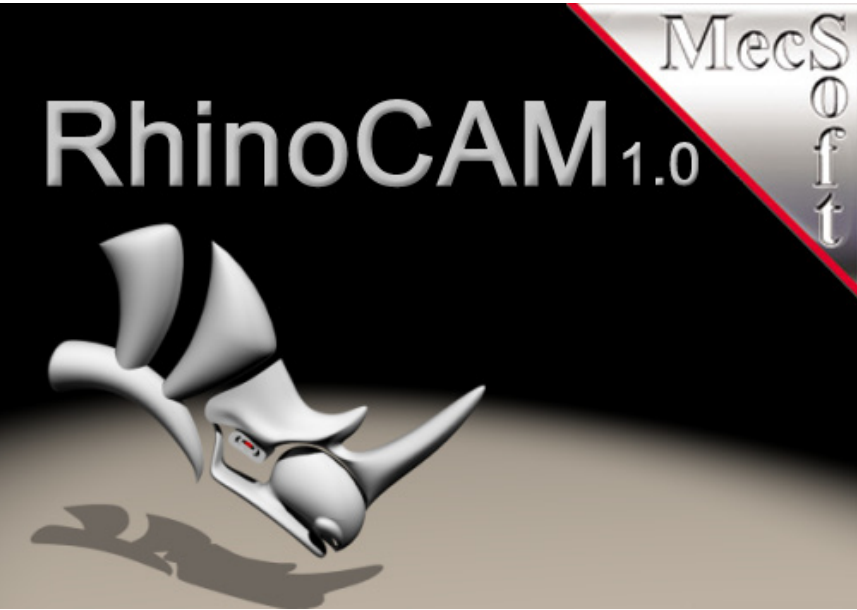
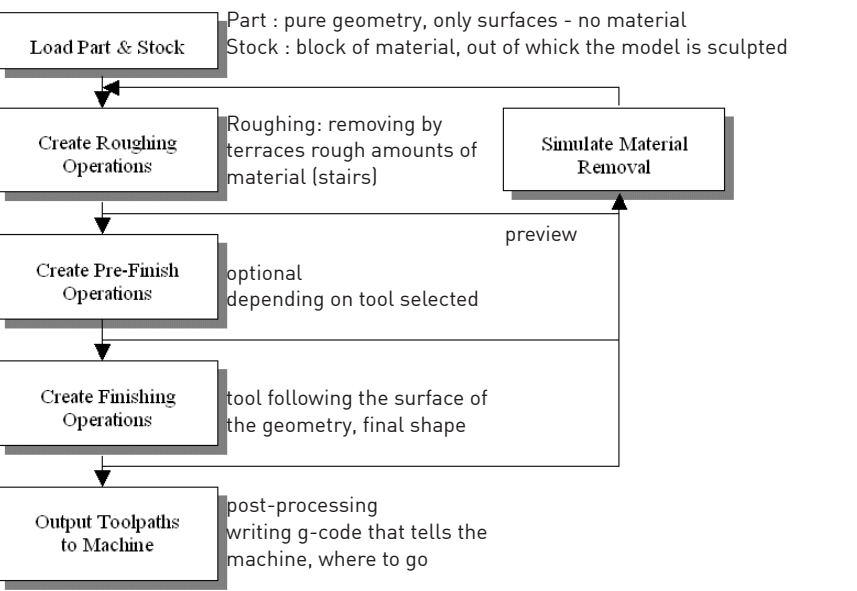


RhinoCAM 1.0



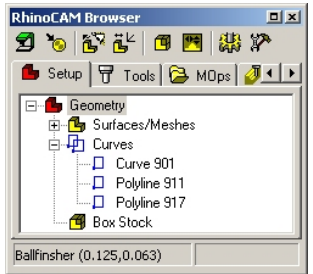
© RAPLAB/ETH Zürich/080401_mb

1. Workflow



- I load RhinoCAM in E65:
- II type in „PlugInManager“ > ENTER > Install (or > Options > PlugIns > Install)
- III navigate to drive D:
- IV open Shortcut to folder „RhinoCAM“
- V select the file „RhinoCam.rhp“ and click open.
- VI if you don't use RhinoCam, please unload the PlugIn again, there are only 10 licences

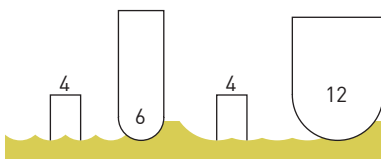
2. Setup



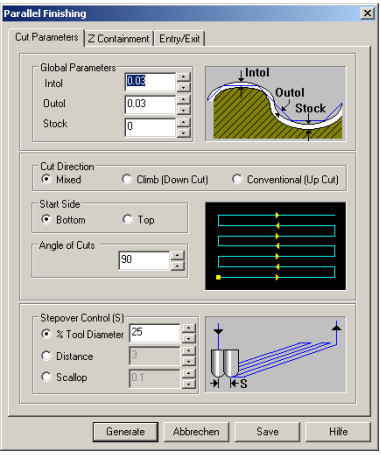
- Setup-tab:
- list of all the geometry (surfaces, meshes and curves)
 - stock if defined
- 0 make sure, your part is positioned as : +X/+Y/-Z
 - 1 click on **Create/Load Stock**
 - 2 select **Box Stock**
 - 3 define **size (in mm)** of material
 - ! attention: negativ z !
 - 4 switch to the **Tools-tab**
 - 5 click on **Load Tool Library**
 - 6 browse for **raplab-tool.lib.csv**
 - 7 select a tool
- If the tool (also: milling-bit) is not in the list, or if you can't find the .csv-file, define a new tool by choosing **Create/Select Tool**

note:
for **flat surfaces**, select **flat-nose tools**
for **slopes**, select **ball-nose tools**
for **smooth surfaces**, select **larger tools**
for **narrow valleys**, select **thinner tools**

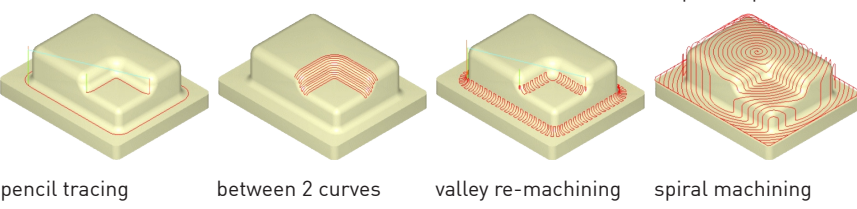
different results with different tools
left: 6mm-Ballnose-Tool, Stepsize 4mm
right: 12mm-Bn-Tool, Stepsize 4mm



4. Machining Operations: Parallel Finishing



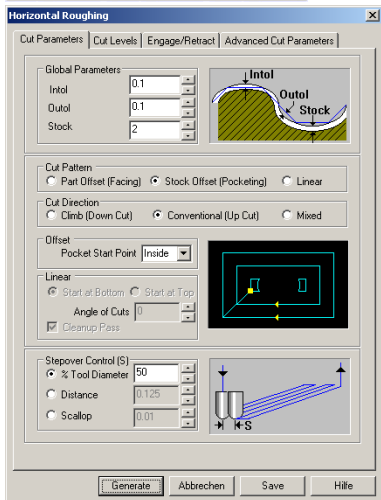
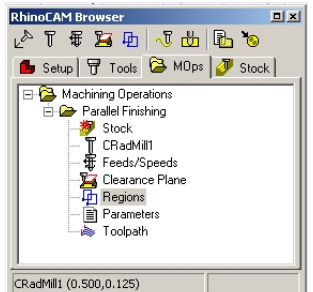
tip: doubleclick on **Regions** and select one or more **closed curves** to delimit cutting area.



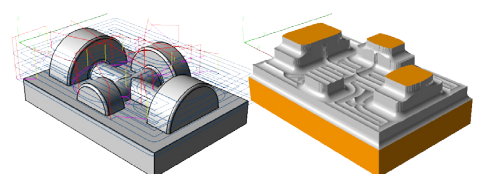
- 13 click Milling Methods > 3 Axis Milling > **Parallel Finishing**
- 14 define the **Angle of Cuts** (default 0)
- 15 adapt - if necessary - the **Stepover-%**
- 16 click **Generate**
- 17 **Verify**

14 create as many different Machining Operations as necessary for your project or change the existing ones and always double-check with the simulation
consult the RhinoCAM-Help for explanations

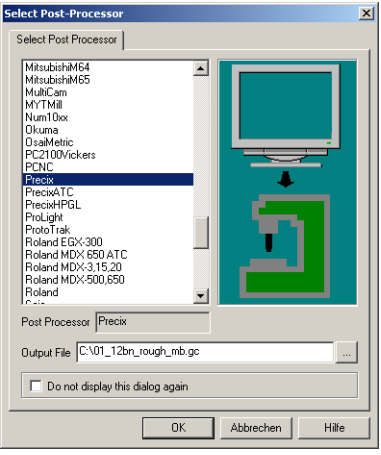
3. Machining Operations: Horizontal Roughing



- 8 switch to the **MOPs-Tab**
 - for each newly created job (Machining Operation) a folder is created, containing all the information defining this job. To change one of the elements, double-click corresponding icon.
 - 9 click **Feeds and Speeds**: put Spindle Speed to 10'000
 - 10 click **Milling Methods > 3 Axis Milling > Horizontal Roughing**
 - 11 in the dialog-box, that pops up
 - a set the **Stock** (e.g. 2 mm for foam, 1 mm for wood)
 - b under **Cut Direction**, select **Conventional**
 - c under **Stepover Control** put % Tool Diameter to 50 for foam, less for harder materials...
 - d in the **Cut Levels-Tab** under **Stepdown Control** put % Tool Diameter to **100% for foam, 50% for wood**
 - 12 click **Generate** to calculate the toolpath
 - 13 **Verify** (switch to the **Stock-Tab** and hit play)
- note:** turn displaysettings to shaded mode



5. Post-Processing



for additional information:

- a navigate to drive D:
- b open shortcut to folder **RhinoCAM**
- c open folder **Tutorials**
- d open the file **RhinoCamTutorial.chm**
- e under **Machining Methods**, you find descriptions and previews of all the different strategies

- 15 once satisfied with the result, go back to the **MOPs-Tab**
- 16 select each MOp-Folder subsequently and click **Post Process**
- 17 out of the list of all the post-processors, choose **Precix**
- note:** to post several MOPs that use the **same tool in one file**, add all the folders to the selection (with SHIFT)
- 18 under **Output File**, specify the **path** and the **filename** (e.g.: „01_12b_rough_mb.gc“ „02_6f_fine_mb.gc“)
- 19 click **OK** to write G-Code-file
- 20 open the .gc-file with a text editor and change the spindle-speed in line 2 and line 6 to: S10000 - save.
- 21 upload all the .gc-files on the **Precix-Computer**

important: the machine needs to be turned on!

- > Start > Search > For Files or Folders > Computers or People > A Computer in the Network
- search-string: **precix**
- result: Precix-router > open
- result: files > open
- place your files in a corresponding folder