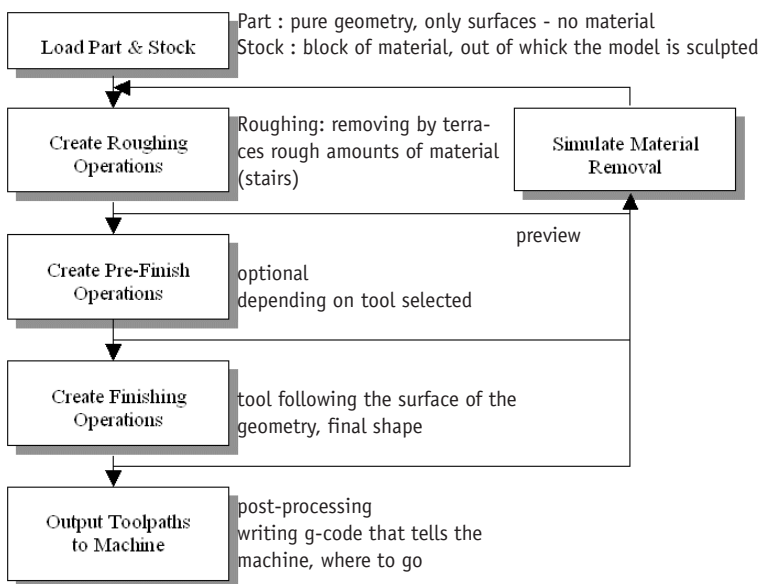


RhinoCAM 1.0



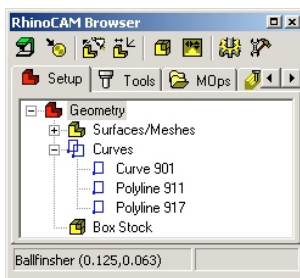
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1. Workflow



Booting the Windows7-Computer at the Workshop with RhinoCAM (ZHAW Building ZB)
 Login: `clt-dsk-p-1364\student`, Password: `wel-come123`
 On the Precix-Control start Desktop with QNX > Desktop Manager
 Click first symbol on the left in the «Applications»-list
 «Share Connector» starts and closes by itself, as soon as the connection is established
 Files are under «/files/rhino» on the Precix-Control
 On the Windows7-Computer there is a link on the desktop «qnx-share»

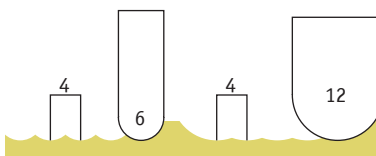
2. Setup



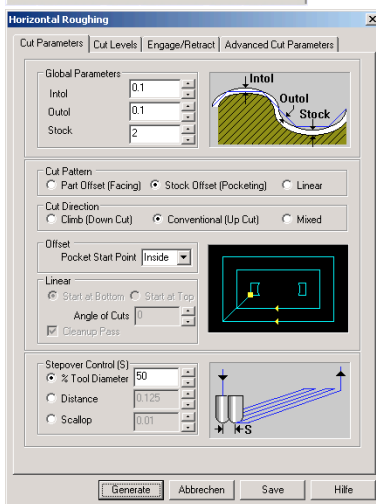
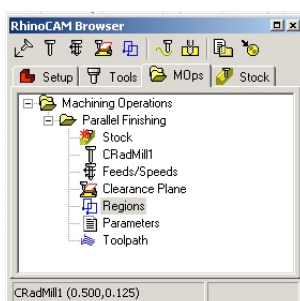
- Setup-tab:
- list of all the geometry (surfaces, meshes and curves)
 - stock if defined
- 0 make sure, your part is positioned as : +X/+Y/-Z
 - 1 click on Create/Load Stock
 - 2 select Box Stock
 - 3 define size (in mm) of material ! attention: negativ z !
 - 4 switch to the Tools-tab
 - 5 click on Load Tool Library
 - 6 browse for raplab-toollib.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

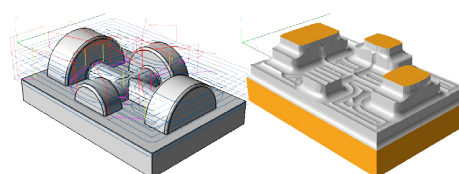
different results with different tools
 left: 6mm-Ballnose-Tool, Stepsize 4mm
 right: 12mm-Bn-Tool, Stepsize 4mm



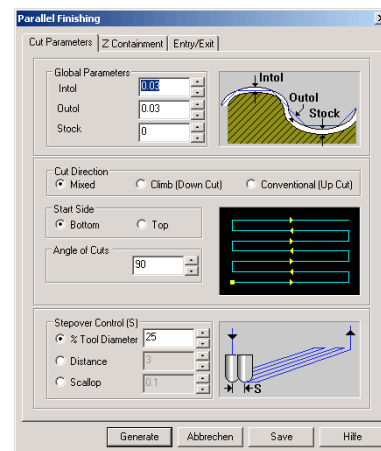
3. Machining Operations: Horizontal Roughing



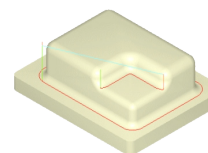
- 8 switch to the MOPs-Tab
- for each newly created job (Machining Operation) a folder is created, containing all the information defining this job. To change one of the elements, double-click corresponding icon.
- 9 click Feeds and Speeds: put Spindle Speed to 10'000
- 10 click Milling Methods > 3 Axis 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 Stepper Control put % Tool Diameter to 50 for foam, less for harder materials...
 - d in the Cut Levels-Tab under Stepper 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



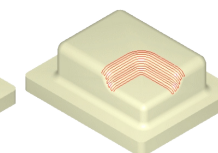
4. Machining Operations: Parallel Finishing



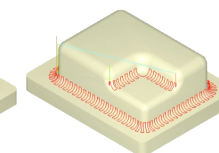
tip: doubleclick on Regions and select one or more closed curves to delimit cutting area.



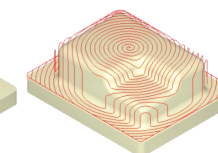
pencil tracing



between 2 curves

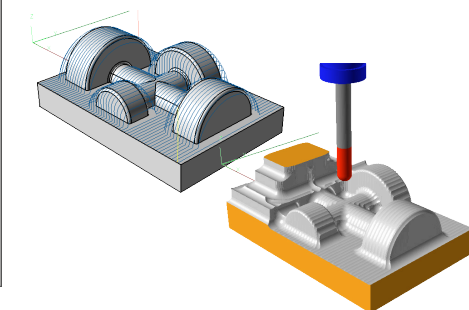


valley re-machining



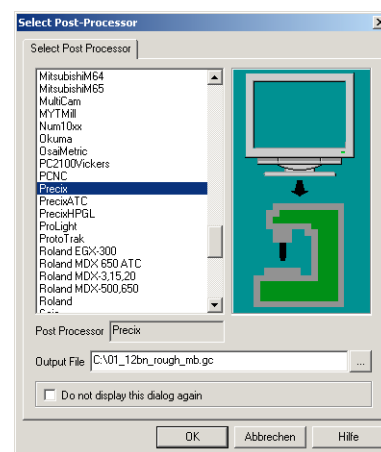
spiral machining

- 13 click Milling Methods > 3 Axis Milling > Parallel Finishing
- 14 define the Angle of Cuts (default 0)
- 15 adapt - if necessary - the Stepper-%
- 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

5. Post-Processing



- 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 (see Chapter «1. Workflow: Booting»)

important: the machine needs to be turned on!