PROTOMAX WATER JET CUTTER

Workarea: 300 x 300 mm
Max. Thickness: 25mm
Possible Materials: Metals, Carbon Fiber, Plastics, etc.

SAFETY

- **Never operate equipment without safety guards or covers.**
- **Never place your hands in the vicinity of the nozzle while cutting.**
- **Do not make any modifications.**
- **Safety goggles and rubber gloves mandatory.**
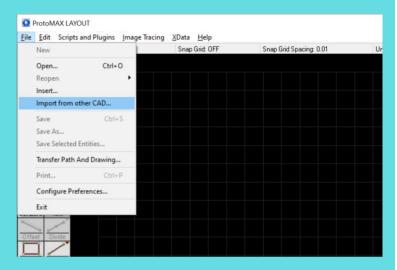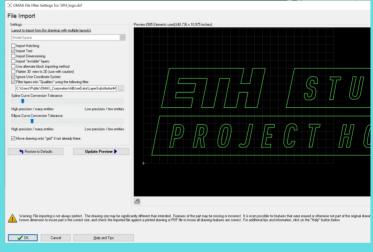
LAYOUT SOFTWARE
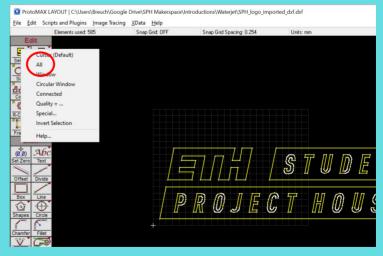
Importing a file

- Click on [Import from other CAD] to load your file.
  You will need a .dxf file.

- After selecting the path to your design, a preview is shown.
  If needed use the checkboxes on the left to modify it.
- When you are done click [Ok].
- Your design will be shown on the main screen.

- Select now your design by clicking on [Select] and then [All].
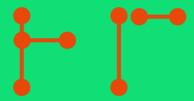 All lines should be selected (marked in yellow).
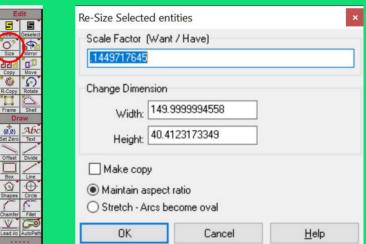
LAYOUT SOFTWARE

Cleaning the design

- Click on [Clean] on the toolbar.
- The standard setting should be sufficient.
- Next click [Start].

Design size

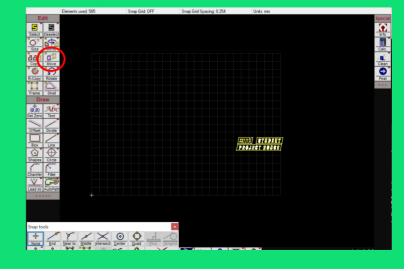The size of the design can be modified using the [Size] tool on the left.

Moving around

Using the [Move] tool we move our design close to the lower left corner (white cross).
Click once for the start position and a second time for the final position.

LAYOUT SOFTWARE

Cut settings

Everything that should be cut needs to have a cut quality assigned. Press the [Q] button in the bottom and select your desired quality.
3 Should be sufficient.
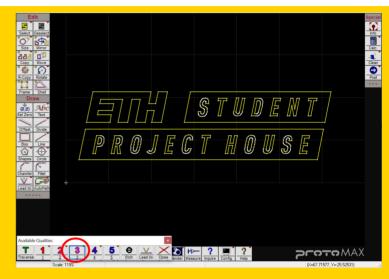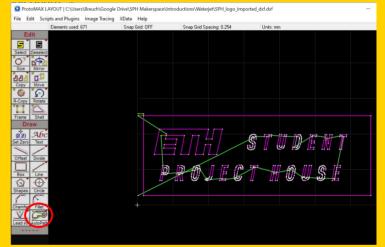Higher number mean higher quality, so longer processing time and costs.

Cut path

Now we can create the toolpath using the [Autopath] tool. The green lines that are shown are the transit paths (no cutting).
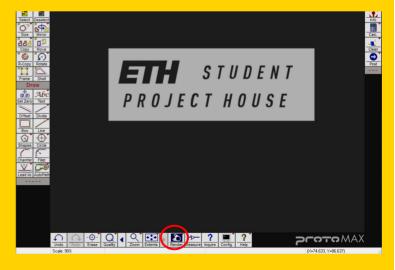

Preview

Use the [Render] tool in the bottom to check if the file was interpreted correctly.
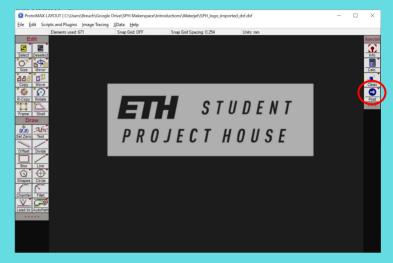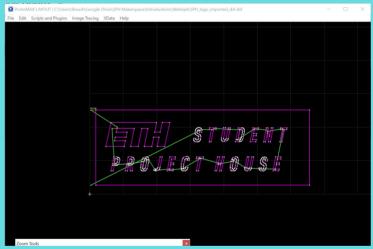What is shown will be your result.
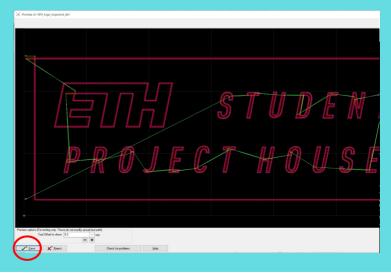
LAYOUT SOFTWARE

Saving the design

When you are happy with the preview use the [Post] button on the right.

Select the starting point. The point must be an end point. Make sure to always use the point so that the inner parts are cut first.

You will be once more prompted with a preview. If you are happy with it use the [Save] button on the lower left to save your design as an .omx file.

TURNING ON THE MACHINE

First insert the big power connector that is placed under the table right of the machine into the connector on the wall.
The humming noise is normal.
Ensure that the plug right, labeled "Pump" is also connected.

Next you can turn on the machine using the big red switch on the right side.

If the machine doesn't turn on it can be because of a circuit breaker, in this case you can ask a manager for help.

You can check if the machine is turned on by taking a look at the light inside the machine.
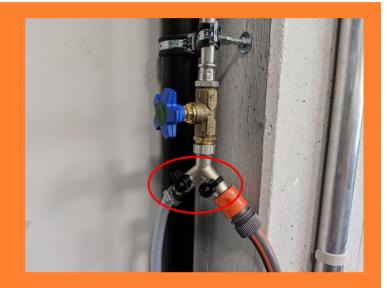
TURNING ON THE MACHINE

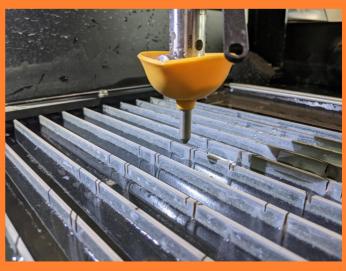Check that both black water valves are in the close position as shown here.

If they are closed, you can open the blue valve until the end. An orange ring should be visible.

Lift the nozzle so that is it above the metal slats.

MAKE SOFTWARE

On start

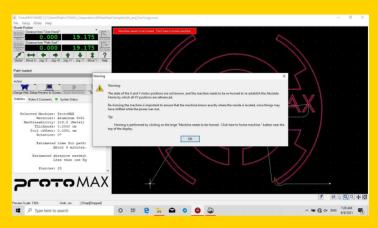When the machine is turned on it needs to homed. Close the warning window by clicking [Ok].

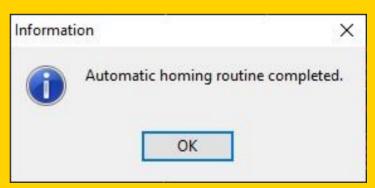Click on the red box in the top left corner to start the homing process.

REMEMBER:
Every time the machine is moving the lid neets to be closed.
Wear the safety glasses and rubber gloves when working on the machine.

The machine will move around. Make sure that it will not hit anything. Once the machine is done the window on the right is shown.
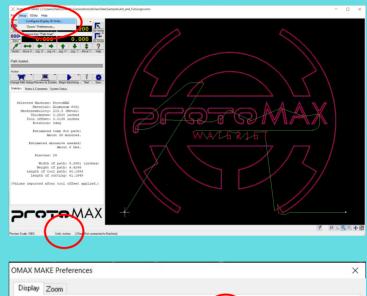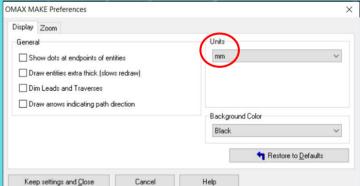
Units

If the unit at the bottom show [inches] use the [Configure Display & Units] option to change it.

Similar to before you can easily set the units to "mm".
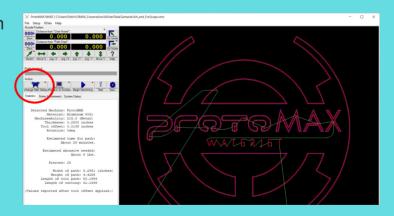

From the get go you are presented with a sample file.
Use the [Change Path Setup] to select your own design (.omx file you just created).
The file will be saved in the folder from where the original file was imported.
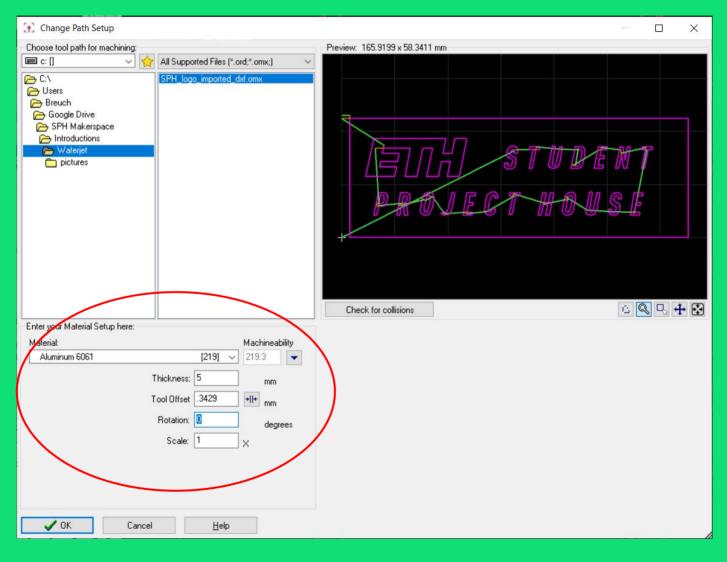
MAKE SOFTWARE

Material settings

Navigate to the location of your file and select it.
A preview of the design and path will be displayed.

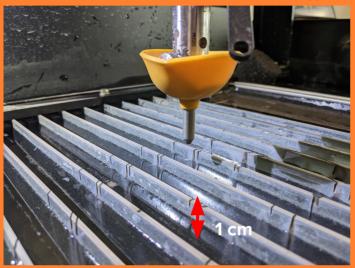At this point it is important to select the **material** on the lower left section.
Also ensure the **material thickness** is correct.

PREPARING THE MACHINE

Filling the vat

Using the hose on the right valve fill the machine vat until 1 cm below the metal slats. Ensure that the overrun with the spongy tip on the right is moved all the way up.

1 cm

Flushing the machine

Next the machine needs to be flushed. To do so use the arrow keys on the keyboard to move the cutting head to the middle and place it between 2 metal slats.
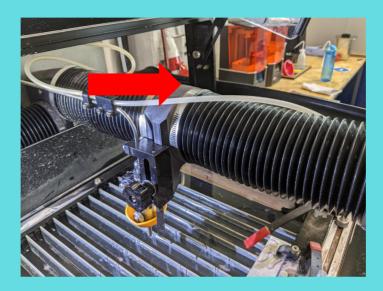

Open valve to have water in the machine

Open valve on the right to have water in hose.

PREPARING THE MACHINE

Remove the plastic tube from the cutting head and place it on top of the axis so that is can not drop into the water.

Release the head unit and move it to about 5 mm above the metal slats using the big black knob. Make sure that the head unit does not crash into the slats.
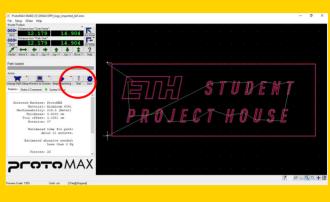
PREPARING THE MACHINE
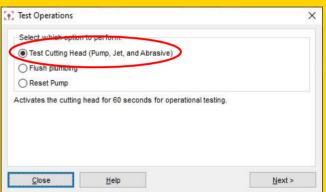
On the computer click on [Test].
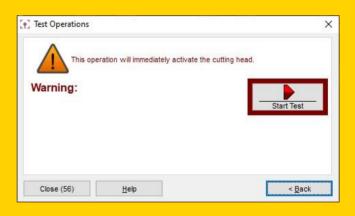

Select the first option and press [Next].

Double check that the abrasive tube is removed and secured, and that the cutting unit is between two slots.
Then press [Start Test].

The Test will take 60 seconds and finish automatically.

PREPARING THE MACHINE

After the test is done open the door and install the abrasive tube as shown on the picture. Ensure that the tube is completely inserted in the cutting unit.
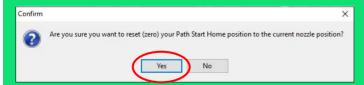
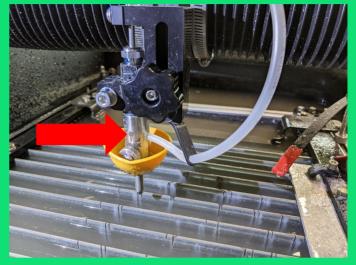Afterwards follow the same test process as before.
As soon as you can see abrasive (sand particles) moving in the tube you can stop the test.

Next place your material in the machine and secure it using the clamps from the side. Ensure the clamps are only located at the edges.
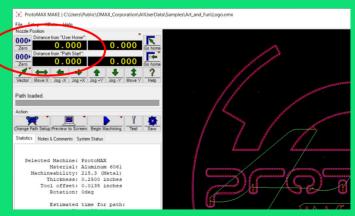
Then move the cutting unit using the arrow keys on the computer to your desired starting position
i.e. the starting point in your file.
Be careful not to crash.

Using the [Zero] buttons on the left you can set your [Home] and [Start] position.
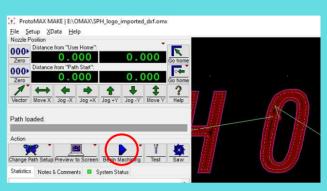
CUTTING

With you file loaded click on [Begin Machining].

In the window that shows up right click [Start]

Here you have the chance to make a dry run. A dry run is mandatory before any cutting.

During the dry run check that there are no collision. You can see the progress on the screen. After the dry run is done use the [Go Home] button to get back to the correct starting position.

CUTTING

If the dry run was successful and you moved to the home position you now need to adjust the cutting unit to the correct height.
Use the stand-off tool.
The nozzle needs to touch it but you need to still be able to move it away.
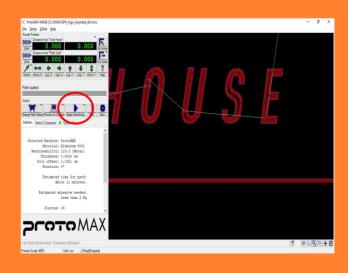

Bend the orange split guard to flip it over. Then move it down so it touches the surface.

Add water to the machine until the material is about 5 mm covered by water.

Use the [Begin Machining] button and press start to start machining.
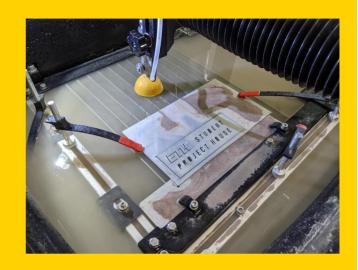**Supervise the machine while it is cutting.**

CUTTING

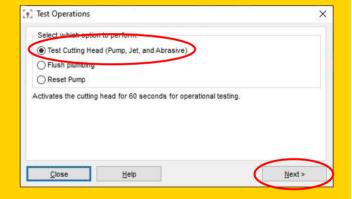When the machine is done cutting use the arrow keys to move the cutting unit out of the way.
Be careful removing the parts as they are sharp edged.
Try not to lose small parts inside of the water.

Once more remove the abrasive tube and secure it on top.

Then run the [Test Cutting Head] routine to clean the nozzle.

Lower the water level so that the metal slats are 1 cm above the water level by lowering the overflow.
Please ensure that the water level is not lowered more than necessary to avoid water waste.

Pay attention to the water filter, it should pump water. If it doesn't' it will spill out.

CLEANING UP

Use water and paper towels to clean the machine. Please do not use cleaning agents.

Close all the water valves. Make sure that the blue valve does not show an orange ring.

Then turn off the machine and unplug the big power plug.

FILLING UP THE ABRASIVE

If the abrasive sand is too little you can fill it up by using the big cup near the waterjet. **Only fill up the abrasive sand if is necessary and when the machine is off.**