

# local class

[guerilla guide to CNC machining](#)



<https://lcamtuf.coredump.cx/gcnc/>

[https://player.vimeo.com/video/707650918?badge=0&autoplay=0&player\\_id=0&app\\_id=58479](https://player.vimeo.com/video/707650918?badge=0&autoplay=0&player_id=0&app_id=58479)

<https://thenounproject.com> (not free anymore ☹)

How to a make Crystal Clear Ice Sphere

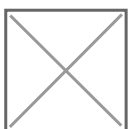
<https://www.smooth-on.com/product-line/mold-max/?quicksearch>

<https://fabacademy.org/2021/labs/kamplintfort/students/mattissen-gerhard/assignments/week15/>

<https://fabacademy.org/2021/labs/kamplintfort/students/mattissen-gerhard/assignments/week18/>



[https://fabacademy.org/archives/2015/eu/students/postma.ronald/02\\_progress/week\\_09.html](https://fabacademy.org/archives/2015/eu/students/postma.ronald/02_progress/week_09.html)



<https://fabacademy.org/2020/labs/leon/students/adrian-torres/week15.html>

[ferris File-A-Wax 148x88x37mm](#)

<https://youtu.be/wMRSPXt48CI?si=QapaiAiej4CBpQQa>

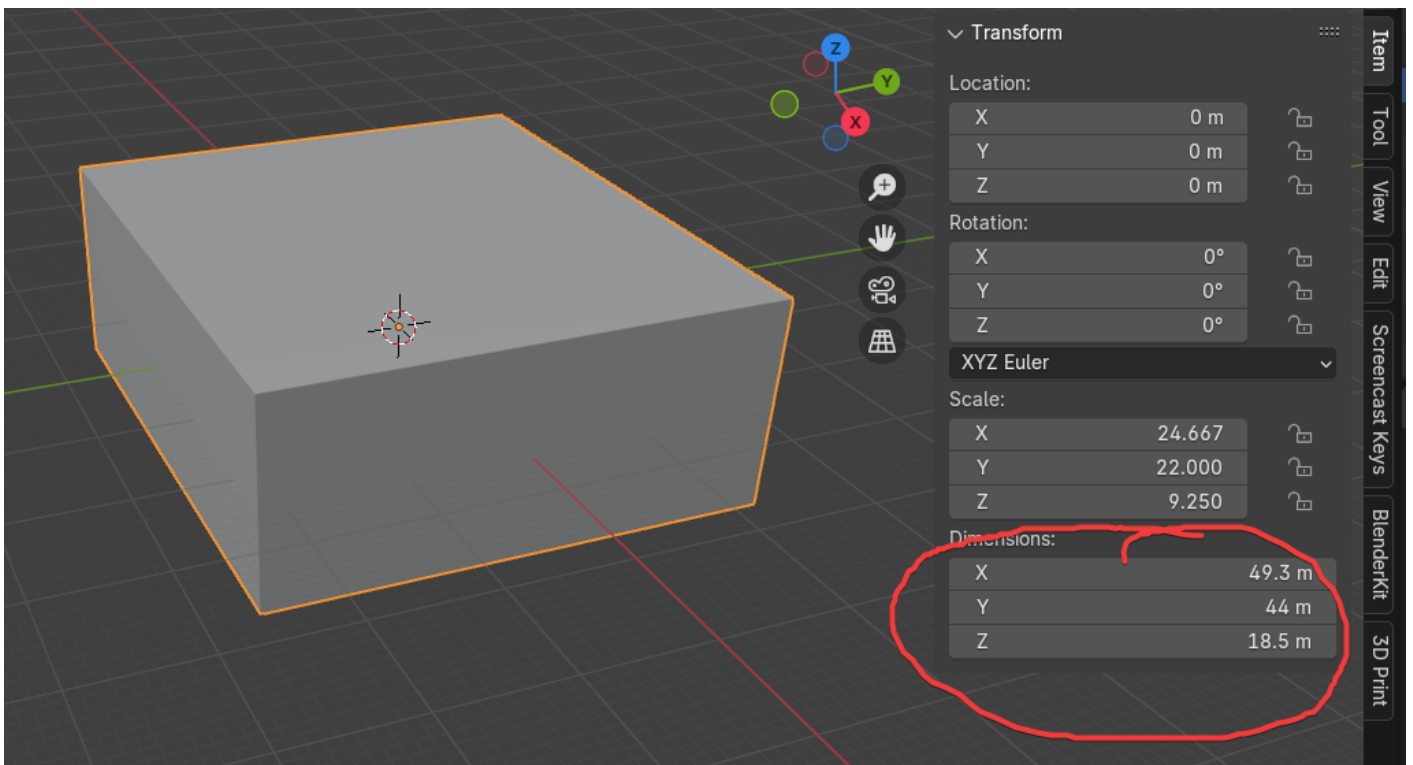
[3D Printed Injection Molds - The Craftsman Steady Craftin](#)

# Lifecasting:

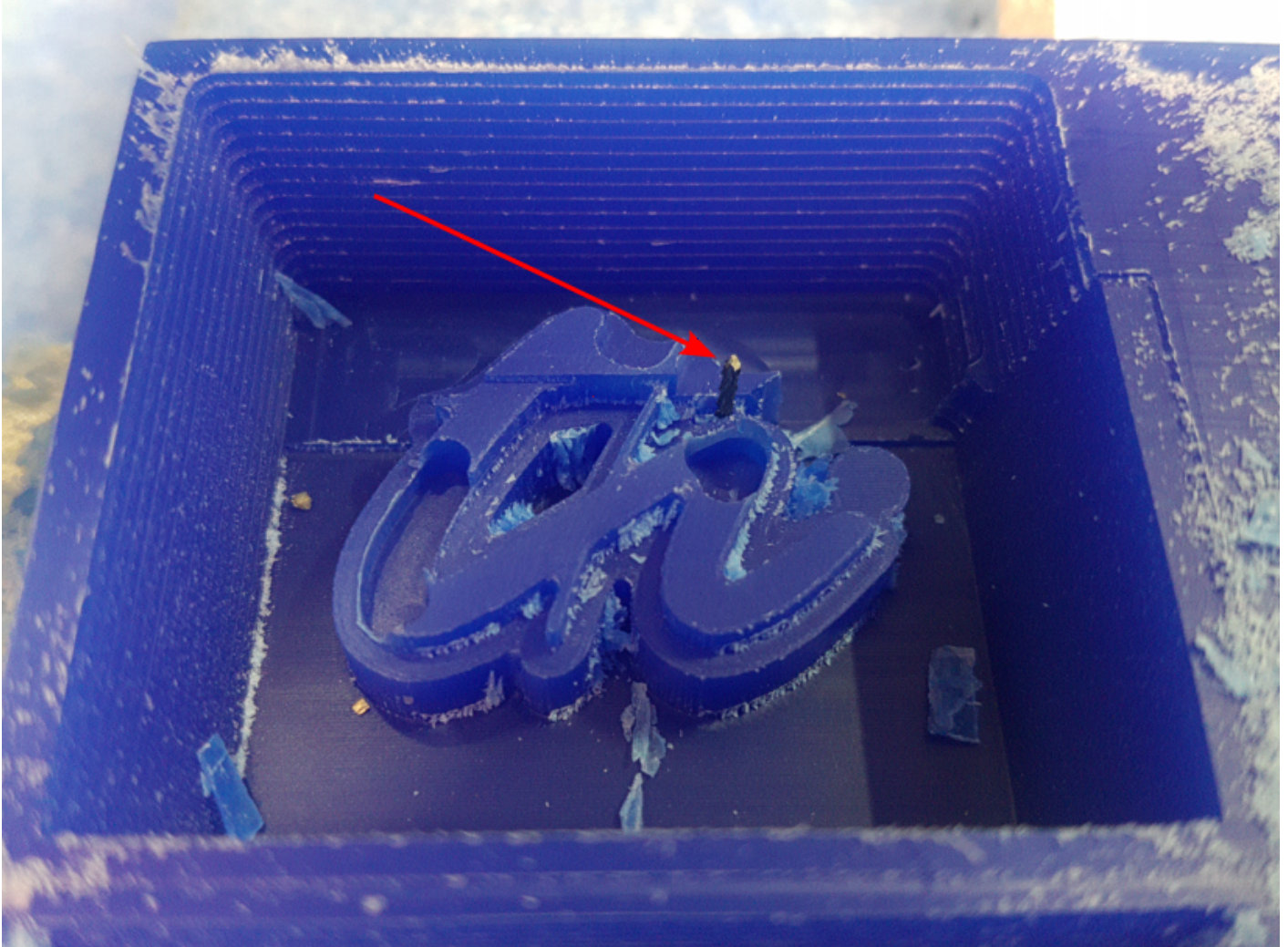


## Blender - mods

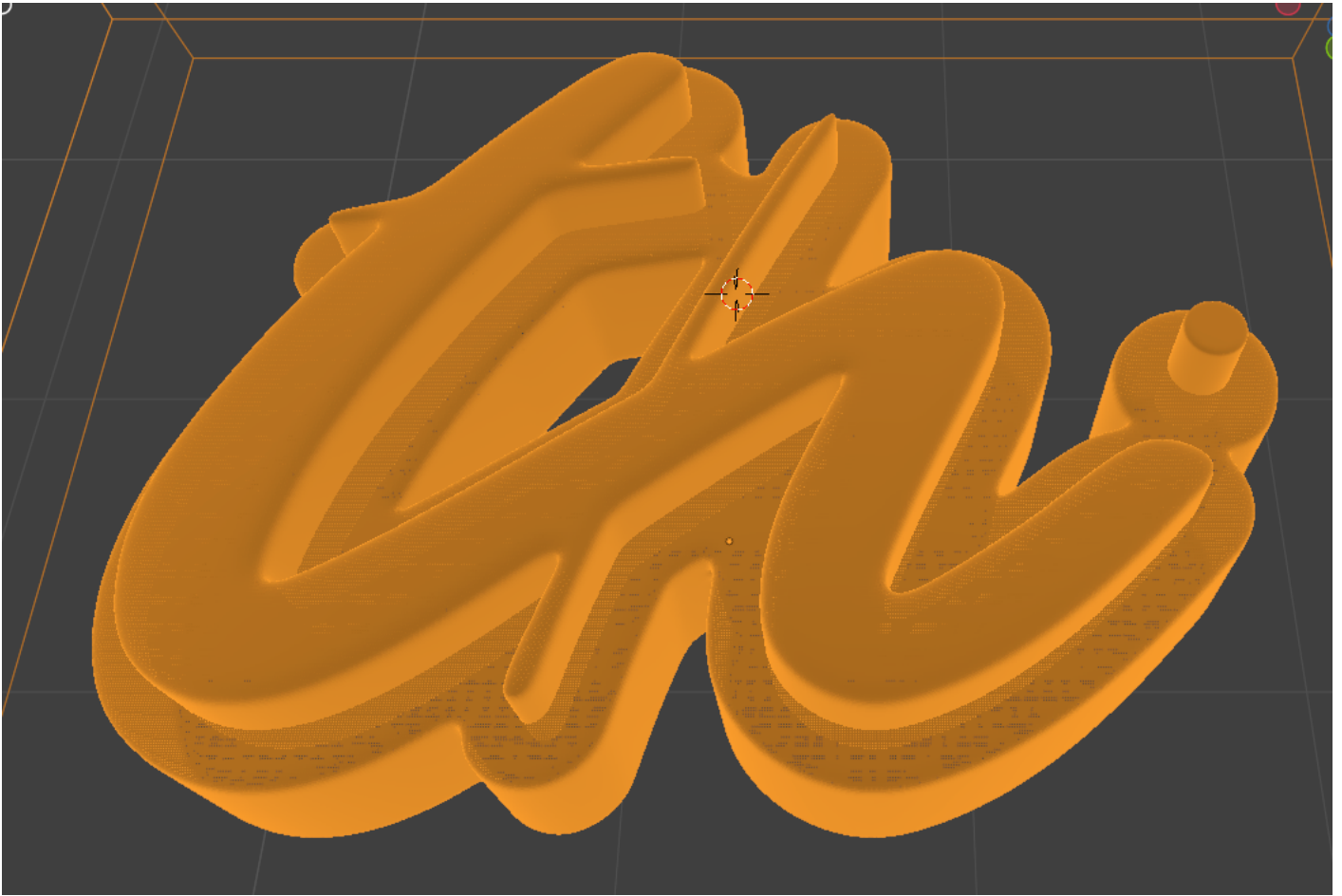
If you model your part in blender, you should start with a cube 49.3333 m x 44 m x 18.5 m in size.



Hmm....I was just about to document the blender - mods - workflow when this happened:



If the roughing doesn't enter in a hole and the finishing is 5 mm deeper, the tool breaks.

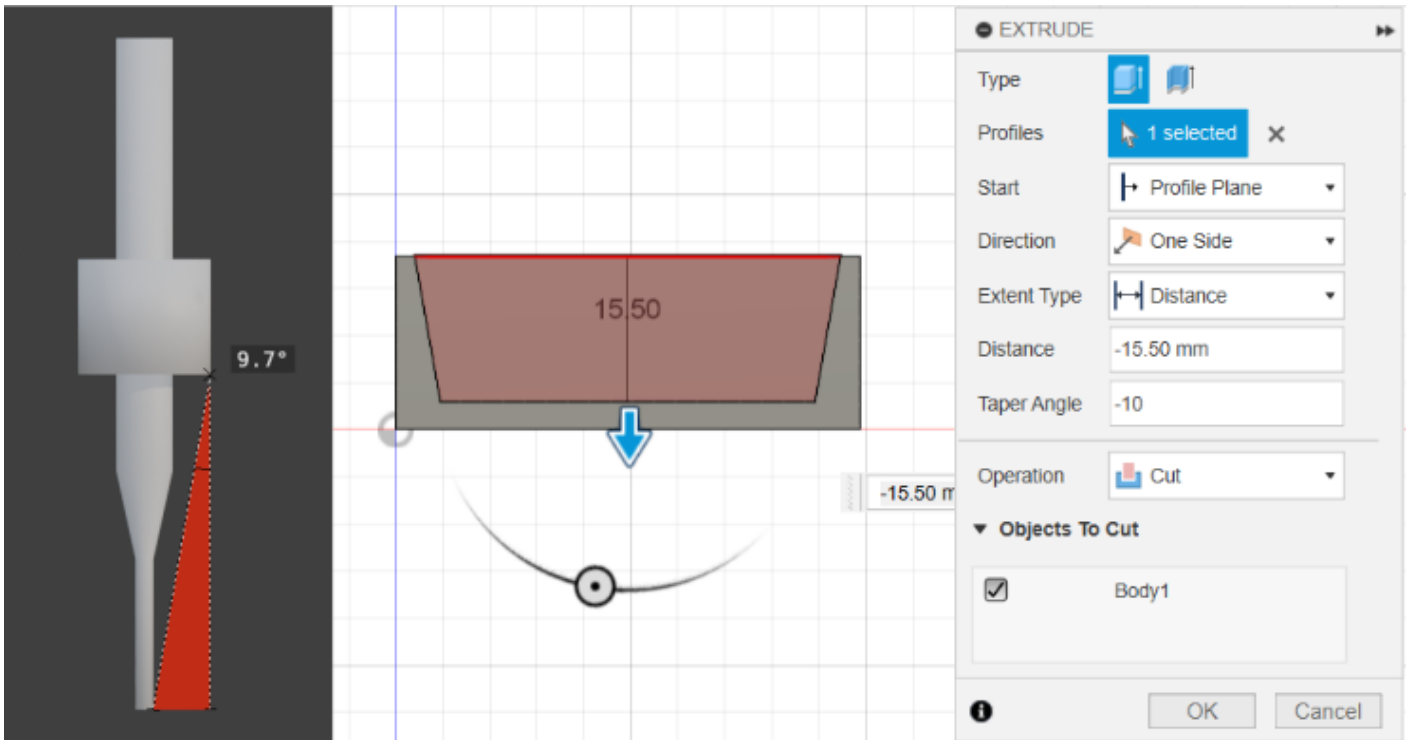


Let's use Fusion 

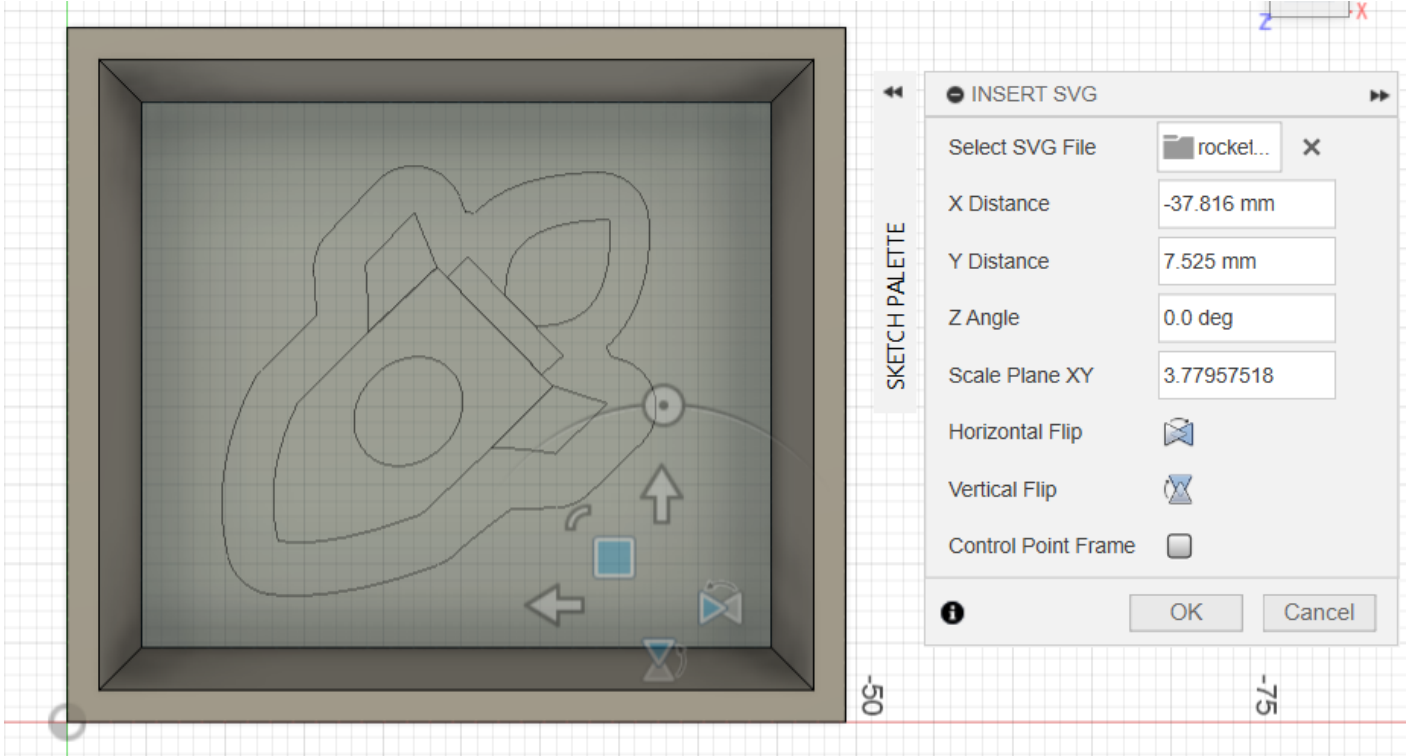
# Fusion

Extrude a box 49,3333 m x 44 m x 18,5

Create a cavity 2mm from the edge, 15,5 mm deep. If you give the sidewalls a 10° draft angle, you won't be able to hit it with the 1mm mill.



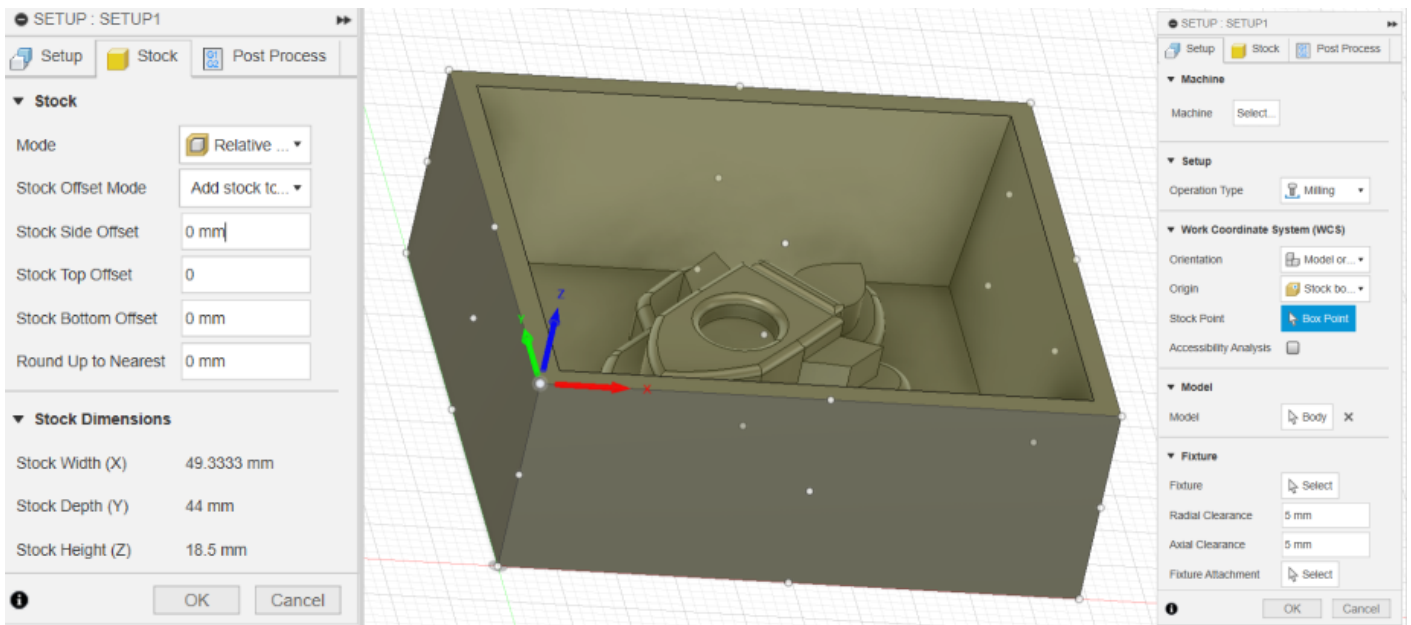
Place your svg (imported with the right scale factor of 3,77957518)



and extrude it.









In the Manufacturing workbench we create a setup, with a stock of 0-offset and the origin bottom-left at the upper corner:



For the roughing I use "Adaptive Clearing" with the following settings:

● ADAPTIVE : ADAPTIVE1



▼ Tool

Tool   
#5 - Ø3.175mmr...

Coolant

▼ Feed & Speed

Preset

Spindle Speed

Surface Speed

Ramp Spindle Speed

Cutting Feedrate

Feed per Tooth

Lead-In Feedrate

Lead-Out Feedrate


Transition Feedrate

Ramp Feedrate







Plunge Feedrate

Plunge Feed per Re...

☐ Shaft & Holder



● ADAPTIVE : ADAPTIVE1



▼ Geometry

Machining Boundary

▼ Stock Definition




Define Stock By


☐ Model


▼ Avoid/Machine Surfaces


View Absolute Values ☐


Surface Groups


Name	Radial	Axial
 Model	 0 mm	 0 mm





















Total Radial Stock To... 0.5 mm

Total Axial Stock To L... 0.5 mm



● ADAPTIVE : ADAPTIVE1



▼ Passes

Tolerance

Machine Shallow Areas ☐

Optimal Load

Both Ways ☐

Minimum Cutting Radi...

Machine Cavities ☒

Use Slot Clearing ☐

Direction

Maximum Roughing S...

Fine Stepdown

Flat Area Detection ☒

Minimum Stepdown


Minimum Axial Engag...

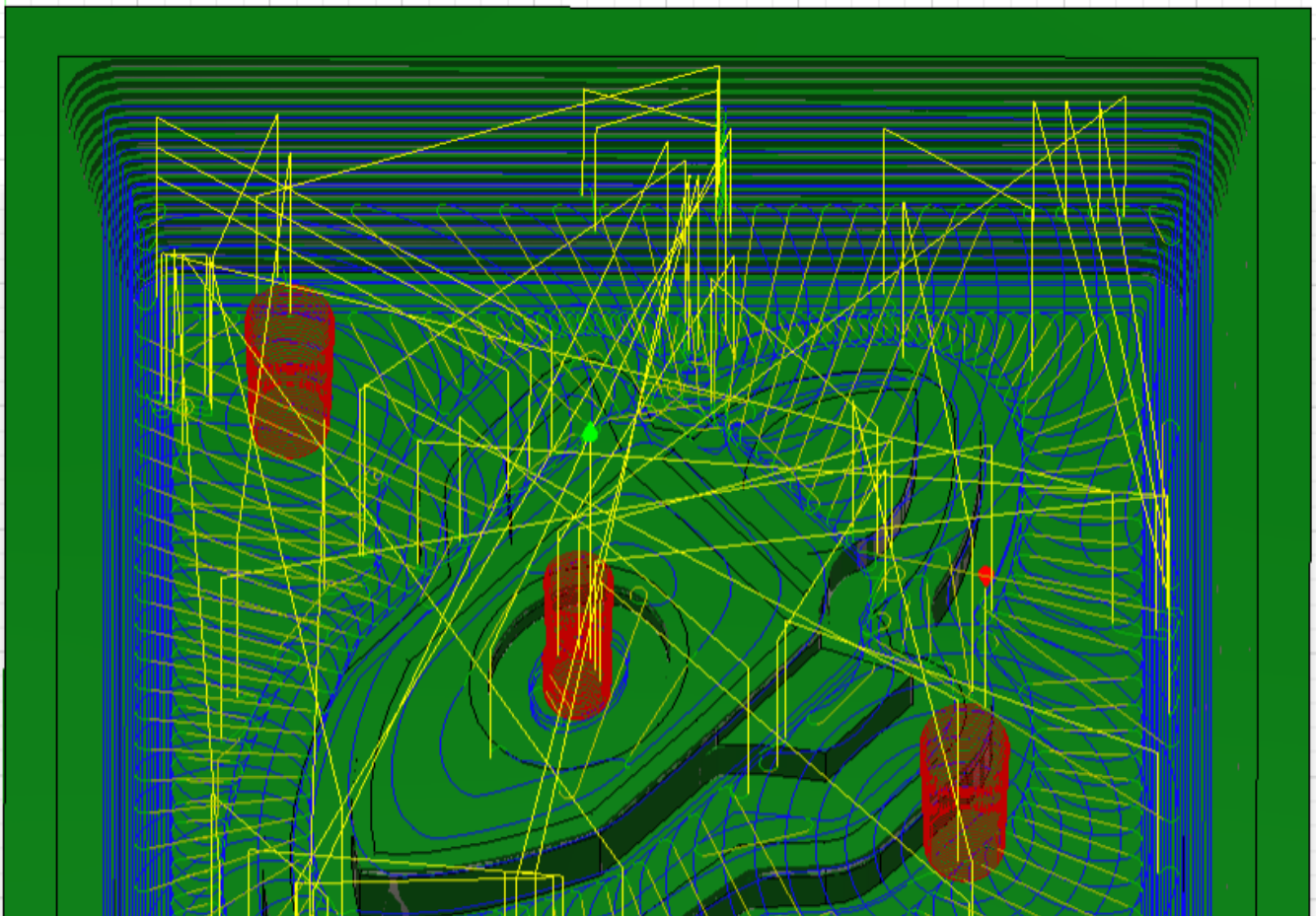
Order by Depth ☐

Order By Area ☐

☐ Stock to Leave

☐ Fillets





For the finishing I use Parallel:

PARALLEL : PARALLEL1

Tool

Select...

#3 - Ø1mm flat...

Coolant

Disabled

Feed & Speed

Preset

PCB/Carbor...

Spindle Speed

12000 rpm

Surface Speed

37.6991 m/min

Ramp Spindle Speed

12000 rpm

Cutting Feedrate

500 mm/min

Feed per Tooth

0.0208333 mm

Lead-In Feedrate

500 mm/min

Lead-Out Feedrate

500 mm/min

Transition Feedrate

500 mm/min

Ramp Feedrate

333.333 mm/min

Plunge Feedrate

333.333 mm/min

Plunge Feed per Re...

0.0277778 mm

Shaft & Holder

OK

Cancel

PARALLEL : PARALLEL1

Geometry

Machining Boundary

Selection

Machining Boundary...

Select

X

Closed Chain 1

Tool Containment

Tool cent...

Additional Offset

0 mm

Contact Point Bounc...

Contact Only


Slope

Rest Machining

Model

OK

Cancel



PARALLEL : PARALLEL1

Passes

Tolerance

0.01 mm

Machine Steep Areas

Add Perpendicular Pa...

Simple Ordering

Pass Direction Refere...

Select

Pass Direction

0 deg

Stepover

0.1 mm

Cusp Height

0.07071 mm

Direction

Both w...

Up/Down Milling

Both

Multiple Depths

Stock to Leave

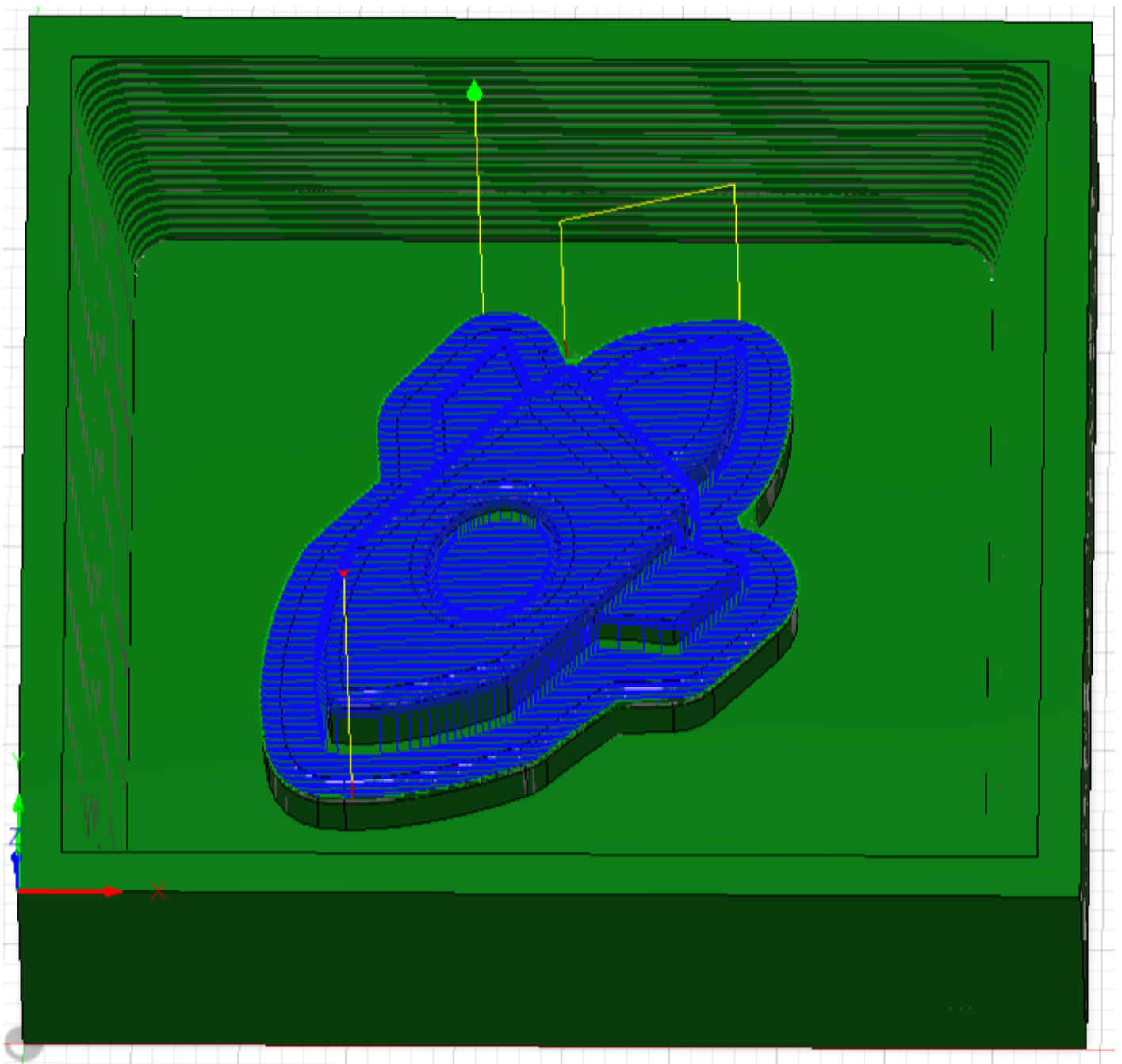
Fillets

Smoothing

Feed Optimization

OK

Cancel



Total time is 23:27

Revision #15

Created 23 April 2025 15:35:57 by Ferdi

Updated 28 April 2025 14:24:23 by Ferdi