

CNC Laser Certification

CNC Laser Safety:

1. First thoughts-ask yourself:
 - Am I tired?
 - Am I distracted?
 - Am I in a rush?(if the answer is yes to any of these questions don't work on the CNC Laser!)
2. Never operate CNC Laser with enclosure open
3. Insure work material fits under the travel of the laser
4. Always stay with CNC Laser machine while project is in process!

Certifier Demonstrates:

1. The basic components of the CNC Laser
 - CNC Bed/Honeycomb
 - Gantry and Belts
 - CNC Controller and On/Off Switch
 - Laser Focusing - Z-Axis Set Screws + 20 mm silver cylinder
 - Venting System
 - Laptop Interface Cable and Power Cable
 - Laptop with CAD/CAM/G-Code Sender Software – LightBurn

Trainee Demonstrates:

1. Identify and describe their purpose of all the CNC Laser components:

CNC Bed/Honeycomb	
Gantry and Belts	
CNC Controller and On/Off Switch	
Laser Focusing - Z-Axis Set Screws + 20 mm silver cylinder	
Venting System	
Laptop Interface Cable and Power Cable	
Laptop with CAD/CAM/G-Code Sender Software – LightBurn	

2. Create a material burn test within Lightburn and Run
 - You can find it in the LightBurn menus by going to **Laser Tools > Material Test**

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3. Design and Implement a CNC Laser project using Lightburn:

A. Design – Create a key chain fob project

a.	Configure work material (within Lightburn create rectangle of project boundary and project orientation point)
b.	Import a bitmap image and trace to create image vector
c.	Use Rectangle tool to create key chain fob boarder
d.	Use Circle tool to create key chain fob hole

B. Cut/Layer – Set up Cuts/Layers for key chain fob project

a.	Highlight image vector and set cut/layer to “Fill” and set appropriate Power, Speed and Passes to engrave image
b.	Highlight hole vector and set cut/layer to “Line” and set appropriate Power, Speed and Passes to cut hole
c.	Highlight boarder vector and set cut/layer to “Line” and set appropriate Power, Speed and Passes to cut boarder rectangle

C. Send G-Code – Run key chain fob project

	Start CNC Laser machine according to start-up instructions
	Mount work material and set Z-axis (focus laser)
	Frame project to confirm project fits with material boundaries
	Start (run) project
	Shut-down CNC Laser machine according to shut-down instructions

I certify that I understand the safe operation of the CNC Laser.

Member Name: _____

Member Signature: _____

Certifier Name: _____

Certifier Signature: _____

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Sculpfun S9 CNC Laser Operation

Starting Up

1. Turn on power strip on wall. This controls the power to the CNC Laser, Ventilation Fan and Laptop.
2. Turn on the CNC Laser. The power switch is on the front right side of the CNC Laser machine. Confirm power is on by the indicator light on top of the laser unit is on.
3. Boot laptop and start the LightBurn software.
4. Verify the CNC Laser machine is physically connected with the USB cable.
5. Verify the COM Port is selected.
6. From the Console window within LightBurn, enter the following GRBL command: `$3=2` and press the ENTER key. The console window should display OK.

Making Cuts/Engravings

1. Orient the workpiece on top of the honeycomb bed.
2. Focus laser unit 20mm above workpiece. 2 Blue Magnets ~20mm high. Place magnets under the front right corner. Use the set screws (2) on the backside of the laser unit.
3. Load the project file into the Lightburn software.
4. Confirm project fits on the workpiece by using the “Frame” command to outline the project boundaries. The framing operation should follow a clockwise rectangular path around the project. If it doesn't, then you the Start Up step 6. failed.
5. Be sure the enclosure lid is shut before starting any cut or engraving processes.
6. Press the start command to begin the cut/engraving operation.

Shutting Down

1. Shut down the laptop.
2. Turn off the CNC Laser. The power switch is on the front right side of the CNC Laser machine. Confirm power is off by the indicator light on top of the laser unit is off.
3. Turn off power strip on wall. This controls the power to the CNC Laser, Ventilation Fan and Laptop.
4. Clean up any cut-outs from the CNC operations and close the enclosure lid.