Waterjet Cutter Tutorial (OMAX)

What is It?
The Waterjet Cutter cuts materials with a high-powered stream of water mixed with garnet particles.

How Does It Work?
The machine cuts through materials and composite materials using a precise, high-powered jet of water mixed with garnet particles.

What Can You Do with It?
The waterjet cutter can cut through materials to produce both functional and decorative parts. The machine can cut through homogenous and composite materials.

Safety
- **Keep the Lid Closed**- The lid should be closed any time the waterjet is running.
- **Keep Watch Over the Machine**- Keep an eye on the machine whenever it is running and never leave it alone while running a job.

Workflow
- **Prepare Your File**- The waterjet software takes .dxf file types.
- **Open the Software**- Open the "ProtoMAX LAYOUT" software, then open your file by going to "File" the "Open"
- **Check that the File Looks Correct**- Ensure that everything looks correct; for example, make sure there is no text or hatching (often happens with Solidworks files)
- **Selection Shortcuts**:
    - a- All
    - w- Window
    - s- Select
    - d- Deselect
    - sa- Select all
    - sw- Create a window to select
    - da- Deselect all
    - dw – Cerate a window to deselect
    - m- Move
    - q- Quality of cut (1-5, five is finest, 1 is roughest)
- **Size the Drawing**- Go to "Size" on left side menu. You should know the dimensions of your parts and ensure that they or correct, or scale your drawing
- **Clean the Drawing**- Go to "clean" in top right corner to remove any double lines
- **Set Your Cut Quality**- Go to "Quality" at the bottom left menu and choose a cut quality from 1 to 5. Note that etching is also an option but not recommended on

this machine. With your desired quality selected, select the lines that you wish to assign this cut quality to.

- **Set the Toolpath**- Go to “AutoPath” in the left hand menu. This will automatically generate a toolpath (with lead ins and lead outs). You can edit this path or set a custom toolpath if needed. Note that the toolpath default is to start at the bottom left. Also make sure to cut inside holes first
- **Turn on the Machine**
- **Export the Toolpath-** On the menu to the right, click on “Post”. Your cursor will now display “Pick Start” will ask you to pick a starting point- click on the toolpath where you would like your cutting to start, then hit “Enter”. This then shows you a pop-up window where you can view your toolpath. Hit “Save” in bottom left corner, then right click on “Post” on the right side of the screen and select “Open “OMX Path in Make”. This will open the “ProtoMAX MAKE” software.
- **Setting Parameters**- In the “ProtoMAX MAKE” software, you can now set your cut parameters. Select your material and input the material thickness, adding 0.01 inches to this number to make sure the machine cuts all the way through your material. Note: don’t change the tool offset. Then hit “OK”.
- **Set Up Material**- Place your material on the machine bed and clamp it with two clamps.
- **Home the Machine-** Click in the upper left corner- note: <u>never change “user home”</u>, though you can change “Path Start” home, then hit “Zero” next to “Path Start” home
- **Do a Dry Run**- Hit “Begin Machining”, being very careful to <u>right click</u> “Start”. Go to “Path Start” home then hit “Start”
- **Shutdown the Software**- Always shut down the software first, even if you are not turning off machine
- **Shutdown the Machine**-Turn the red dial to “Off”

References

- **Compatible File Types**
    - .dxf