

**BOSSLASER™**

# **LS** **SERIES**

QUICK START GUIDE

# BOSSLASER™

## Quick Start Guide for LS Series Machines

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# **Warranty Disclaimer**

Thank you for your interest in the products and services of Boss Laser, LLC.

This Limited Warranty applies to the laser machines and parts purchased from Boss Laser, LLC.

This Limited Warranty covers any defects in material or workmanship under normal use during the Warranty Period. **This does NOT include labor and/or on-site Tech. Support.**

During the Warranty Period, Boss Laser, LLC will repair or replace, at no charge, products or parts of a product that proves defective because of improper material or workmanship, under normal use and maintenance.

Boss Laser, LLC will repair the product at no charge, using new replacement parts.

The Warranty Period for laser machine parts purchased from Boss Laser, LLC is one year from the day of arrival (Exception of Lens & Mirrors, which are 30 days from arrival).

A replacement part assumes the remaining warranty of the original part (Exception of Lens & Mirrors, which are 30 days from arrival).

This Limited Warranty does not cover any problem that is caused by:

- Conditions, malfunctions or damage not resulting from defects in material or workmanship (ex. modifications done to the machine)

**Any modifications without written consent from Tech. Support, will void your machine's warranty.**

***To obtain warranty service, you must first contact Tech. Support (888.652.1555 or TechSupport@bosslaser.com) to determine the problem and the most appropriate solution for you.***

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## Unpacking & Removing Accessories



Once the delivery truck leaves, your new laser will be inside the large wooden box like the one shown above. Make sure you are ready with necessary tools and plenty of room for laying out the parts and accessories of your new laser.

Our crates are usually banded to a wooden pallet for safe shipping. Take a few minutes and check for any damage to the bands and crate. If you see any damage such as pierced or broken plywood take a picture before removing bands. If it looks smashed or opened take more pictures. The machine is insured for its value and may be damaged if the crate is badly damaged. Trucking companies are usually excellent at covering damage if any damage occurred during shipping. So document any issues and contact our shipping department via email at [Shipping@bosslaser.com](mailto:Shipping@bosslaser.com).

Now chances are no damage exist and you are ready to open the crate. Cut any bands. Then carefully remove the top lid. All of our crates will be secured by 2" staples. Carefully, pry out the staples around the crate. Be careful not to use any part of the plywood interior for a focal point on the pry bar. Stay on the outside framing to ensure not piercing plywood and damaging machine.

Once the top lid is off, look inside and find any loose boxes containing accessories. Remove any boxes that may fall when sides are removed. Remove front panel and then two side panels, then the back panel. Save the crate panels in the event you ever need to move the machine again.

## Setting Up the Laser for the First Time

Make sure to remove any foam material from inside of cabinet. Remove any plastic zip-ties used for securing laser head from moving on the X and Y Axis during shipping. Depending on what options purchased with your laser, the crate will have several boxes outside of the laser cabinet. You should see the common items listed below and possibly some additional accessories:



**4" Exhaust Blower (For 1416s & 1420s)**



**6" Exhaust Blower (For 1630s & Up)**



**Air Compressor w/ 6mm fitting (included)**



**Water Pump**



**CW-3000 (left) & CW-5000 (right) Water Chiller**

## Exhaust Blower Hook-Up for LS-1416s & 1420s

### Exhaust Power Requirement

350 CFM Blower: 7 A / 640 W (at start-up), 2.6 A / 310 W (at idle)



**4" flange w/ three hose clamps**



**Exhaust Port**



**Exhaust Port w/ 4" flange**



**4" Exhaust Tubing  
Installed w/ hose clamp**



**Connect exhaust tubing from machine to intake. Then connect exhaust tubing to the exhaust port to your preference.**

## Exhaust Blower Hook-Up for LS-1630s & Up

### Exhaust Power Requirement

**500 CFM Blower: 20 A / 1800 W (at start-up), 5.8 A / 667 W (at idle)**



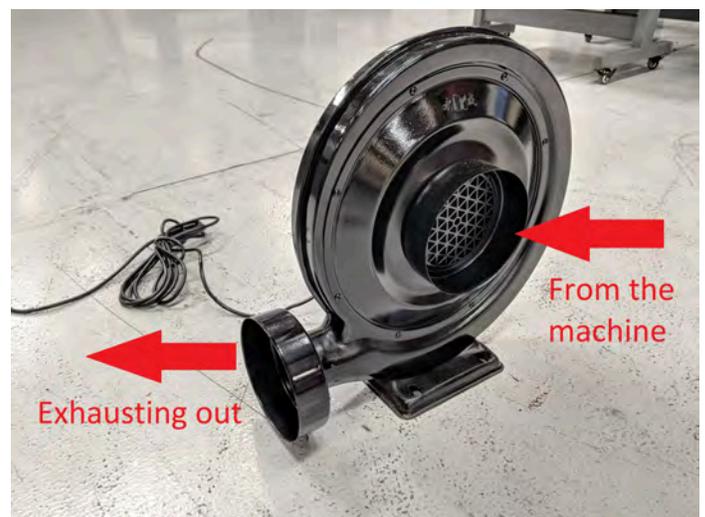
**Three hose clamps (in toolbox)**



**Exhaust Port located at the bottom (ex. LS-3655 shown)**



**6" Exhaust tubing installed w/ hose clamp**



**Connect exhaust tubing from machine to intake. Then connect exhaust tubing to the exhaust port to your preference.**

## Air Assist Hook-Up w/ Pump



**Gold Air Pump w/ 6mm hosing & fitting**



**Location of installing fitting**



**Fitting installed w/ 6mm hosing**



**6mm hosing hook-up to machine**

## Air Assist Hook-Up w/ Compressor



**Air Compressor w/ 6mm hosing & fitting**



**Location of installing fitting**



**Removing original fitting for 6mm fitting using a 19mm wrench**



**Installing 6mm fitting using a 14mm wrench**



**Installed 6mm fitting onto compressor**



**6mm hosing hook-up to machine**

## Water Pump Hook-Up



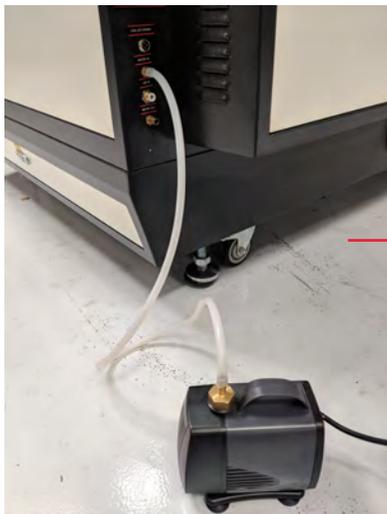
**Water pump w/ fitting & hosing**



**Installing  
Suction cups**



**Installing fitting for  
silicone tubing**



**Installing silicone tubing  
from water pump to  
Water In machine**



**Water pump in 5  
gallon bucket**



**Using the 2nd silicone  
tubing, connect it  
from Water Out to 5  
gallon bucket**

**Fill up the 5 gallon bucket to where the water pump is completely submerge  
in Distilled Water and cover it with a bucket lid (to keep any debris away)**

**Note: It is recommended to keep the water temperature between  
18 - 25 degrees Celsius (64 - 77 degrees Fahrenheit)**

## Water Chiller (CW-3000 & CW-5000) Hook-Up



**Water Chiller w/ silicone tubing, chiller signal cable, and power cord**



**Outlet from the water chiller to Water In of the machine**



**Inlet from the water chiller to Water Out of the machine**



**Chiller Signal Cable Outlet**



**Water Chiller fully installed**

**Fill the water chiller only using Distilled Water. Try to keep the temperature between 18 - 25 degrees Celsius for the CW-3000.**

**The CW-5000 is already set by default from the factory to be within 18 - 25 degrees Celsius.**

## Toolbox Contents

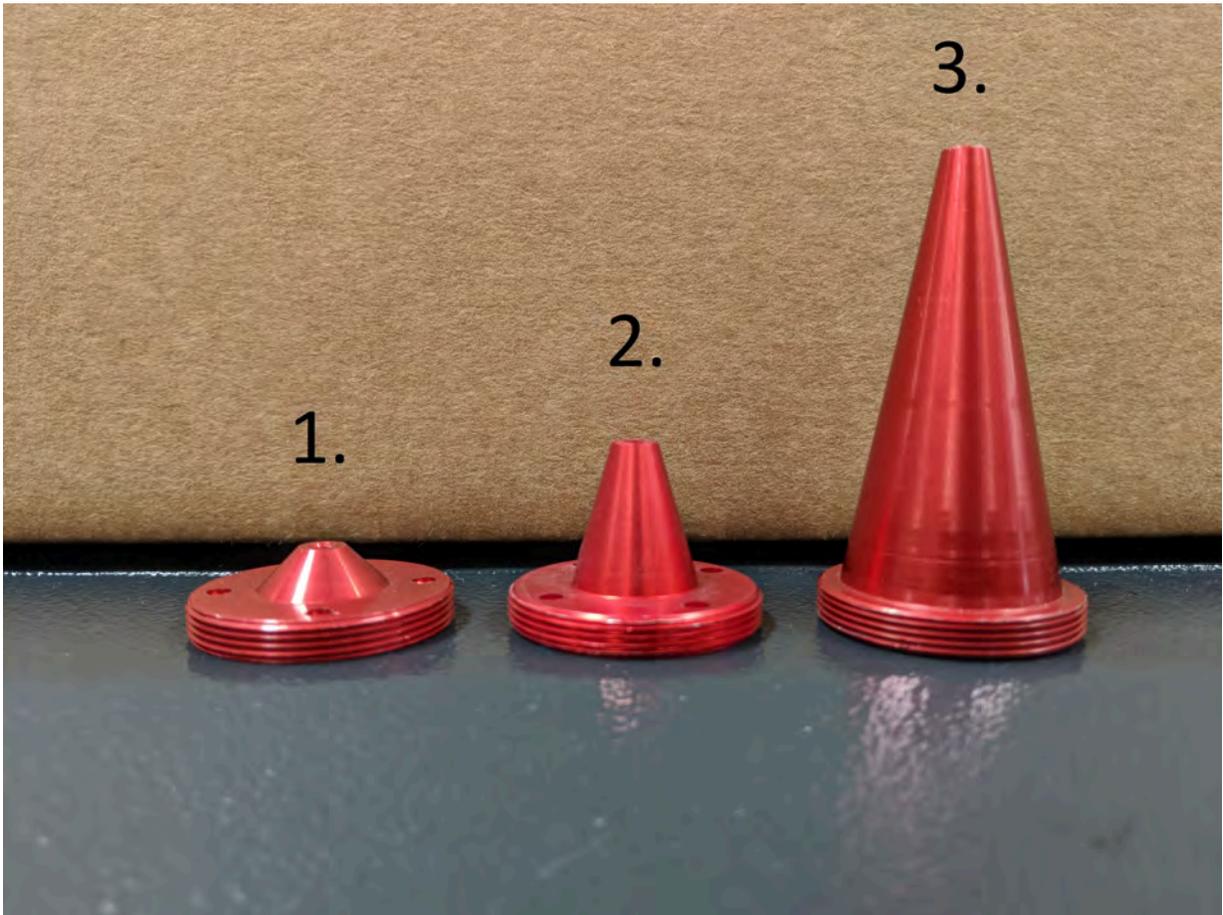


- |  |                                  |
|--|----------------------------------|
| 1. Exhaust Hose Clamps (3 count)               | 11. 500 MB Flashdrive            |
| 2. 6mm Nylon High Pressure Hosing              | 12. Ignition Keys (1 set of 2's) |
| 3. Resistor w/ Voltage & GND Wiring Clamps     | 13. A Set of Allen Keys          |
| 4. Air Nozzle Regulator                        | 14. Focal Guide                  |
| 5. High Precision Proximity Switch             | 15. 6-Pin Terminal w/ Wire Loop  |
| 6. Water Chiller Bypass Signal                 | 16. Mirror Removal Tool          |
| 7. 250V/20A Fuses (2 count)                    | 17. Lens Removal Tool            |
| 8. Universal Machine Door Keys (3 sets of 2's) | 18. Power Cord                   |
| 9. Processing Test File Sample                 | 19. Nozzle Removal Tool          |
| 10. Phillips Head Screwdriver                  |                                  |

**NOTE:** The circled contents are used for testing purposes (assisted w/ Technical Support, if needed).

**For LS-1416/LS-1420 machines, a 4" flange is included in the toolbox.**

## Toolbox Contents (cont.)



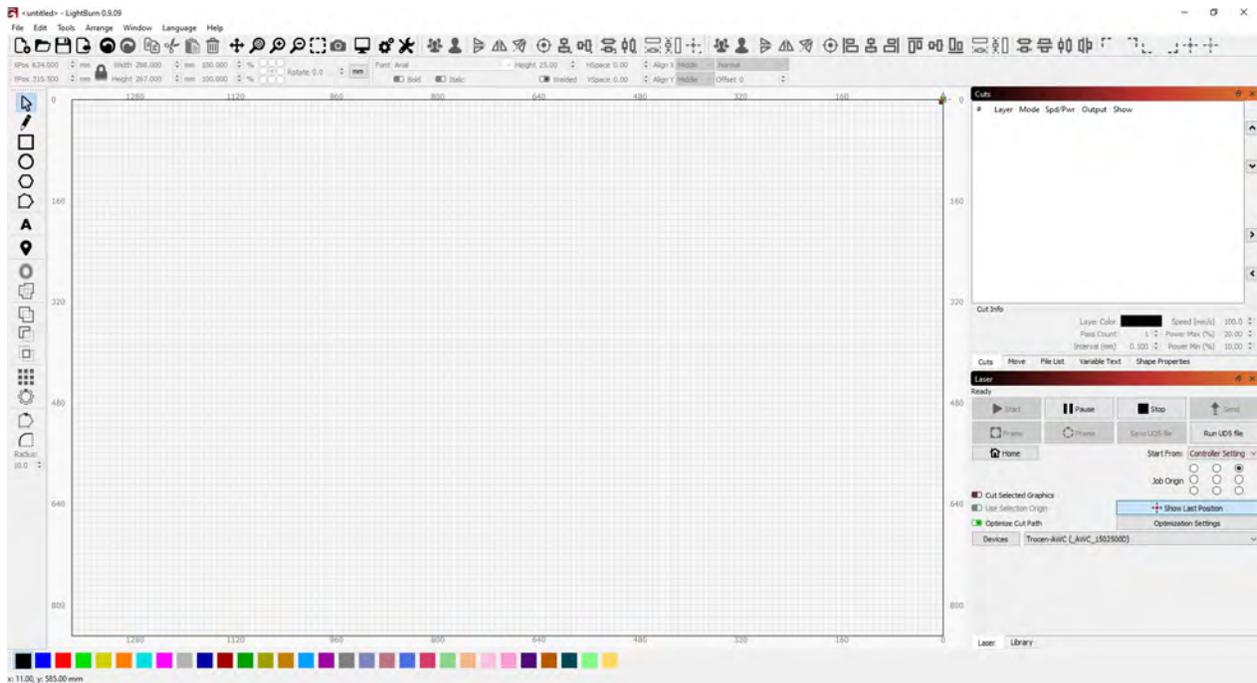
### Different Size Nozzles for Specific Size Lens

In the toolbox, there will be 3 different size nozzles provided for you. Each nozzle will correlated with a specific size lens (as described below):

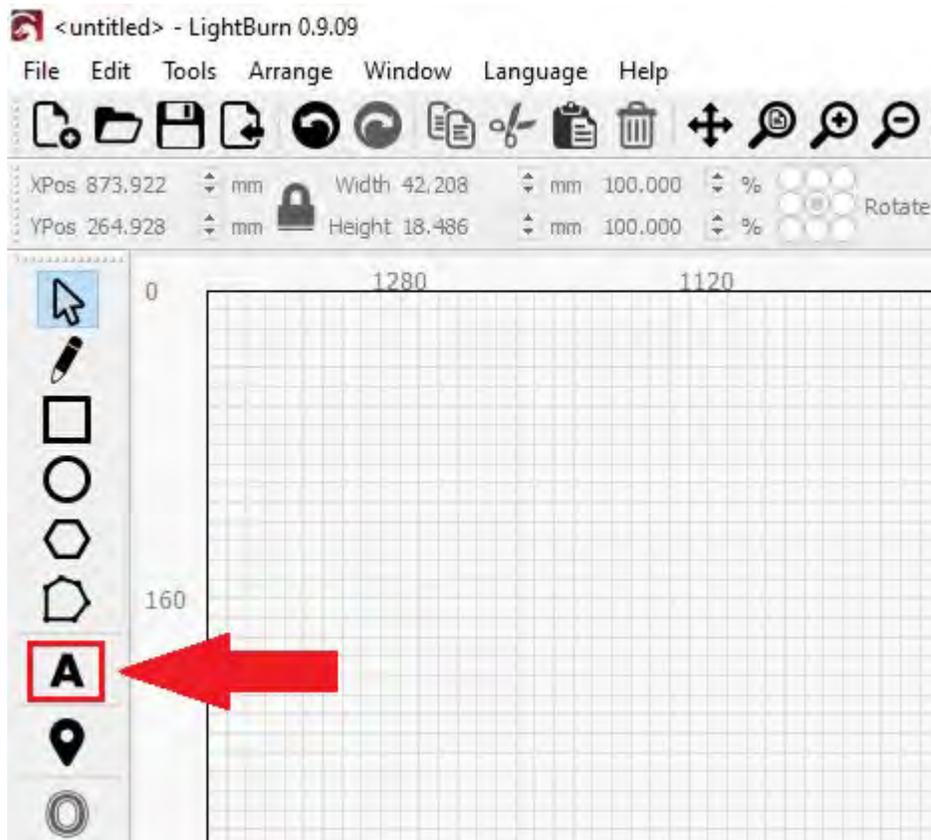
1. For 2" lens
  - a. Recommended lens for **engraving & cutting**
2. For 2.5" lens
  - a. **Leaning more towards cutting capacity** than engraving
3. For 4" lens
  - a. **Ideally for cutting** than engraving material

# HELLO WORLD Walkthrough

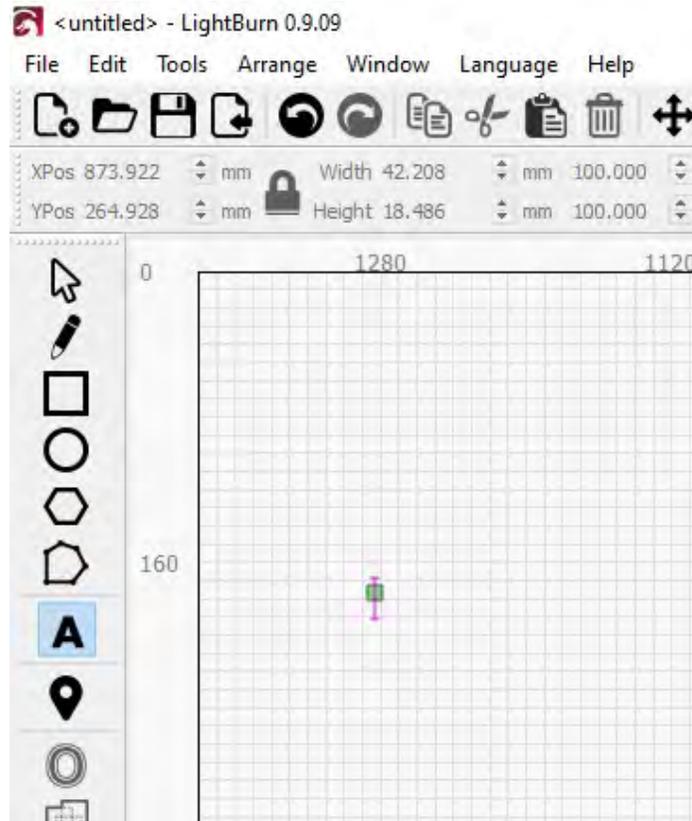
Now launch the LightBurn software:



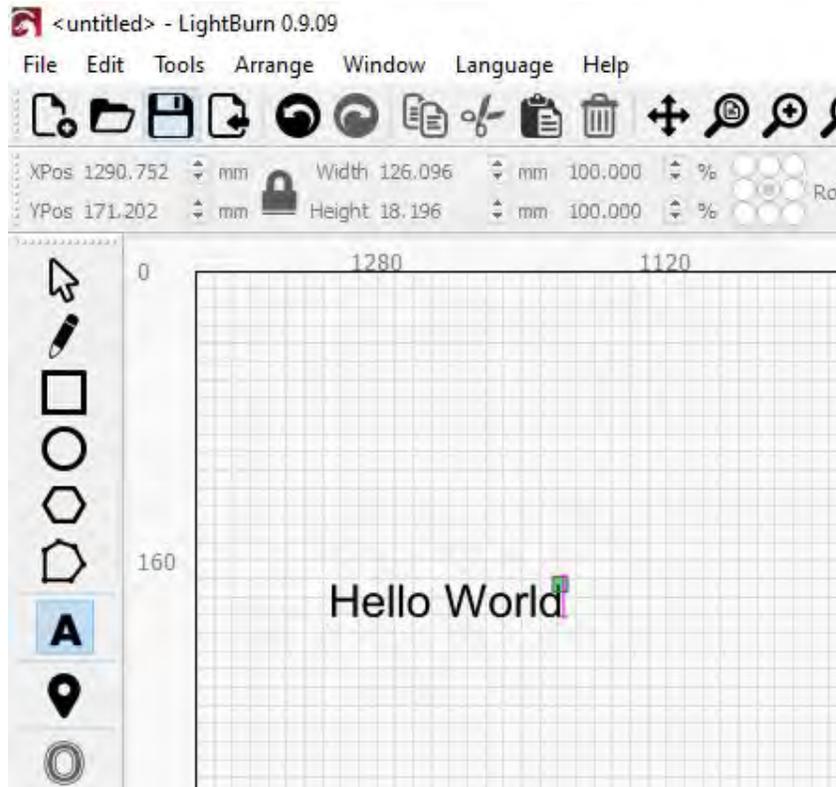
Click on the **Text** icon indicated by the red arrow w/ the red square around it:



Once you have selected **Text**, click anywhere on the grid space and a text cursor will appear (as shown below):



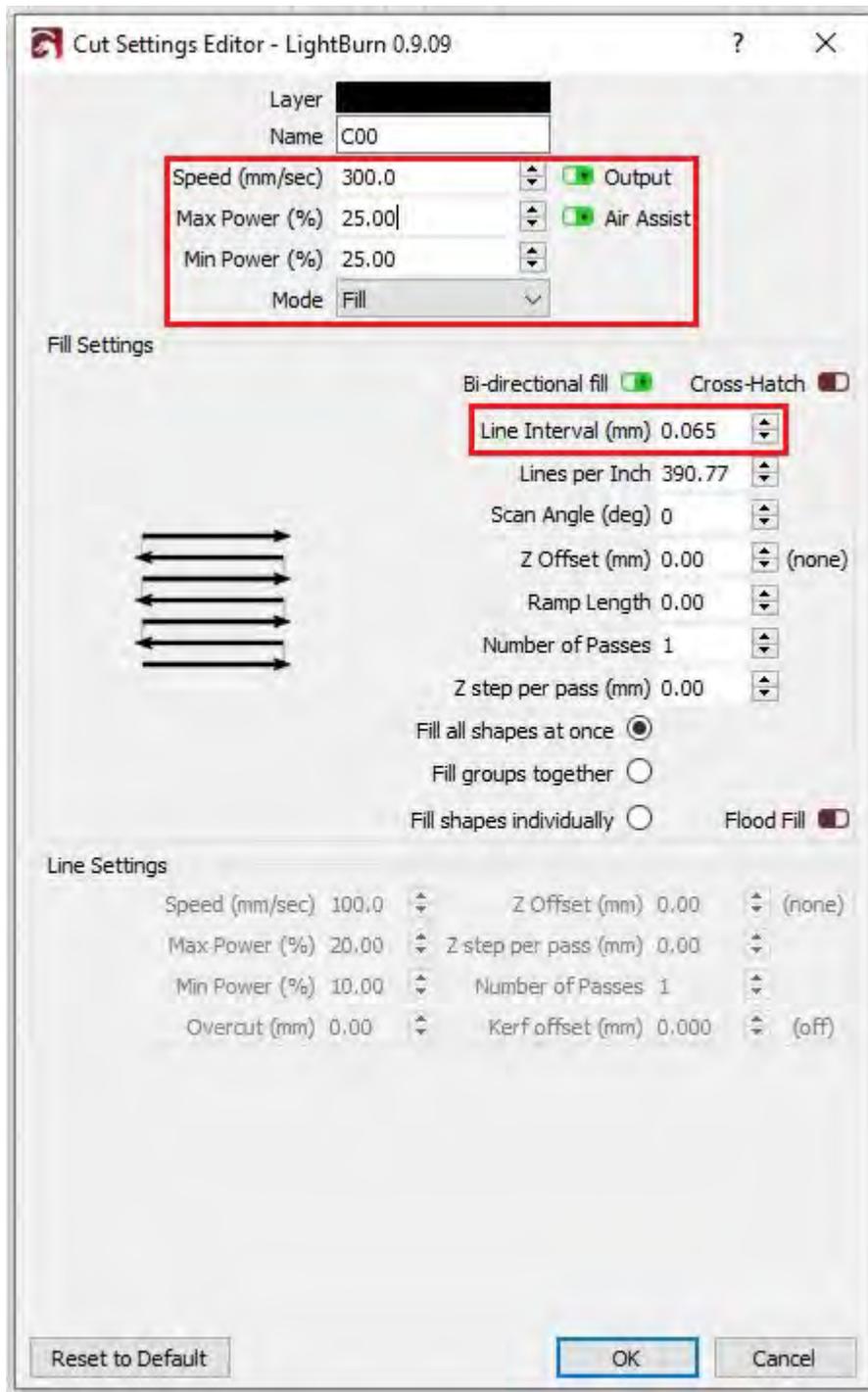
For this exercise, type "**Hello World**" in the text box (as shown below):



The next step is to set the **Speed and Power** for the image. Located on the top right side of the LightBurn software, you'll find the Layer Options (as shown below):



Double click on the **Layer Color**. The Layer Parameter window, shown below, should appear:

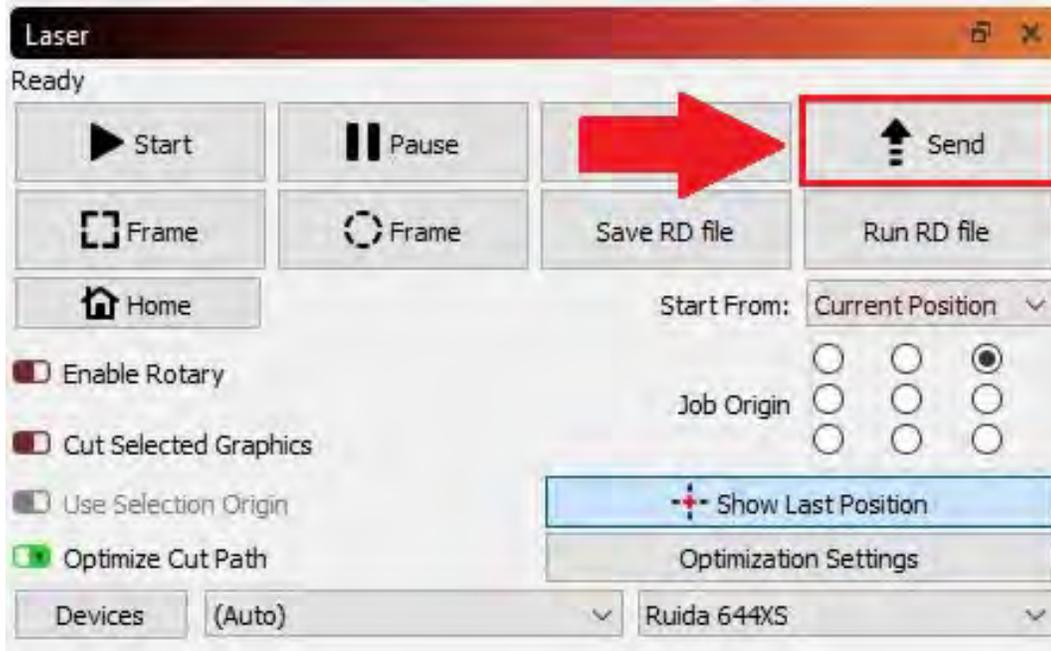


- **Mode:** Make sure this is set to **Fill**
- **Power (%):** For this exercise, we are going to use **25% (for Min. & Max.)**
- **Speed (mm/sec):** Set this to **300**. Maximum Speed is limited to 500.
- **Line Interval (mm):** Set this to **0.065**. Recommended range = 0.065 - 0.1

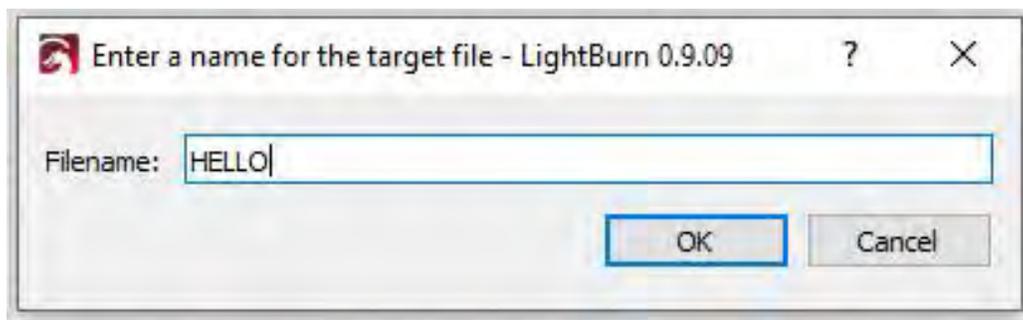
After those changes have been made, click on the **OK** button.

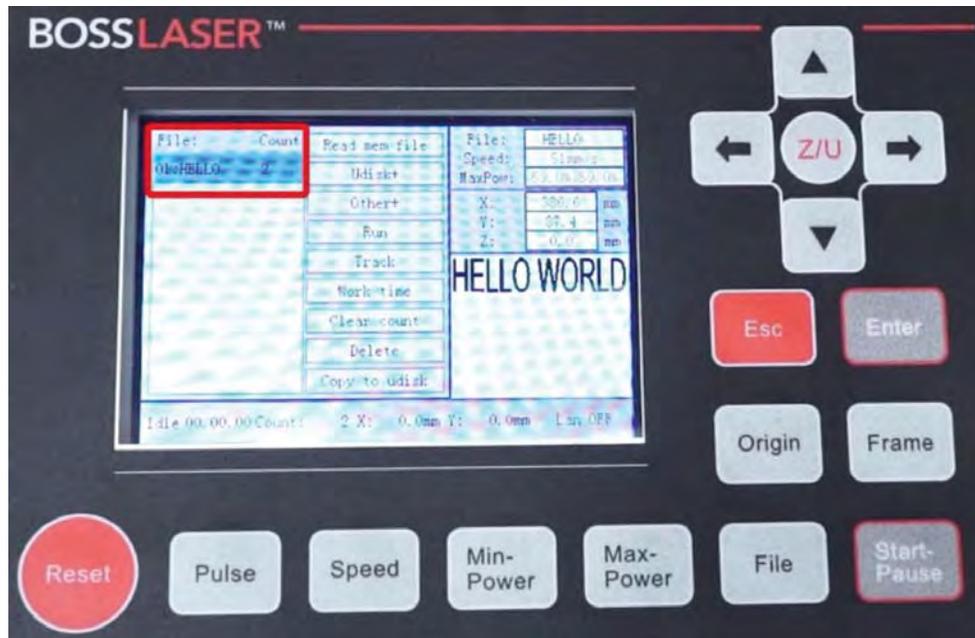
The next step is to now send this file to the machine. Make sure you have the **Black USB Cable** connected to the PC from the machine and that the **machine is ON**.

Now locate the **Send button** which is below the Cuts Window (on the right side of the software):



Once you clicked on the **Send button**, the window shown below will appear. You can add a name to your file (for this exercise, we named it **HELLO**). Then click **OK** to send this file to the machine.



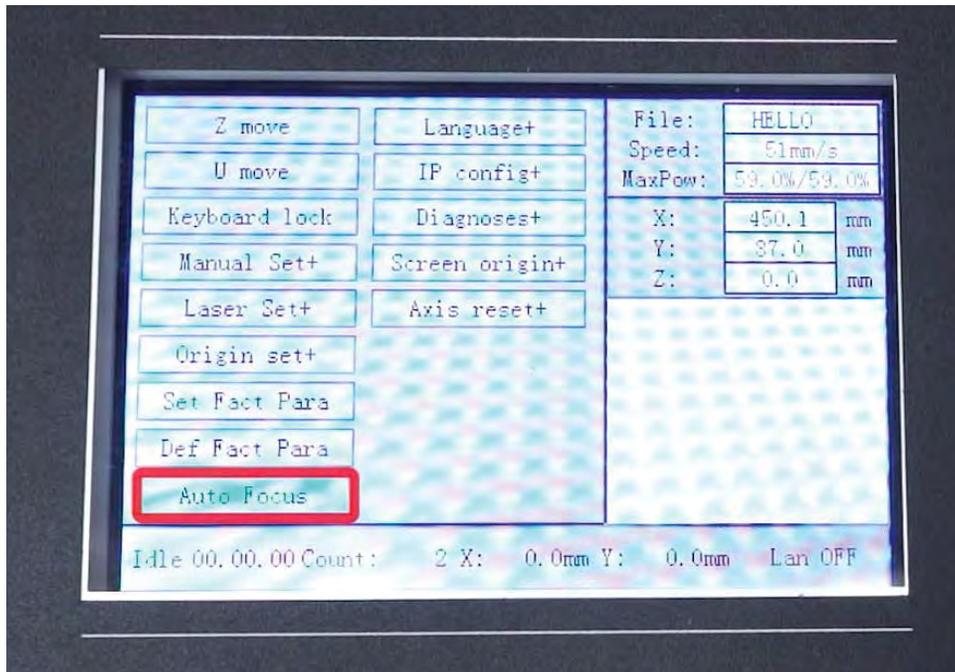


Pressing the **File** button illustrates as shown.

On the LED screen, press the **File** button. Located by the **red box**, the **Hello** file is highlighted and a preview of the image is illustrated at the bottom left-hand corner of the screen. With the **Hello** file still selected, press **Enter** and will be return to the main screen with the **"Hello World"** text (as shown below).



Preview of the "Hello World" text with its laser settings located on the bottom left-hand corner of the screen.



Pressing the Z/U button shows a list of functions

Now place your material on the worktable (in our case, a piece of wood). On the LED screen, press the **Z/U button** and a list of functions will appear as shown above. Using the down arrow key, highlight the **Auto Focus** function (indicated by the red box). **Make sure your material is set directly under the nozzle of the laser head before proceeding!** Now press **Enter** and see that the worktable will move up towards the nozzle and auto-focus your material. You can double check the auto-focus by using a Focal Guide as illustrated in the picture below:



Using the 2" Focal Guide to double-check the Auto-Focus feature.

Now close the front lid of the machine to trigger the interlock switch so that machine knows it's ready to fire. Make sure all of your components are turned on: **Water chiller, Air Compressor,** and the **Exhaust Blower**.

Using the arrow keys, move your laser head on top of your material where you want the job to start (Default Laser Origin = Top-right corner) then press **ORIGIN**. By setting the Origin is telling the machine to always start the job there. Now press the **FRAME** button to preview a box which will be the size of the image's perimeter. This should match the dimensions of your image.

Then press **Start-Pause** button to start the job. To see if the laser is indeed firing, the milliamp reader should provide a reading of the amount of mAs being used (higher the power percentage, the higher the mAs).

Finally, after the job is finished, open the lid and see that the **"HELLO WORLD"** has been engraved according to the settings applied, as shown below.



Engraved **"HELLO WORLD"** when finished on wood.

This concludes the exercise and now that all the steps have been provided to you to run this job correctly, you'll be able to apply these steps to different applications to help you run your machine efficiently and effectively (ex. running a Cut instead of an Engraving and/or both)