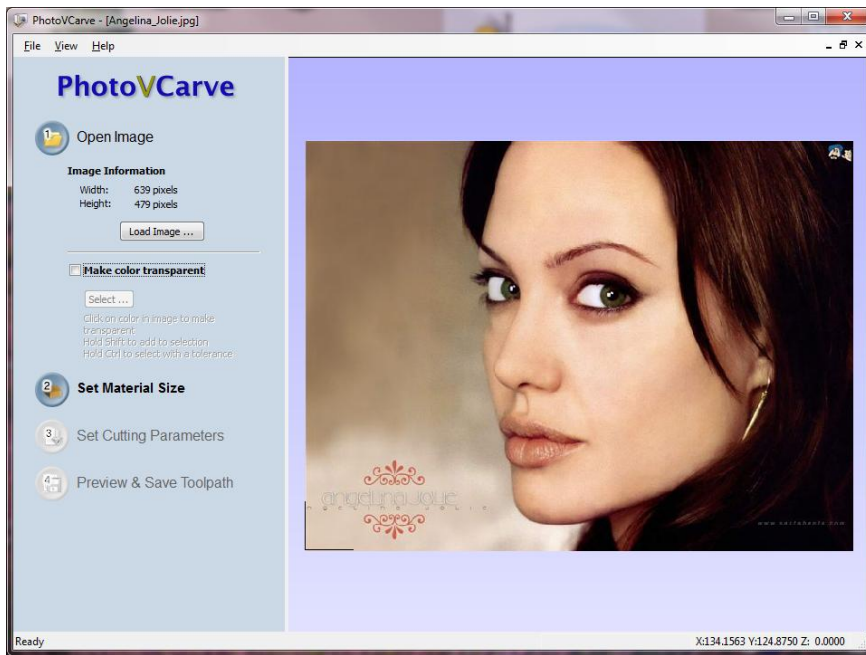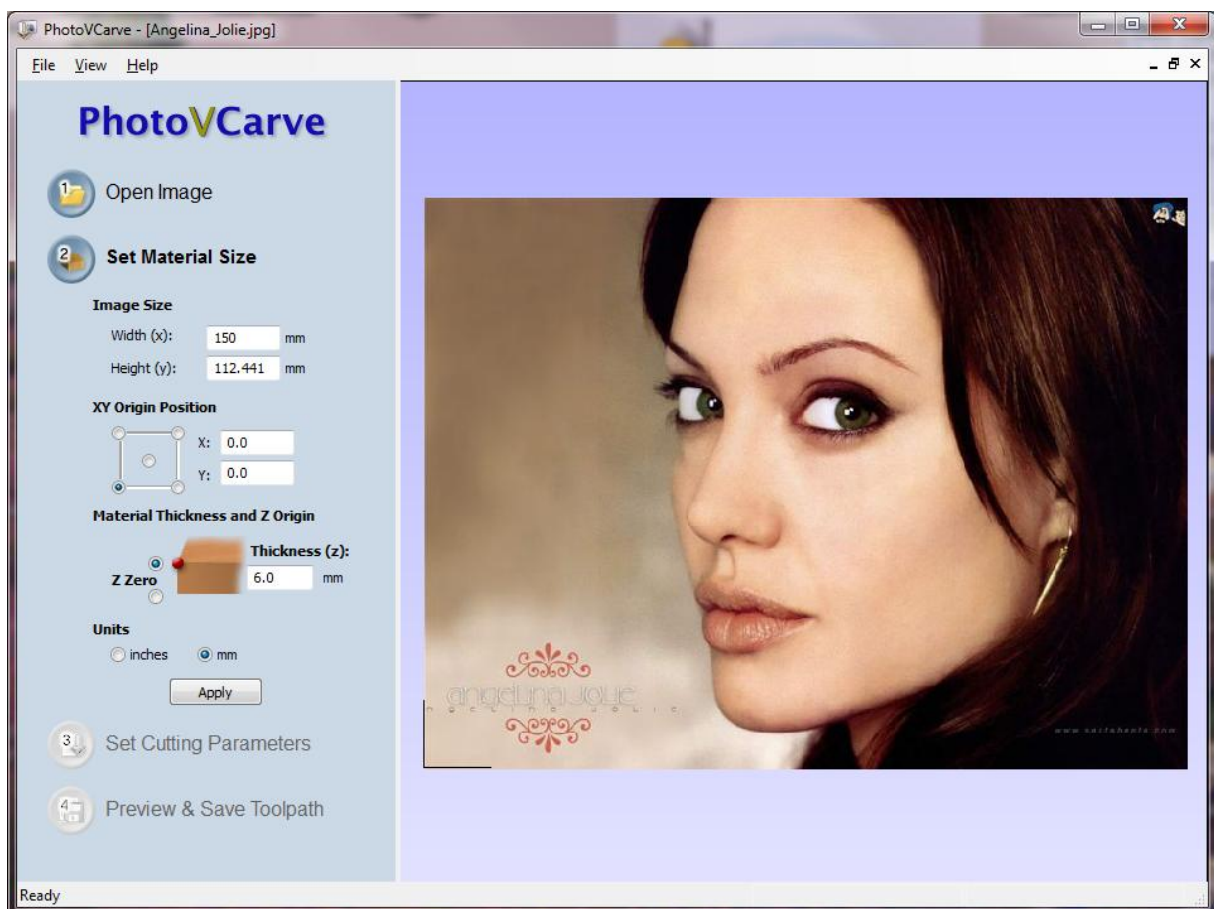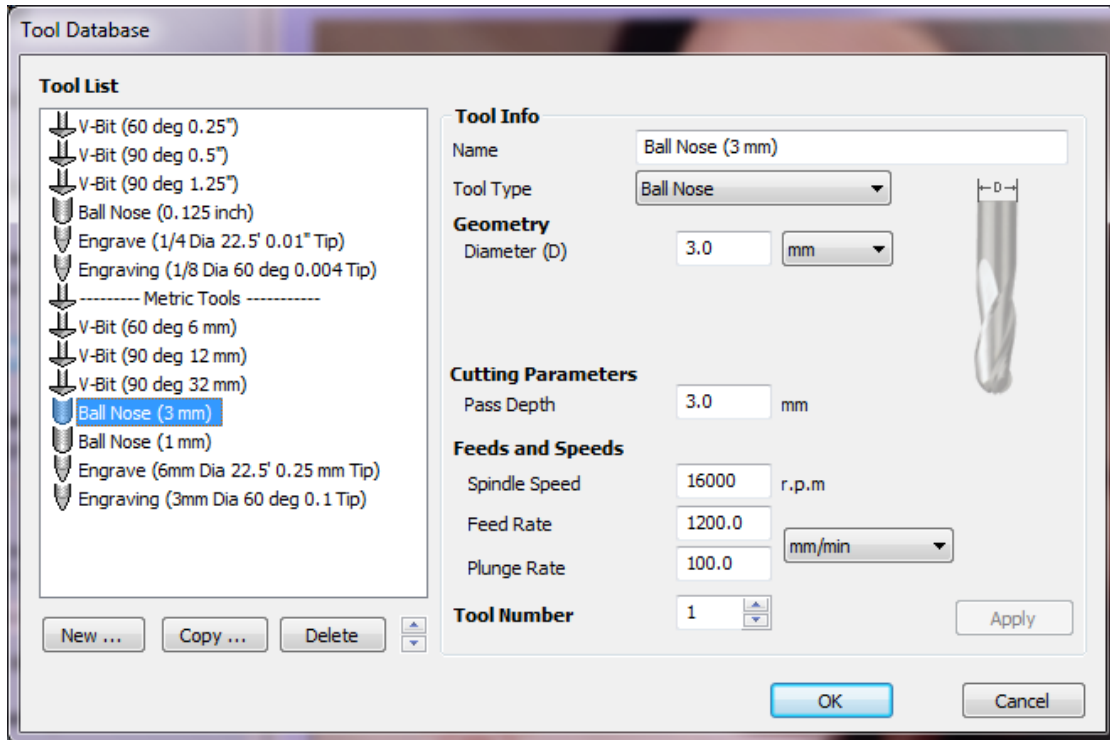## 1 Load Image

2 Set size and origin press apply

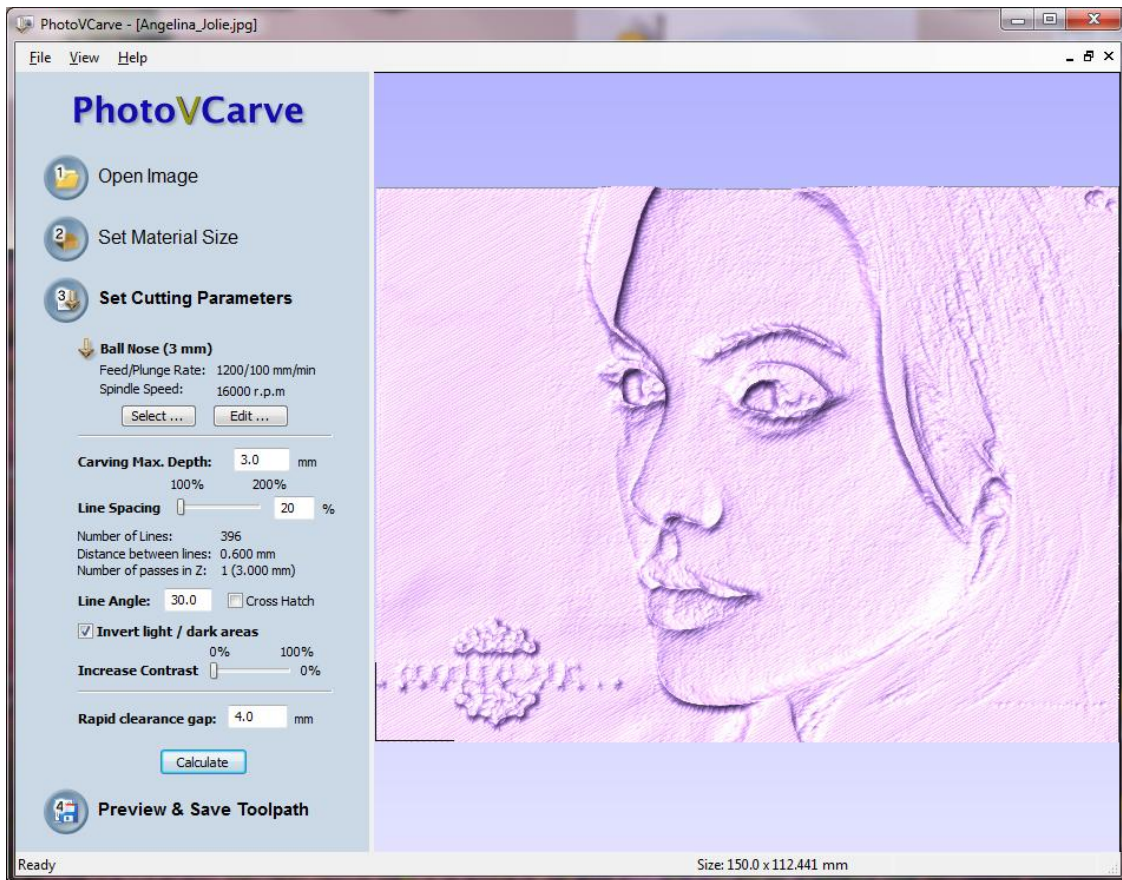We use 6mm thick Corian, remember the size 150 x 112.44 mm
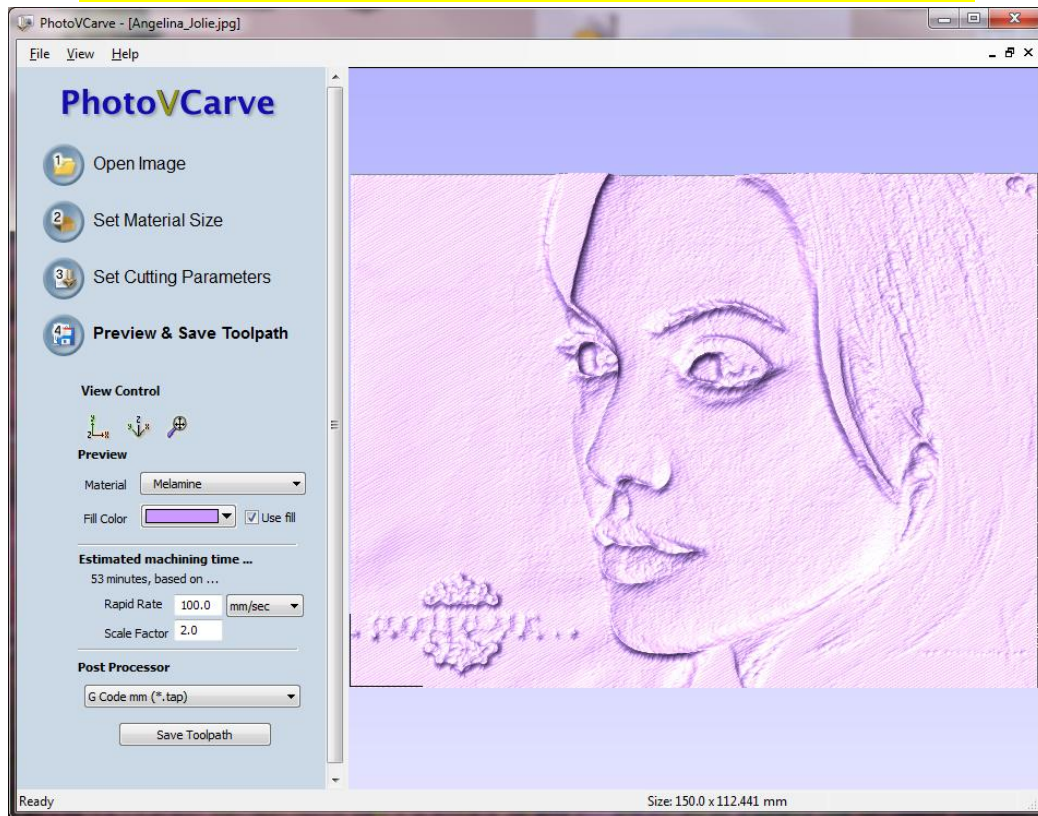
3 Set cutting parameters pass 1

Select ball nose 3mm, if not exist, create one with these parameters:

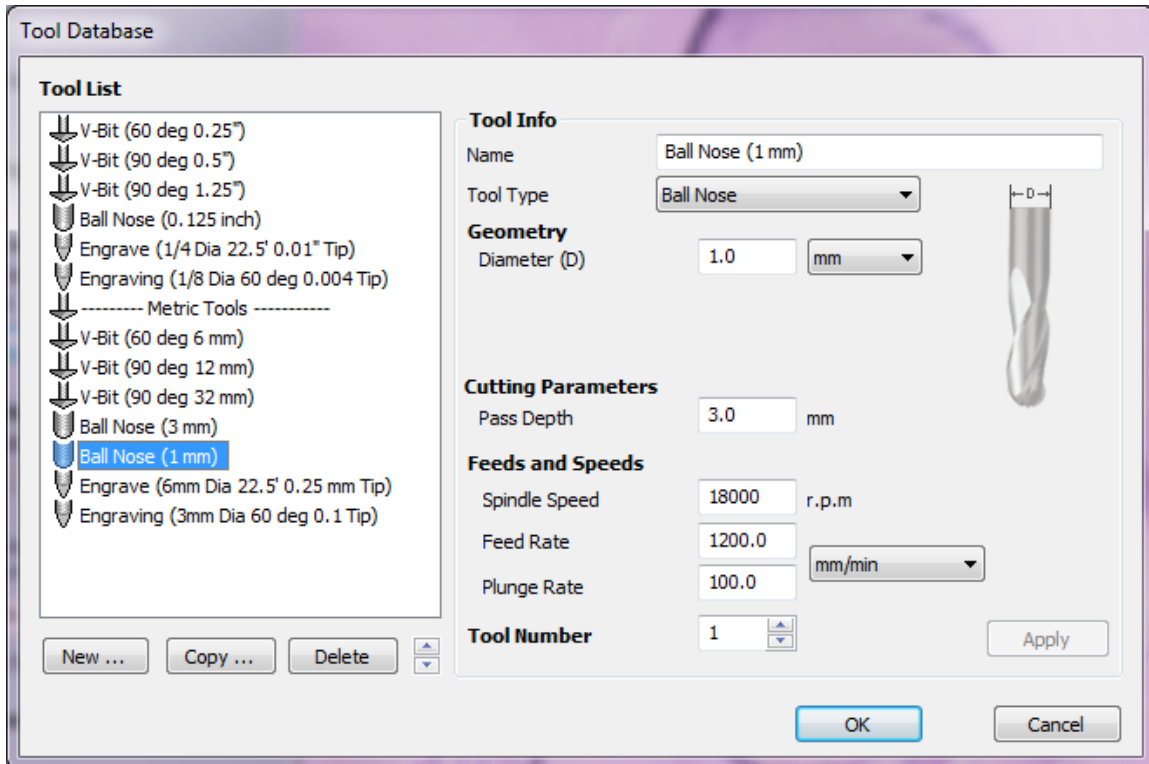**Apply these parameters for pass 1 and press Calculate:**

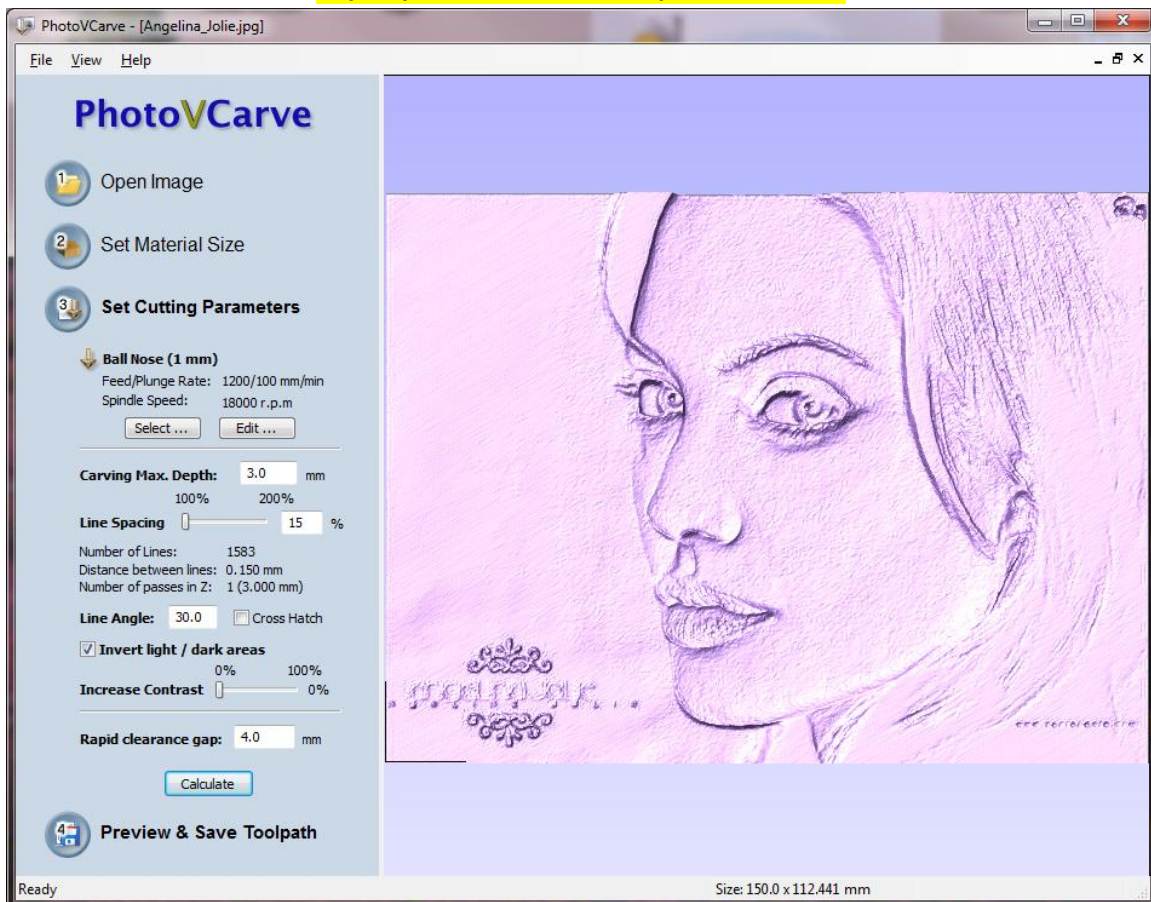**4. Preview and save toolpath with these parameters, press save tool path**

Save it and call it PhotoVCarve-3mm.tap

Repeat step 3 and 4 for pass 2 with a 1 mm ball nose:

3. Now 1mm ball nose

Tool Database

Tool List

- V-Bit (60 deg 0.25")
- V-Bit (90 deg 0.5")
- V-Bit (90 deg 1.25")
- Ball Nose (0.125 inch)
- Engrave (1/4 Dia 22.5' 0.01" Tip)
- Engraving (1/8 Dia 60 deg 0.004 Tip)
- --------- Metric Tools -----------
- V-Bit (60 deg 6 mm)
- V-Bit (90 deg 12 mm)
- V-Bit (90 deg 32 mm)
- Ball Nose (3 mm)
- Ball Nose (1 mm)
- Engrave (6mm Dia 22.5' 0.25 mm Tip)
- Engraving (3mm Dia 60 deg 0.1 Tip)

[New ...] [Copy ...] [Delete]

Tool Info

Name	Ball Nose (1 mm)
Tool Type	Ball Nose

Geometry

Diameter (D) 1.0 mm

Cutting Parameters

Pass Depth 3.0 mm

Feeds and Speeds

Spindle Speed 18000 r.p.m
Feed Rate 1200.0
Plunge Rate 100.0 mm/min

Tool Number 1

[Apply]

[OK] [Cancel]

Adjust parameters like this, press calculate:

PhotoVCarve - [Angelina_Jolie.jpg]

File View Help

PhotoVCarve

① Open Image

② Set Material Size

③ **Set Cutting Parameters**

Ball Nose (1 mm)
Feed/Plunge Rate: 1200/100 mm/min
Spindle Speed: 18000 r.p.m

[Select ...] [Edit ...]

Carving Max. Depth: 3.0 mm
  100% 200%
Line Spacing 15 %

Number of Lines: 1583
Distance between lines: 0.150 mm
Number of passes in Z: 1 (3.000 mm)

Line Angle: 30.0 ☐ Cross Hatch

☑ **Invert light / dark areas**
  0% 100%
Increase Contrast 0%

Rapid clearance gap: 4.0 mm

[Calculate]

④ **Preview & Save Toolpath**

Ready Size: 150.0 x 112.441 mm

Save tool path as Photo VCarve-1mm.tap

Close PhotoVcarve, start QCad and draw a rectangle of 150x112.44
Save it.

Start USBCNC and home you machine. Zero the XY at the lower left corner of the material.
Zero Z at the surface of the material, but now we do something special.
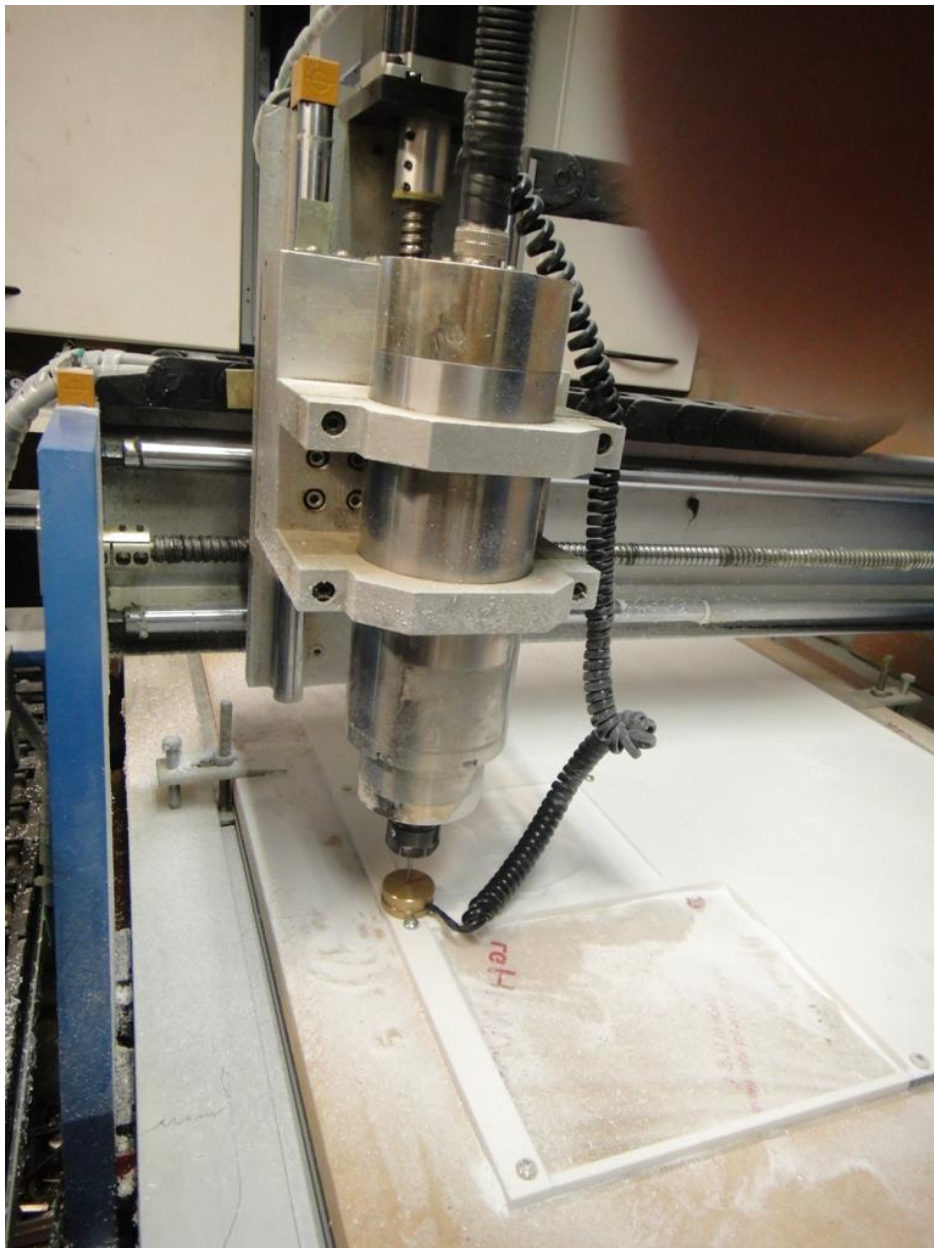Our Photo relief depth is 3mm. Our material thickness is 6mm.
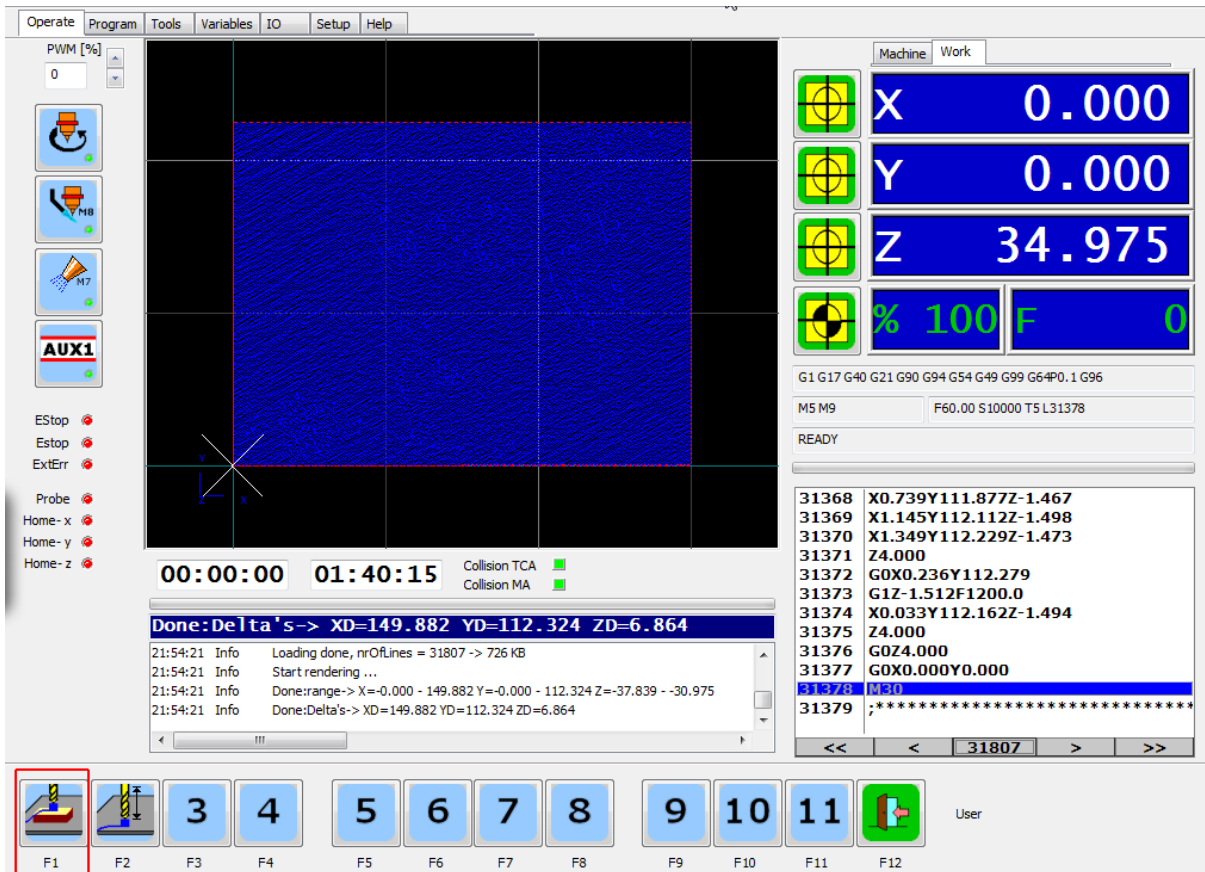
We want it as follows:
At the bottom of the end product 1 mm untouched material.
Above that the relief 3 mm thick.
So our Z height must be set to zero at +4 mm from the bottom of the material.
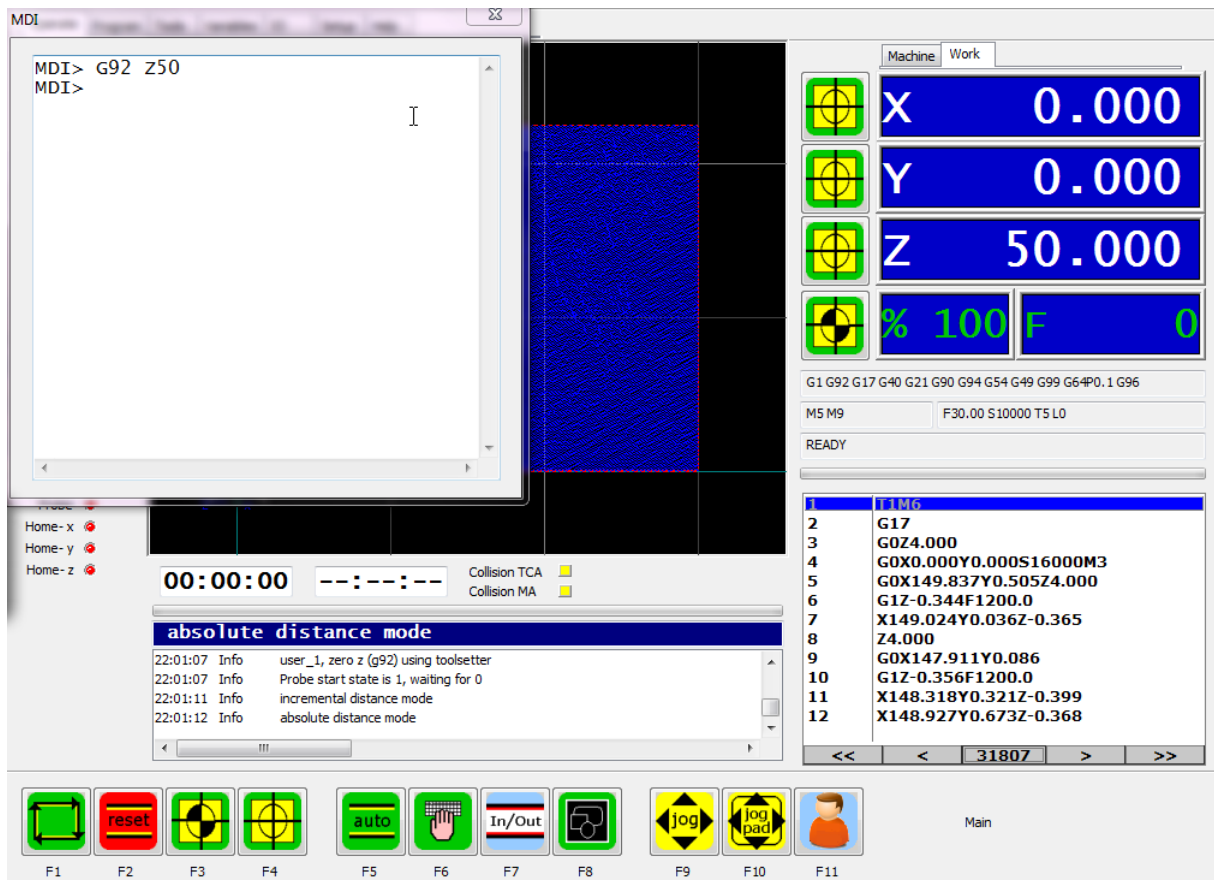So Z at the top is +2mm. In my case, I use a simple tool setter :

When done it is at 48 in my case. Now I must fake this because Z0 is at 2mm inside the material.

So :

Now we can press reset to render, then run to let it do the first pass with 3mm ball nose.

Operate | Program | Tools | Variables | IO | Setup | Help

PWM [%]
100

EStop

Probe
Home-x
Home-y
Home-z

Machine | Work

X 149.749
Y 17.082
Z 4.000
% 100   F 0

G0 G17 G40 G21 G90 G94 G54 G49 G99 G64P0.1 G96
M3 M9   F1200.00 S10000 T1 L0
RUNNING

1	T1M6
2	G17
3	G0Z4.000
4	G0X0.000Y0.000S16000M3
5	G0X149.837Y0.505Z4.000
6	G1Z-0.344F1200.0
7	X149.024Y0.036Z-0.365
8	Z4.000
9	G0X147.911Y0.086
10	G1Z-0.356F1200.0
11	X148.318Y0.321Z-0.399
12	X148.927Y0.673Z-0.368

<< < 31807 > >>

00:01:43   01:04:23   Collision TCA
                      Collision MA

Job started

22:03:17 Info   Done:Delta's-> XD=149.882 YD=112.324 ZD=6.864
22:04:03 Info   Job started
22:04:03 Action Please load tool 1
22:04:05 Info   Job started
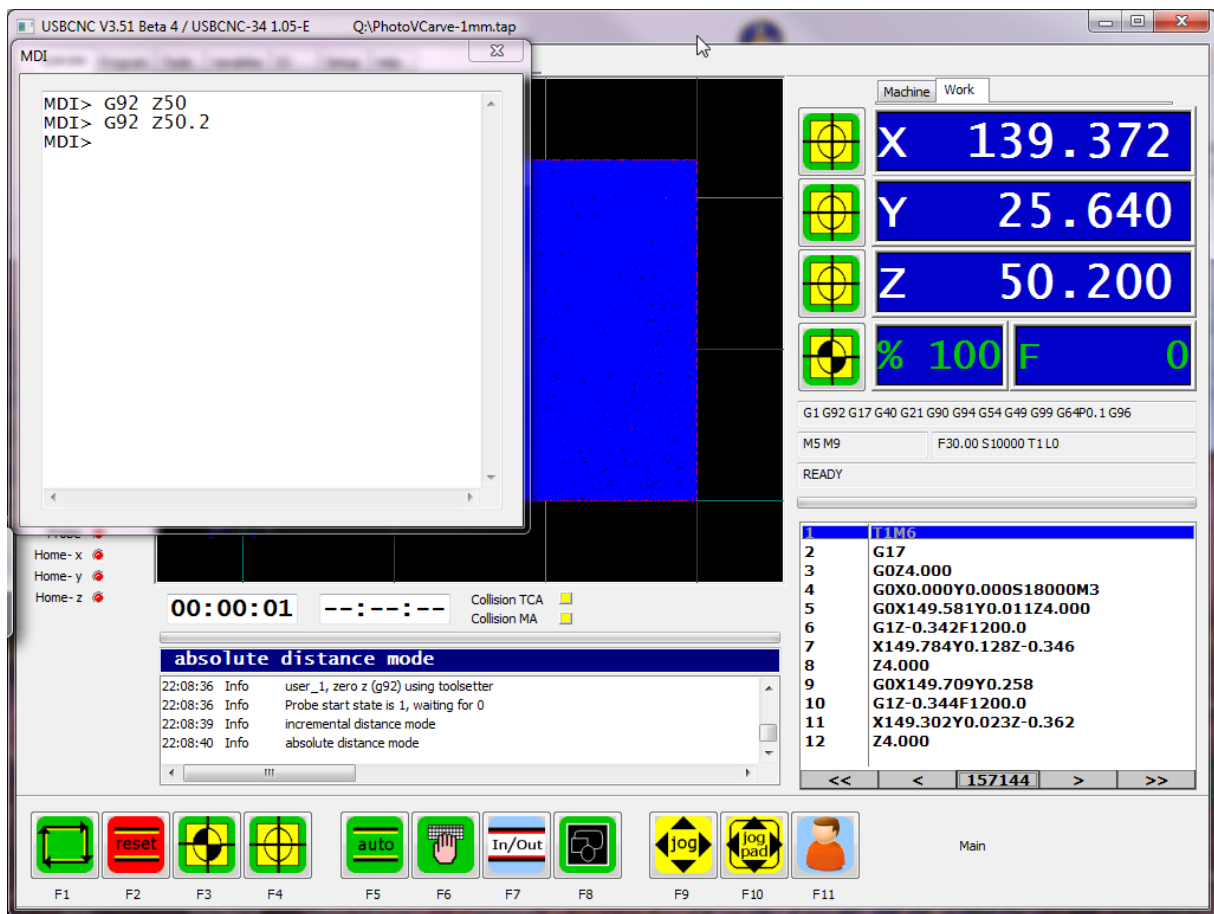
F1 | F2 reset | F3 | F4 | F5 auto | F6 | F7 In/Out | F8 | F9 jog | F10 jog pad | F11

Main

After it is done we mount the second pass tool 1mm ball nose.
We zero again the same way, but now we do **G92 Z50.2**. This way the next pass comes 0.2 mm
deeper, it makes sure that we will not see any more pass 1 milling afterwards.

We accept that the bottom thickness will be 0.8 mm at the thinnest place.

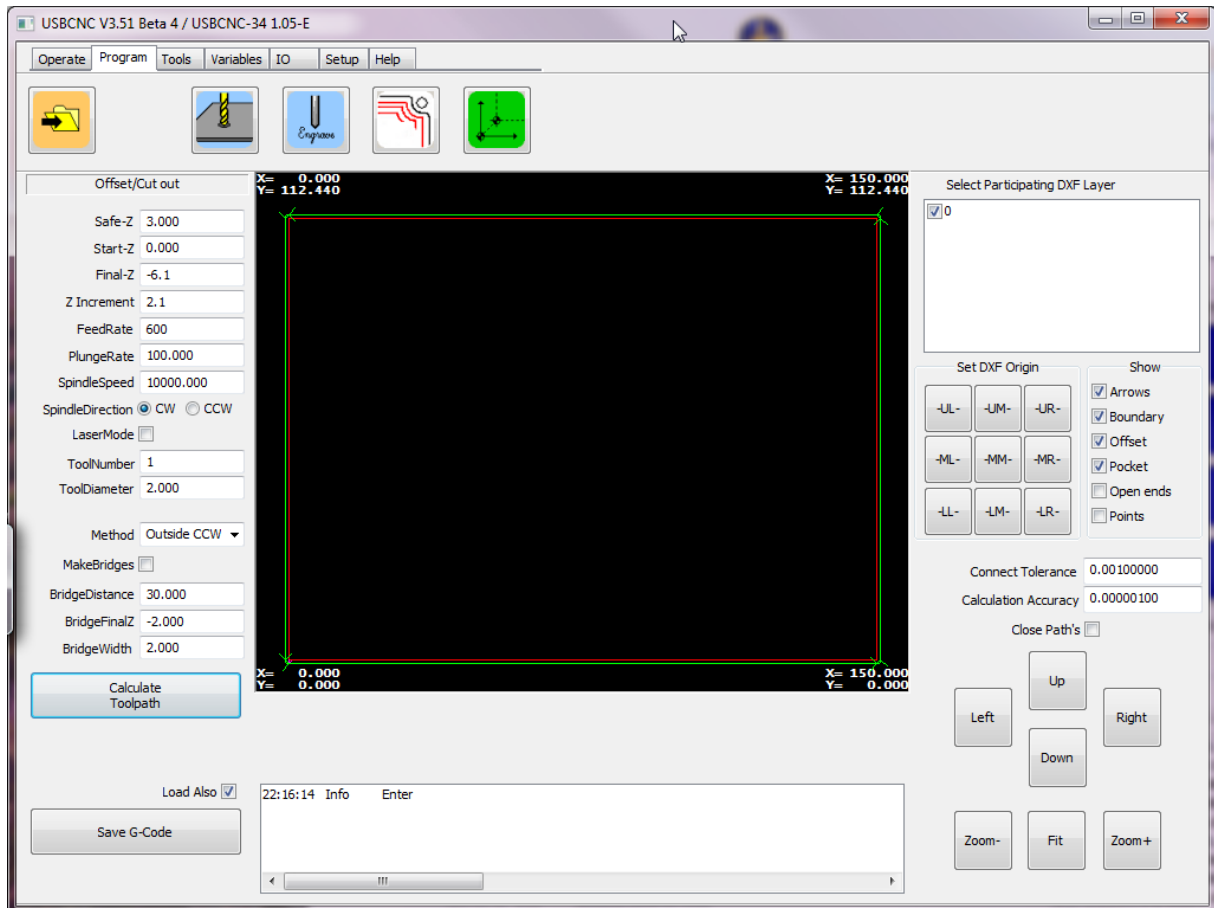**Now Run this, it will take about 4 hours with F1200**

When done, we put in a plastic cutting tool 3mm.

We load the rectangle in USBCNC program tab.

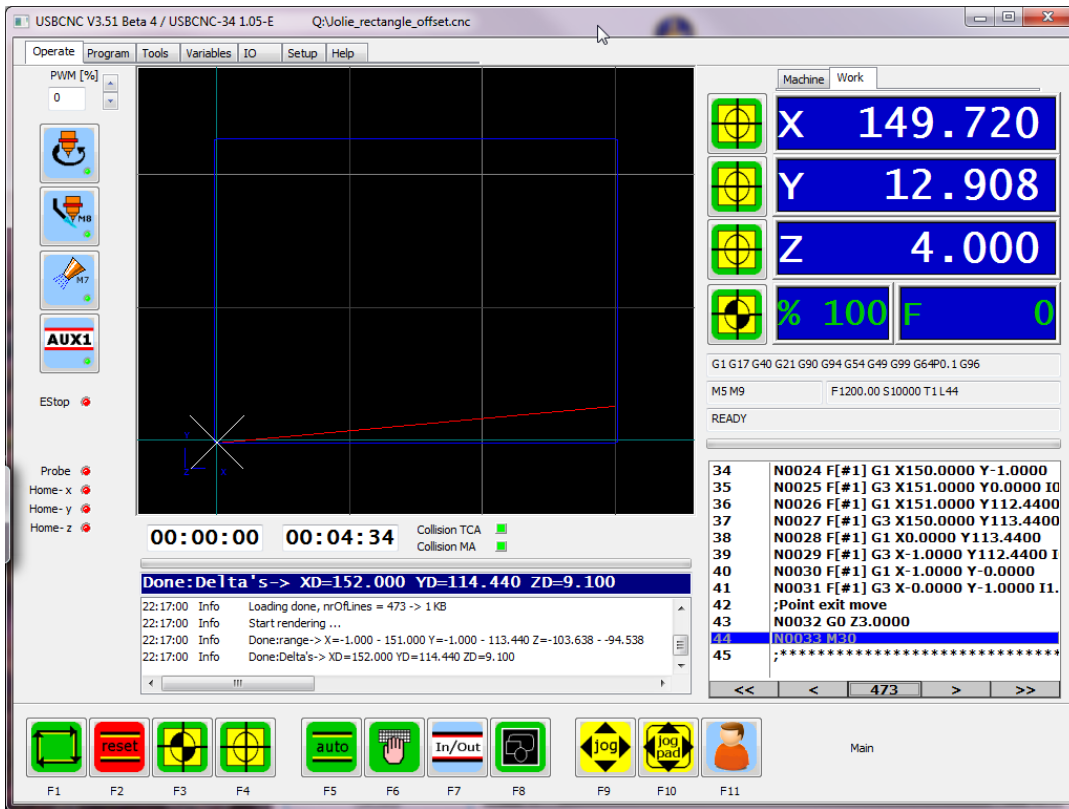**We zero Z again, but now we leave the value at 48 (in my case).**

So the upper level of the material is exactly Z=0.

We put Final Z at -6.1, 3 step size of 2.1 so we get 3 steps, press calculate:

Press save g-code and save it.

It will automatically be loaded:

Run it and ready is your beautiful Litho pane.

On the desk

In the light

Now do it yourself, SUCCESS!
BERT