ARTSLab

X-Pro Inventables CNC Router Walkthrough

The CNC machine is capable of milling ~2" depth, materials up to 29" x 31"

The machine can carve wood and foam, draw on paper, and mill circuit boards. It also has capabilities for carving aluminum and copper, but requires a special bit that we don't have ARTSLab.

ARTSLab's bits and hardware are located inside the rolling black metal cart next to the CNC machine.

Getting started:

- You may use ARTSLab Easel login (Valery will give this to you when you arrive). If you want to use your own account, you can opt for a "PRO" account which will allow you to upload STL files. ARTSLab's account will only take svg and g-code files.
- Measure your material. Use the digital calipers on all sides to get an accurate depth reading.
- Choose the correct bit for your project. You may also purchase your own bits: inventables.com/categories/carving-bits
- Make sure the dust shoe is not yet attached as it can hit the sides of the machine during homing.
- Always make sure the machine is completely off if you need to move the driver head or touch the homing switches.

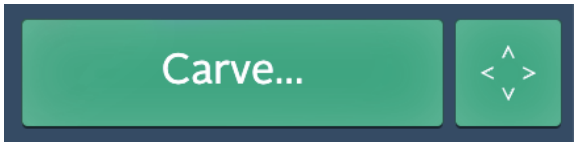
1. **Use the computer labeled "ARTSLab PC #2" or bring your own** wifi-capable computer and have your file in the proper format: SVG for linear paths, g-code for depth milling. Plug in the USB cord for the CNC and and make sure your computer is connected to the internet.

2. **Turn on the machine** (*not the bit driver!*). Power switch is on the back side of the black box.

3. **Open Easel and log in** at easel.inventables.com. Select New Project

4. **Test your computer's connection** to the machine by jogging the driver head. Click the arrow buttons next to "Carve":

Watch where you're starting/moving the driver head; During this process the homing switches are deactivated and can be crushed if the driver head moves beyond the 0,0 setting.



5. **Home the Driver Bit Head**:

   The program will automatically bring the driver head to the 0,0 starting position. Watch this process and if the head continues to move past any of the homing switches, immediately cancel the movement.

6. **Place your material on the CNC bed and secure it** in place using the provided screws and hardware, located in the bins inside the rolling black table.

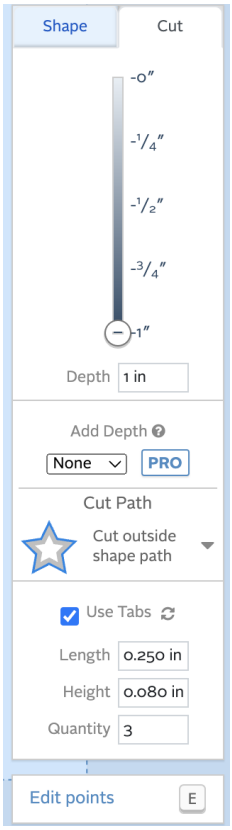
7. **Enter the Material setting and Bit Settings** within Easel (top left corner).

8. **Click Project->Import SVG / g-code** (or STL for PRO account), or create the path you'd like using the basic shape tools provided in side toolbar.

9. **Position the file as you would like on the material** (left side of the screen). You can do this by clicking and dragging the path, or by manually entering values in the floating dialogue screen with the "shape/cut" tabs.

When placing the file, leave ample margin to ensure that the path of your carve (both the bit and the dust shoe) doesn't intersect or bump into the outer clamping hardware!!

If you have multiple paths, each can have separate cut settings. After positioning the file, for each path, click the "cut" tab to: adjust the depth of your cut; select how you would like the bit to follow your path; add or modify tabs (a small section along the path that will be left behind – like an inverse perforation). This is helpful so that material doesn't fly loose during a cut.

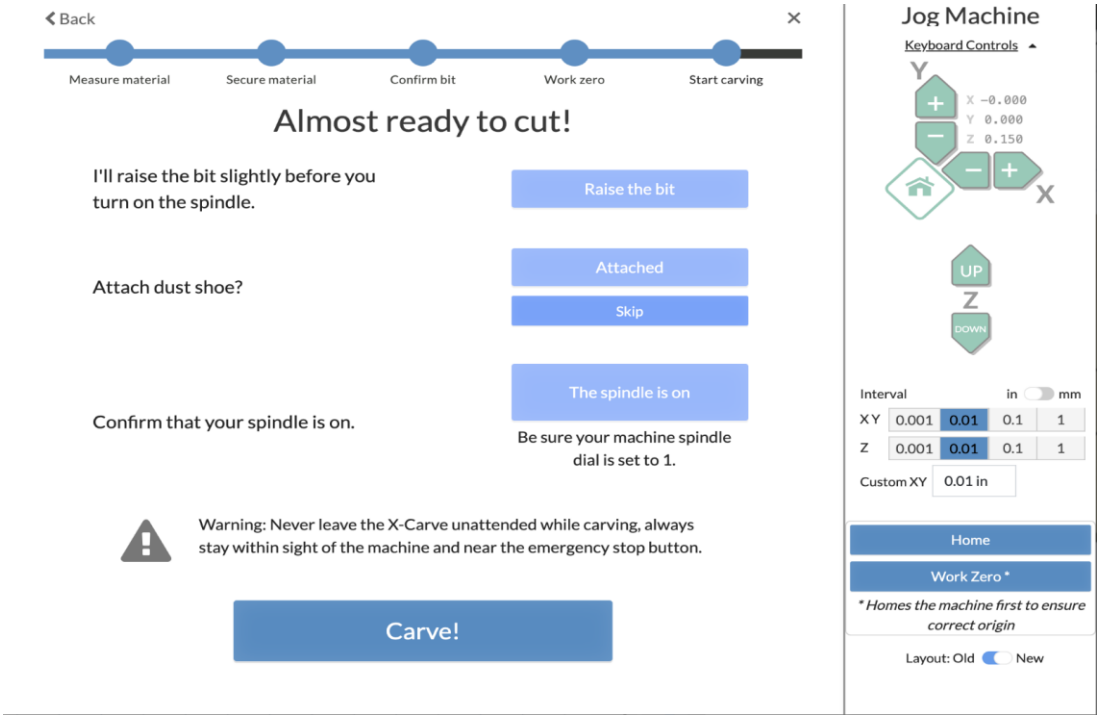


10. **Check the cut speed and rate of plunge settings**. The program will choose a default setting based on the material you chose, but you can adjust this manually if needed.

11. **Hit "Carve"**

    Easel will make you confirm Material, Secured Material, Bit, and Work Zero Setting*

    * Set "Work Zero" by manually jogging the driver head to the bottom left hand corner of your material. The tip of the bit should just barely touch or hover over the material.



12. **If attaching the vacuum dust shoe,** take special care not to move the driver head since the machine is on; if you move the driver head, go back and reset your Work Zero setting. Confirm that the dust shoe is attached. Turn on the vacuum.

13. **When prompted, turn on the driver head** and set the speed to the 1. Close the case.

14. **Carve.** Watch the process carefully: Stop carving immediately if homing switches are ignored, the material becomes damaged, the driver hits something along its path, the driver goes too deeply into the bed, or if anything else acts out of the ordinary. You can pause or stop the carve inside Easel next to the progress bar, or hit the yellow emergency button inside the case.

15. **At the end of your carve,** turn off the vacuum and the driver head. the machine. Unclamp and remove your material.

16. **Clean up after yourself** using the small brush and dustpan.