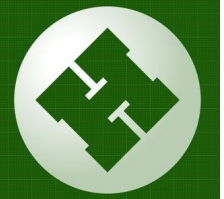
NOTES:

Using the Nottinghack Laser



Rule 0 – Do not be on fire!

- Risk of fire - Do not leave the laser cutter unattended when in use. This machine exists to burn things.
- In case of fire hit the big red button on the control panel, this will stop airflow to the site of the fire. A CO_2 fire extinguisher is located on the information board in Laser Area, if the fire is small and you feel able to do so have this ready before opening the laser lid.
- Call the Fire Brigade on 999 and trigger a fire alarm, buttons are at the top of the front stairs outside the airlock and by the lift
- Do not attempt to clean or adjust laser parts this is for laser maintainers only. The only exception is use of the rotary tool.
- Do not tamper with laser Control Panel settings.
- Maximum permitted Laser Power is 85%.

1. Safety.

- Never turn off Laser equipment
- Emergency stop – Big Red button on Control Panel.
- Never use more than 85% power when cutting. This is a recommendation from the manufacturer to extend the life of a rather expensive laser tube.
- Email laser@nottinghack.org.uk or message at #laser on Discord for any problems.

7. Making it go.

- Press Frame on the laser control panel and check that your job fits onto your material
- If all is well press Start
- If you need to leave the laser for any reason press Start again to pause the cutting, when you return press again to restart

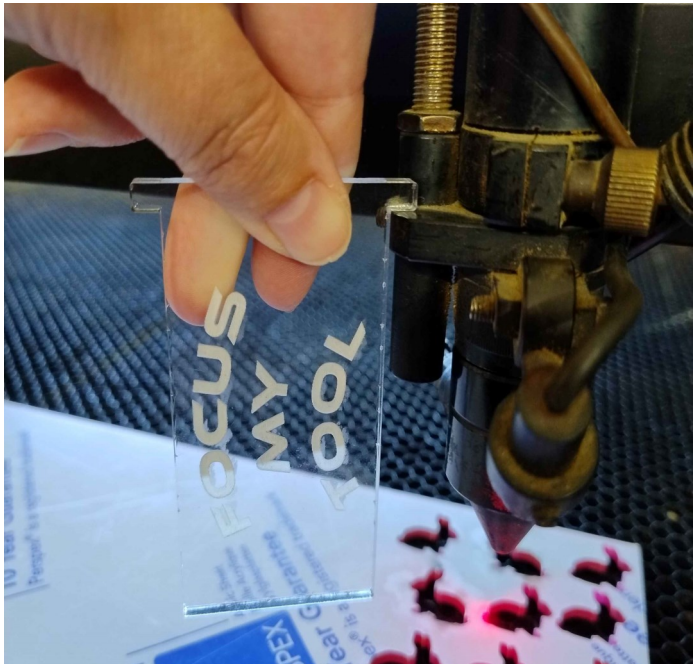
Troubleshooting

- The Boxford has helpful error messages that make some errors easy to sort.
- Never attempt to clean or adjust any physical parts of the laser equipment yourself as this could cause damage.
- Contact Laser team.

Shutting down

- Remove items and rubbish from bed, use brush and pan or vacuum.
- Useful small pieces of scrap material can be placed in the relevant blue tray, larger pieces on the shelf after removing useless parts. Anything that doesn't meet useful criteria should either be taken home for disposal or placed in bin. If bin is full take down to Bizspace bins and empty it, Please do not leave for next user. Please see posters on bin and scrap shelves for more details.
- Sign out of programs.
- Close Ppograms.
- Check HMS and display to see if anyone is following you on laser
- Shut down computer if no one else in that day. Only shut down the computer, never turn off laser.

5. Setting up your XYZ axis.



- To move the laser head use the arrow keys on the control panel, if pressed for more than a couple of seconds the head movement will accelerate.
- Press Origin button to lock in start point
- Focusing the bed – To cut correctly the laser nozzle must be set at a height of 9mm above the material surface. This is done using the focus template.
- Press “Z/U” on the control panel, select “Z Axis” , press Enter and then the left/right arrows until the base of the template is on the material surface and the underside of the “T” is resting on the ledge as shown above. Press Esc.

6. Uploading your design.

- Open “Laser” window and click “Send”
- Use only Laser Safe materials – See materials safety sheet, if in doubt Google it!

2. Preparing your design.

- Lightburn can use many different file formats including SVG, DXF, AI, PDF and many image formats including JPG
- When working on the laser PC all files should either be saved on a flash drive or in a personal folder on JARVIS, our shared drive on the network. Any files left on the Desktop etc will be deleted.

3. Introduction to Lightburn

- Workspace – The 1300mm x 900mm box on screen represents the laser cutting bed. Your work must be within this area. Each grid square is 10mm.
- Origin - Green dot, this is normally the top right hand corner of your job. This can be repositioned if required.
- Files are loaded using the Open command and selecting file family from the dropdown at the bottom of the dialog box..
- If you wish to add extra elements this is done using Import
- Layers are used to define how the laser treats your design. The small window at the top right of the screen will show each layer and its associated settings.
- Select a part of your design, (for engraving your line must fully enclose a space,) then select a colour from the palette at the bottom of the screen
- You can choose your required action, Line (Cut), Fill (Engrave) and Offset Fill, from the small dropdown alongside each layer.
- Move layer up/down (these buttons are to the right of the layer window). Laser performs actions from top to bottom

with cutting out recommended as the last action.

- Parameters are set by clicking on the numbers alongside the layer. Or by loading from the Materials Library
- 85% is the maximum allowed power, any higher does not provide any benefit and will shorten the laser tube life.
- For cutting there are two power settings, corner power is 5% lower than the main setting.
- For engraving we have a parameter called Line Interval, this is the distance between each line the laser cuts when engraving and is normally set to 0.08mm which is 317dpi (roughly)

4. Control Panel

- When pressing a button there is an audible beep, if you do not hear this then press again.
- The 4 arrow keys move the laser position across the bed
- Z/U enters a menu on the screen to adjust bed height (manual focus). After pressing this, press enter to select Z move then left and right arrows to raise/lower bed.
- Esc exits the menu
- Reset – This stops the cutting session and returns the laser to start point. Do not use in the middle of a job unless you must as you will have to run the job again from the start.
- Origin - When pressed locks in current laser position as start point for work
- Reset – Moves laser to top right of bed and then back to Origin point
- Frame – This moves laser head in rectangle which encloses your work. Use to make sure your design fits on your sheet material, (red dot only, laser does not mark material).
- Start/Pause - Starts the Job and pauses if needed.

All of the following need your card to be on the receptacle, always remove the card and press right hand (sign out) button when you have finished cutting as the laser charges your card while it is on the reader.