

KTH Prototype Center

Crash-Course Manual

Epilog Fusion Laser Cutter

If you have any suggested edits, please email prototypecenter@md.kth.se

Revised 07/2020

Getting started

- The machine **will not start** without ventilation. Turn on/reset the ventilation timer by pressing the green button above the right laser cutter for 3 seconds.

PRO TIP: Even if the ventilation timer is already on, press the green button again to reset it. The timer runs for 4 hours, so if you don't reset it before you begin cutting and you're unlucky, the timer might run out in the middle of your job. In that case the machine will turn off, the origin will be reset and you will need to do everything again.

- **Never leave the machine unattended!!**
- **Never** cut or engrave PVC or Vinyl! Corrosive and toxic fumes will severely damage the machine and yourself.



Material

The material to the left of the machines is free to use for normal projects. For large projects, bring your own material or speak to your course administrator.

When using the shared material, think wisely how you place your cuts. NEVER cut something tiny *in the middle* of a big unused sheet of material. Be smart, measure if you can squeeze your part into some existing space and cut close to the edges of material!



Advanced manual

- **Epilog Fusion Manufacturer's Manual:**
https://drive.google.com/file/d/0Bwq_m6A_rCxYdjFIZHZ1Y2x2d2M/view

Material settings (also found on the wall to the left of the laser cutting computers)

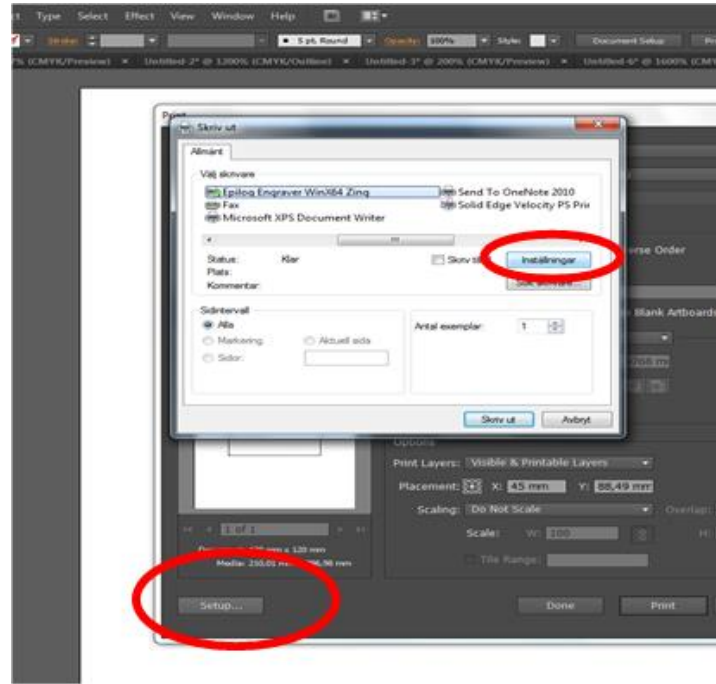
- **75 Watt Material Settings:**
<https://drive.google.com/file/d/0BwB65JyvsrtEU2tBeno0a1gzbUk/view>
- **30 Watt Material Settings**
<https://drive.google.com/file/d/0BwB65JyvsrtETUJMcHFfVTNialE/view>

Laser Cutting Step-by-Step Guide

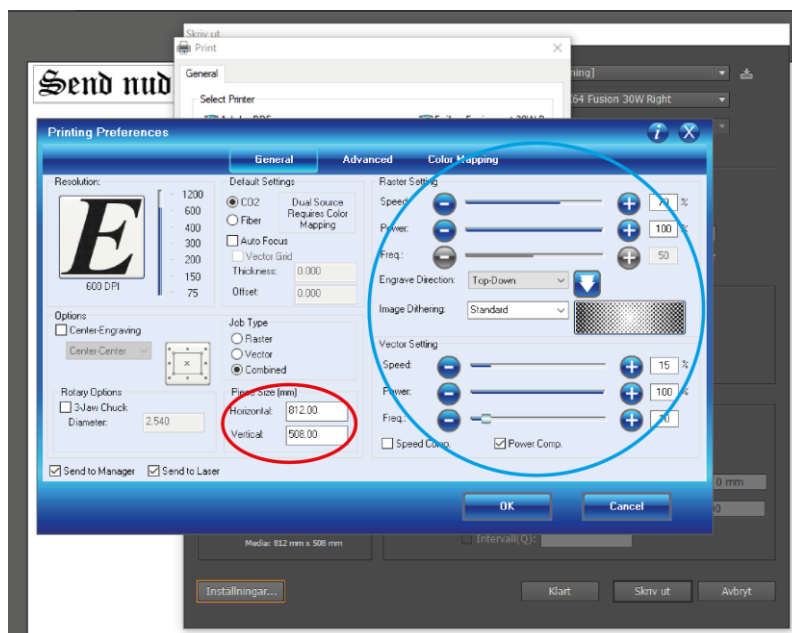
Part 1 - Preparing your file for cutting

1. Log in to one of the computers in front of the laser cutters.

- Create your work in Illustrator or import your files. **Note:** If you designed your part in CAD, save it as a 2D drawing, '.dwg'
- Select all the lines in the drawing and change the 'Stroke' (line thickness) accordingly:
 - Lines to be cut: Thinner than 0.05 pt
 - Lines to be rastered: Thicker than 0.05 pt
- Images will be rastered.
- (Optional) You can crop the canvas to fit your drawing by selecting all lines (*Ctrl + A*) then in the menu bar select 'Object' -> 'Artboards' -> 'Fit to Artwork Bounds'.
- Once you have set the line thicknesses correctly and are happy with your file Select 'File' → 'Print' (Or *Ctrl+P*). Choose the printer you wish to use and then 'Setup' in the bottom left corner and then 'Preferences'. See image to the right.
- Depending on your material, laser machine and what it is you wish to do (cut/engrave), you will need to change the laser settings accordingly.



- Under 'Job Type', select what suits, Raster for an engrave, Vector for a cut or combined for doing both in a single job. **Note:** Rastering will always occur first so as to ensure the piece will not have moved due to a cut.
- PRO TIP:** When doing jobs with both cutting and rastering, it can be a good idea to split the job into two parts - one cutting job and one rastering job. That way, if the job is done and the laser didn't cut all the way through but the rastering looks good, you can do the cutting job again without rastering a second time.
- Double check 'Piece Size (mm)' (Red circle below) to make sure that it will contain your entire drawing.
 - For Vector & Raster Settings (Blue Circle) you can find recommended settings for the laser cutters on the wall left to the computers, or on the links at the first page of this manual. **E.g.** 75 Watt, 3 mm acrylic cutting will have 100f, 10s, 100p. This means 100% frequency, 10% speed and 100% power.



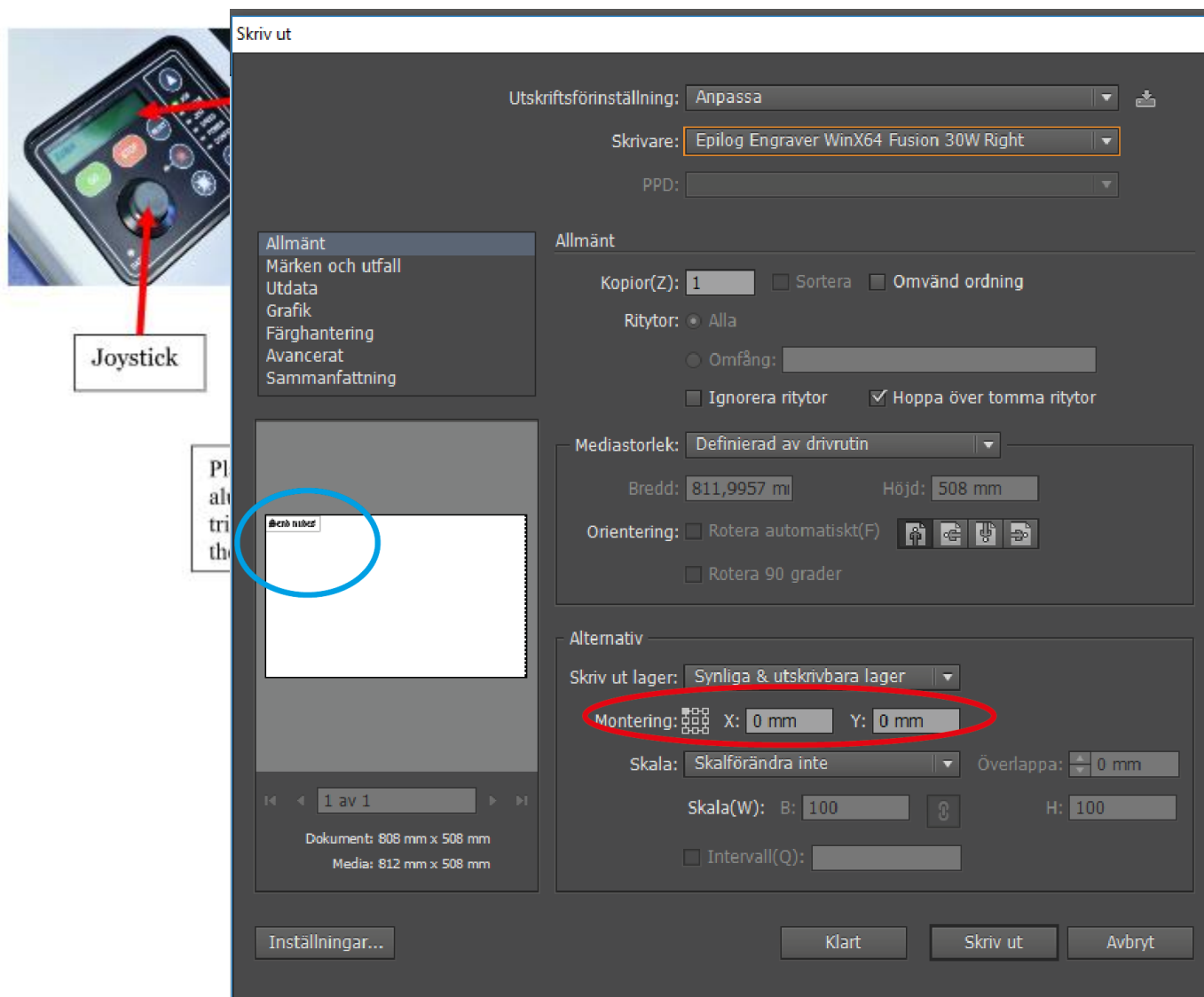
- Once you are happy with your settings press 'OK', 'Print' on the blue window then make sure the Placement square (Red circle below) has the upper left corner selected as shown below. Also make sure that you can see your entire print in the view window (Blue). Here you can also scale your print

and select/deselect layers to be printed.

8. If the machine is turned on, you can now press print in the grey window. This will send the job to the Laser Cutter, but **DO NOT RUN THE JOB YET!** The machine itself needs to be set up properly first. XY-origin and Z focus need to be set first.

Part 2 - Setting up the Laser Cutter

1. Turn on/reset the ventilation timer (green button above cutters) - takes approx. 60 sec to start.
2. Turn on the Epilog machine - the switch is on the bottom right on the front face of the machine.
3. Open the lid and place your material making sure to push it up as far top and left as possible so as to have a good reference start.
4. To set the Z origin, select '**Focus**' from the laser cutter menu. Attach the aluminum triangle on the laser head. Raise the table with the joystick until the triangle is *barely* touching the material. Flicking the joystick to the left/right changes the Z travel speed from fast to slow. Set the height/focus by pressing the joystick. Remove the triangle and close the lid.



5. To set the XY origin, (which will be the top left corner of the illustrator workspace if above instructions were followed) select '**Jog**' from the laser cutter menu. You can turn on the red laser pointer to see where the laser is currently pointing. Move the laser head to where you want to set your origin and confirm by pressing the joystick.

Part 3 - The Final Cut

1. Your cutting job should now be available in the list of jobs on the machine. The highest job number (e.g. *Job: 5.untitled*) is the latest job. It is also convenient to give your Illustrator project a name (by saving it), since that name will then be displayed in the Job list (e.g. *Job: 6.earrings*).
2. Now that the job is in the printer and the XY and Z origins are set, Press **'GO'**
3. Once finished check the material (without removing it) to see if it has cut through. For thicker material, you might need to run it several times (just press **'GO'** again on the laser cutter). When finished – turn off the machine.

FINAL NOTES

The lab is used by all people, so keep it neat and tidy. If you are waiting around for a print it would be lovely if you could clean up some debris or place things away.