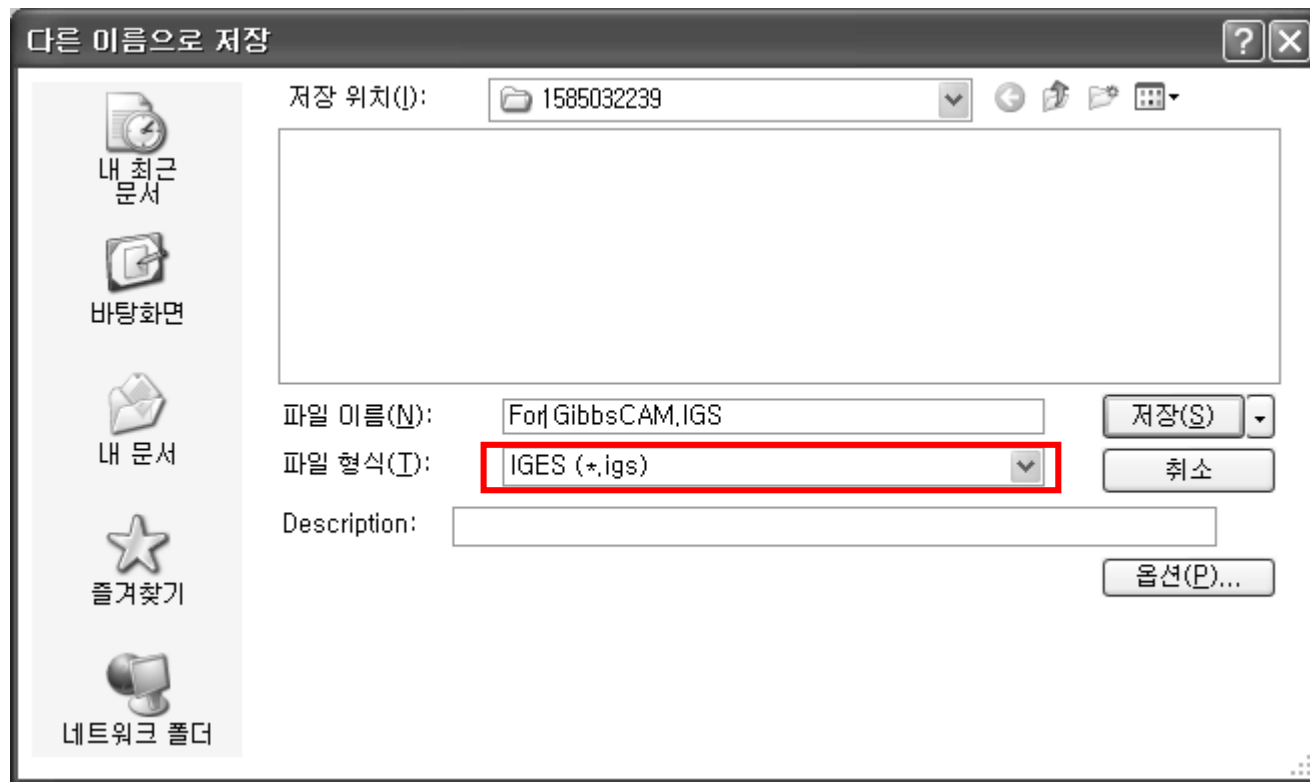
GibbsCAM Lab

- **Import Solidworks Model**
 - Run SolidWorks & Create SolidWorks part file



GibbsCAM Lab

- **Import Solidworks Model**
- Save as ... by IGES format!



GibbsCAM Lab

- Import Solidworks Model

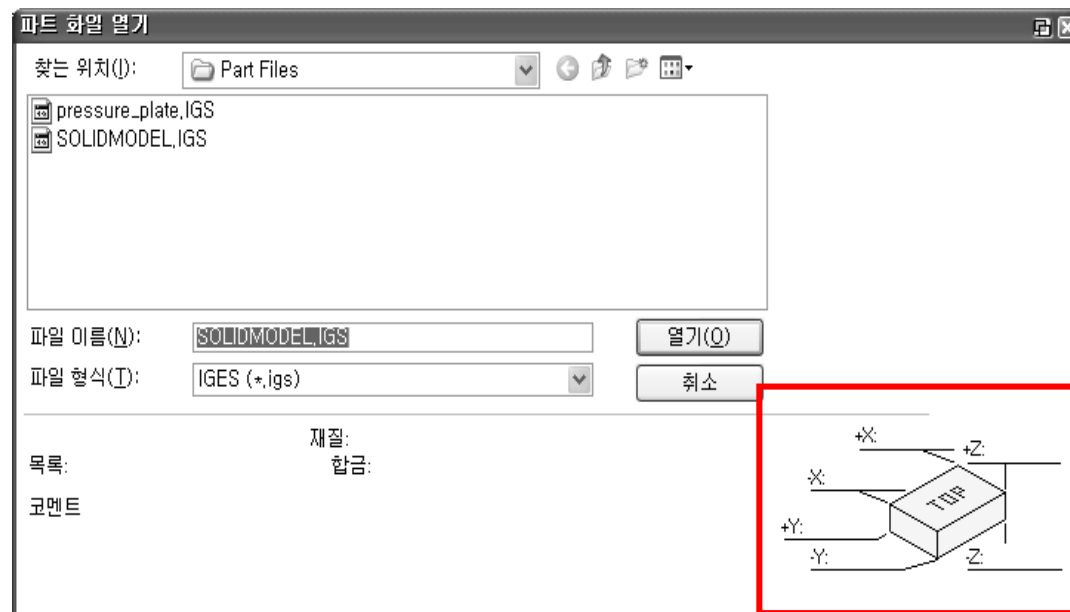
- Run GibbsCAM
- Import IGES file.



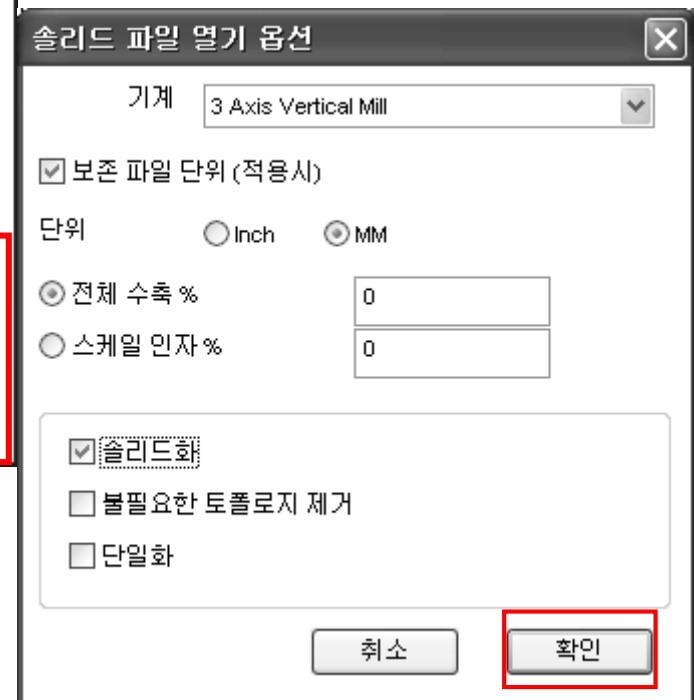
GibbsCAM Lab

- Import Solidworks Model

- Run GibbsCAM
- Import IGES file.



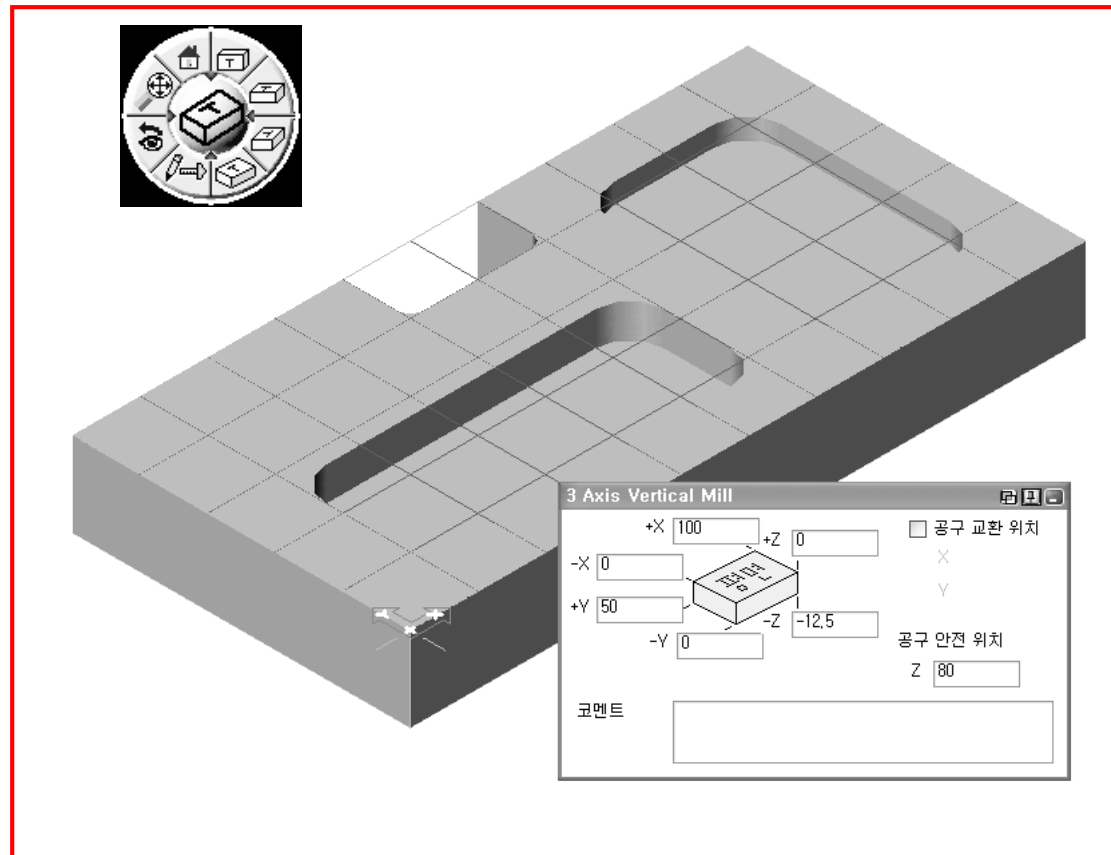
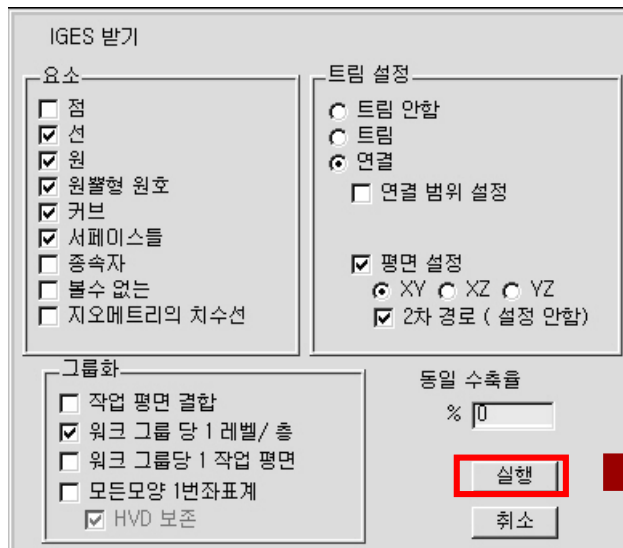
No dimension



GibbsCAM Lab

- Import Solidworks Model

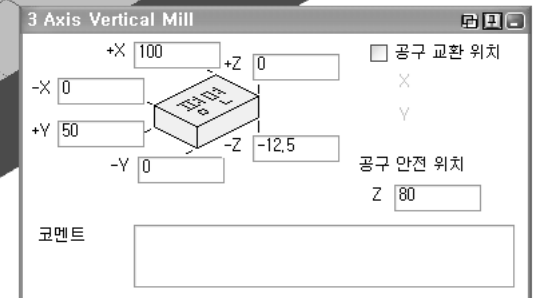
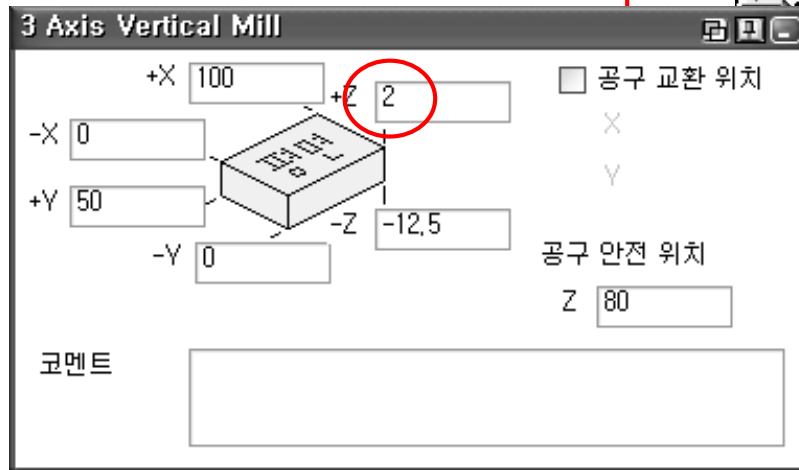
- Run GibbsCAM
- Import IGES file.



GibbsCAM Lab

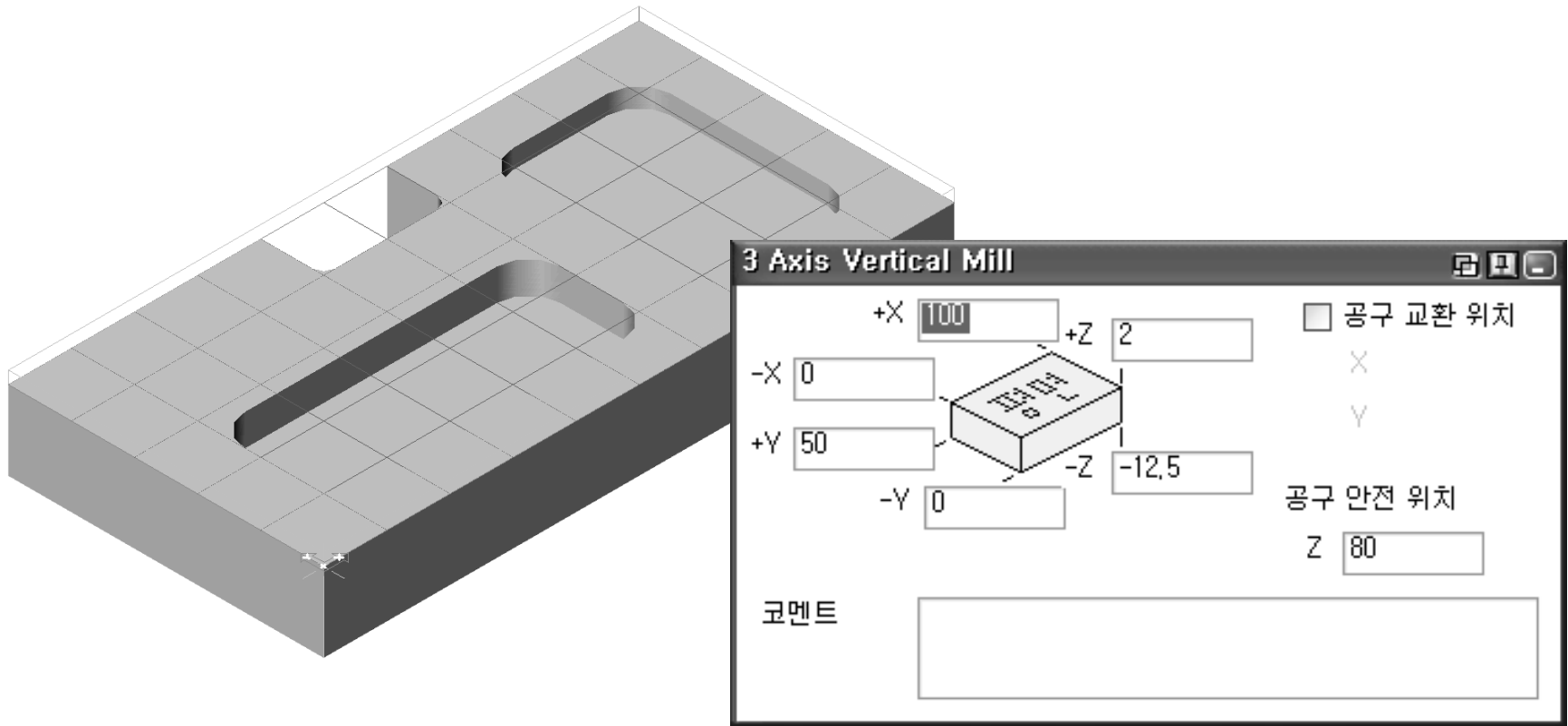
- Import Solidworks Model

- Run GibbsCAM
- Import IGES file.
- Change stock size.



GibbsCAM Lab

- Imported model (by IGES)



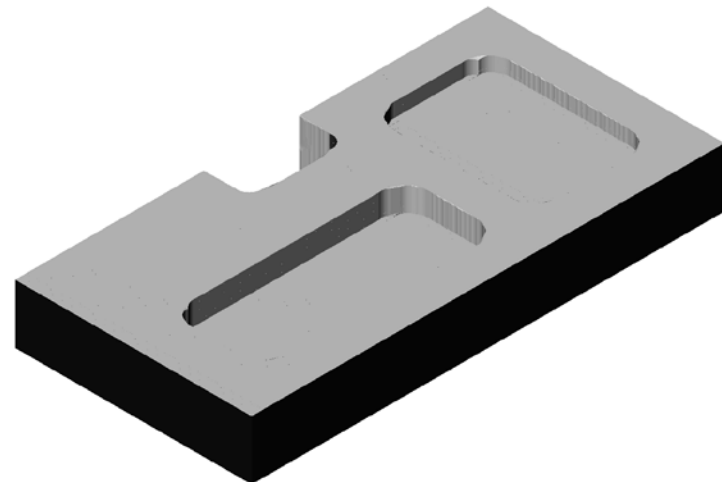
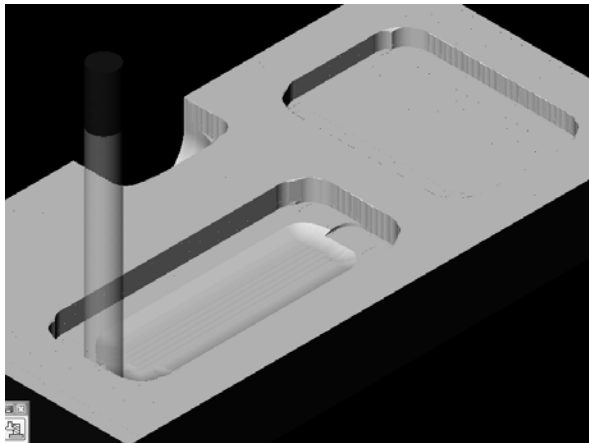
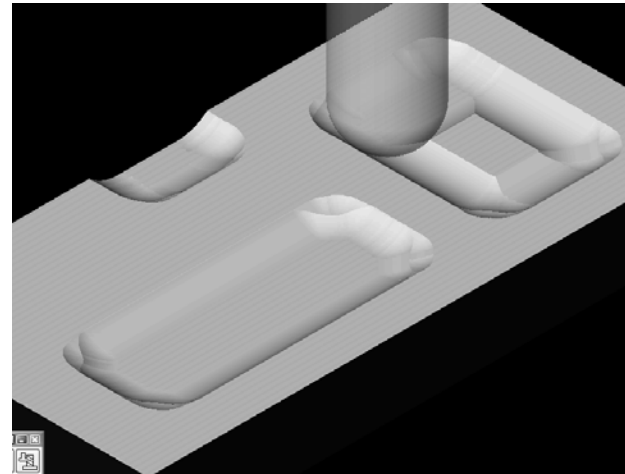
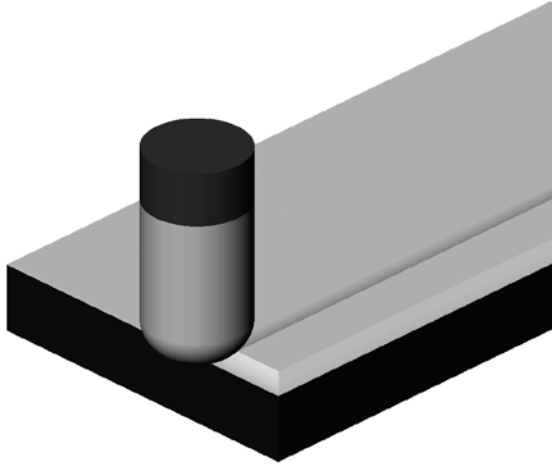
GibbsCAM Lab

- Solid body (Exercise 3) Machining Roll

- Roughing
 - Type of tool: bEM
 - Tool radius: $\phi 15$ /Tool length: 60mm
 - Overhang: 40mm/Tool nose radius: 0
 - # of teeth: 2
 - ZigZag cutting, Step width(절삭폭): 1mm, Z-step: 1mm
- Pocketing
 - Type of tool: fEM
 - Tool radius: $\phi 5$ /Tool length: 50mm
 - Overhang: 40mm
 - # of teeth: 2
 - Race cutting, Step width(절삭폭) : 0.5mm, Z-step : 0.5mm
- Machining Conditions
 - Roughing: 2500rpm, Fast feed 250mm/sec, Cutting speed 500mm/sec
 - Finishing: 3500rpm, Fast feed 250mm/sec, Cutting speed 80mm/sec

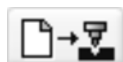
GibbsCAM Lab

- Machined part



GibbsCAM Lab

- Postprocessing



Post Processor

1 Fanuc 6M [VG] M001.19.pst

2 11052000.012.NCF

3

4

5 ☐ Selected Ops

Starting Program Number:

Sequence from by ☐ Minimize Line (N) Numbers

Moves are: ☒ Absolute ☐ Incremental

Output: ☒ Inch ☐ Metric

☒ Insert Comments

☒ Insert Optional Stops at Tool Change Positions

6 Number of Parts:

Offset Types:

☒ Work Fixtures

☐ Equally Spaced...

X:

Y:

Z:

Tool Change Pattern:

☐ One Part All Tools

☒ One Tool All Parts

Inter-Part Move Type:

☐ Full Up

☒ Exit Clearance Plane

1 - Post Processor Selection

2 - Program Name

3 - Communications

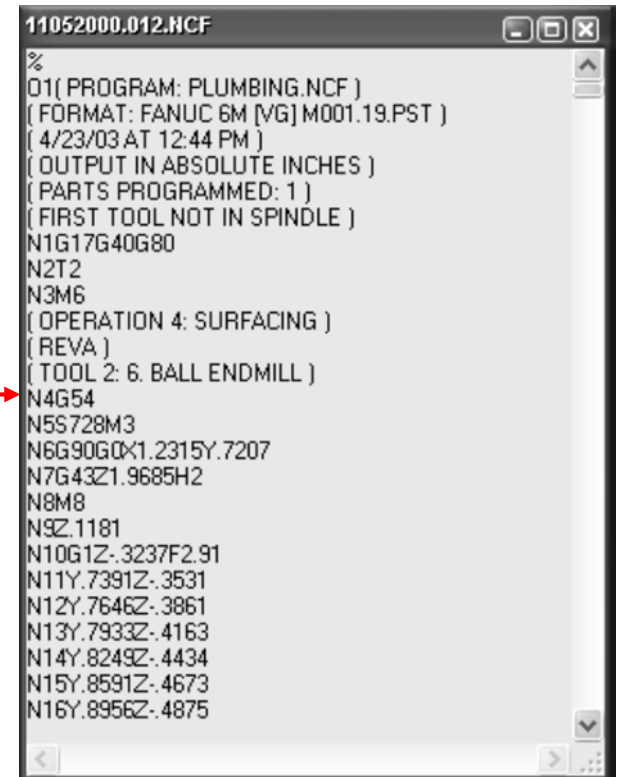
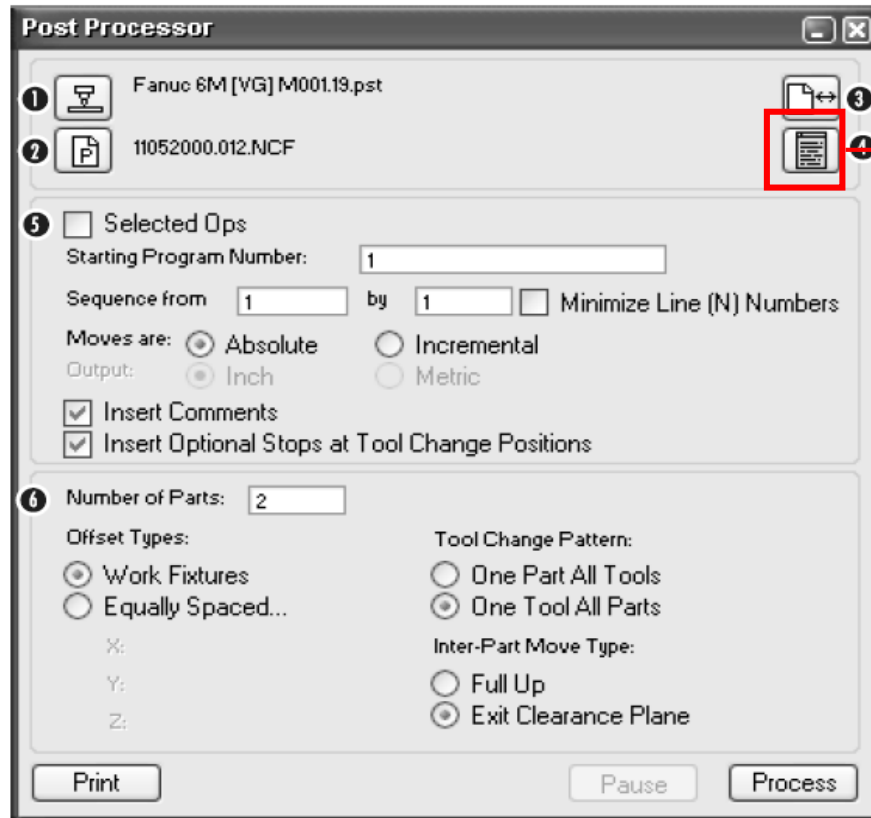
4 - Text Window

5 - Output

6 - Multiple Parts

GibbsCAM Lab

- Postprocessing



- | | | |
|------------------------------|--------------------|--------------------|
| 1 - Post Processor Selection | 3 - Communications | 5 - Output |
| 2 - Program Name | 4 - Text Window | 6 - Multiple Parts |

GibbsCAM Lab

IS it possible to Import IGES file
from GibbsCAM to Solidworks?