

**LASER CREATION™**

CE

# *Desktop Laser Engraver*



Item No.: JTLASER5030

[www.laserbox.com](http://www.laserbox.com)

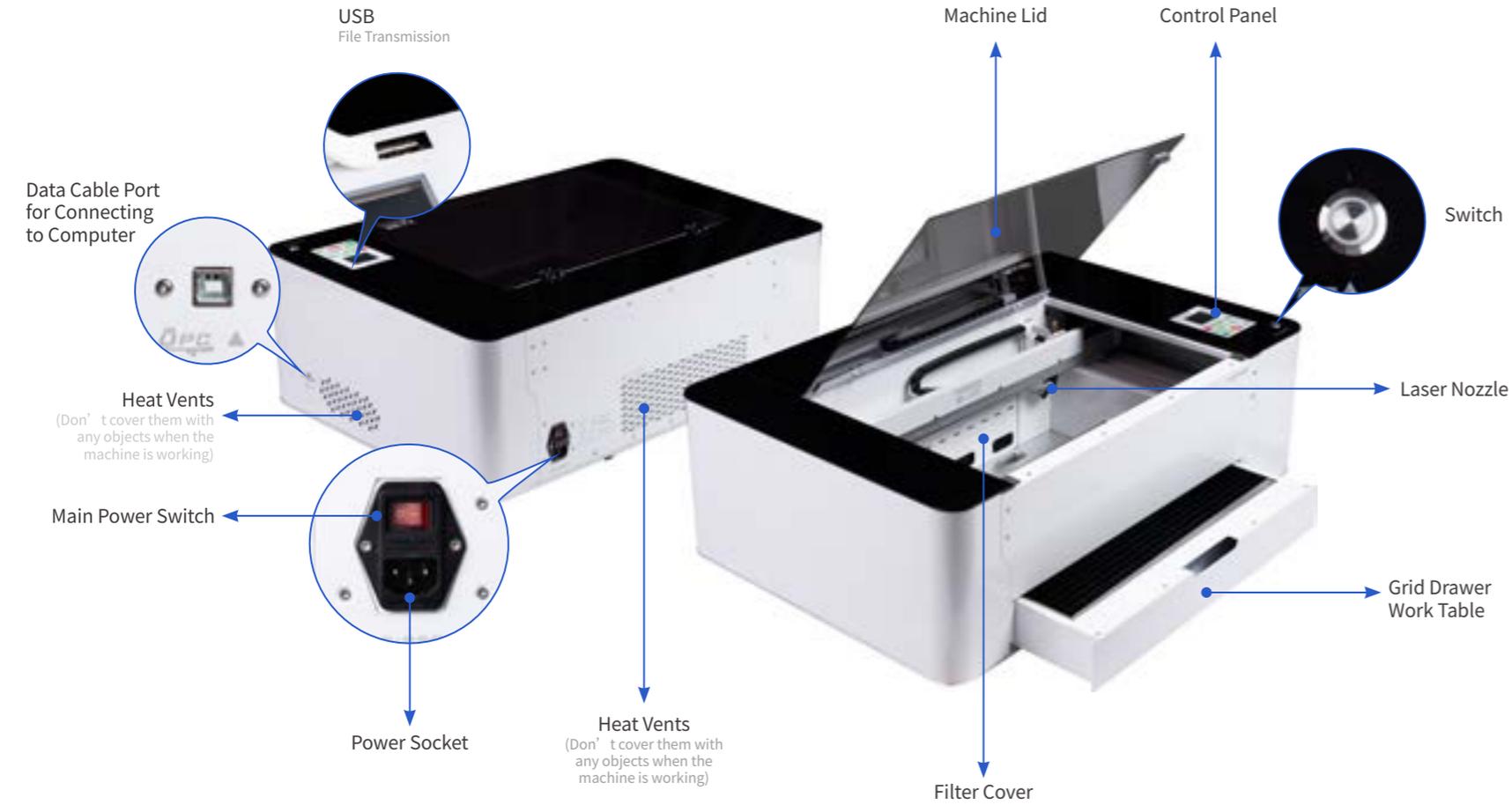
# DESKTOP LASER ENGRAVER

Item No.: JTLASER5030



Work Table	500MM×300MM drawable aluminum alloy work table
Dimensions	850X500X230MM
Machine Weight	45KG
Carton Size	940X640X355MM
Total Weight	55KG (including air pump and exhaust fan)
Material & Technique	All-metal molding technique
Laser System	Small high-resolution laser nozzle, focal length adjustable
Resolution	1000DPI
Laser Source	CO2 laser tube, with catalyst coating, smaller light spot and more stable laser beam
Laser Power	40W
Lifespan	4000 hours
Control Panel	LCD screen, works online or offline, multilingual system (including Chinese, English, Russian, Italian, Korean, Portuguese, and Vietnamese)
X Axis Type	Straight line
Focusing Lens	15mm
Max. Acceleration	3g
Max. Engraving Speed	48000mm/min
Max. Cutting Speed	300mm/sec for 1mm wood board
Connection/Transmission	high-speed digital signal processor, USB, Wi-Fi
Compatible Software	AutoCAD, CorelDRAW, Photoshop, and other vector design softwares compatible with Windows system.
Compatible File Type	DXF, BMP, AI, SVG
Graphic Layer Design	Multi-layer setting, each layer can be added with different power and speed using master computer software
Laser Control	DSP laser control system and S-type acceleration and deceleration control software make continuous curve cutting and shortest path cutting possible.
Drive System	High-resolution independent drive system
Cooling System	Built-in water cooling system
Exhaust System	Built-in exhaust system and independent dusting system
Air Pump	External small air pump
Safety & Protection	Water-cut system, open-lid shutdown system
Optional Device	Roller device for engraving curved item
Warranty	One-year warranty for the whole machine, six-month warranty for laser tube and exhaust device

## KNOWING LASER CREATION



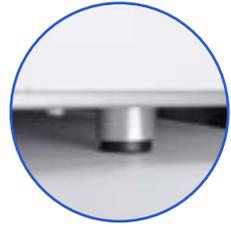
## BASIC EQUIPMENT

- 1 Air Pipe
- 2 Data Cable
- 3 Coolant Container
- 4 Filter (2pcs)
- 5 Tool Box (including tools for cleaning and assembling, USB for downloading software)
- 6 Exhaust Fan
- 7 Power Cable for Exhaust Fan
- 8 Air Tunnel
- 9 Measurement Board (for Adjusting the distance between laser nozzle and engraved blanks)
- 10 Power Cable
- 11 Air Pump (for blowing away dust and preventing fire)



## PREPARING THE MACHINE

- 1 Unfold the four bottom feet to make the machine stand more stably;



- 2 Connect the machine to the computer with data cable;

- 5 Adjust the air volume;

- 4 Plug in the air pump;

- 3 Plug the air pump to the machine by inserting the air tube;



- 10 Plug in the air fan.

- 7 Insert the air tunnel from the bottom of the back of the machine;

- 9 Connect the fan with air pipe;

- 8 Connect the fan to the tunnel outlet, please double check if air outlet of the fan is upward;

- 6 Plug in the machine;

## INSTALLING THE ROLLER DEVICE



**Roller Device**  
For engraving cylindrical items such as bottles and mugs. (requires additional purchase.)

- 1 Remove the drawer work table;
- 2 Put in the roller device, make sure it's parallel to the X axis;
- 3 Poke the axis direction switch to the axis of rotation. If you want to adjust the position of laser head up and down along the Y axis, please poke the direction switch back to Y axis.
- 4 Plug in the data cable;

- 1



- 2



- 3

- 4



## MAINTENANCE AND ADJUSTMENT

### 1. Replace or Clean the Filter

The filter should be cleaned or replaced regularly. No need to wash with water, just use a brush to clean the dust.



- 1 Remove the filter cover, and take out the filter panel inside;



- 2 Install the filter, with the white side facing the fireproof filter;
- 3 Fireproof filter cotton must be installed, otherwise it might cause burning during operation.

### 2. Add Coolant

After removing the work table, you can see the coolant inlet. Add some coolant only when the liquid volume inside is much lower than the inlet. Only special coolant can be used. Don't add water.



### 3. Dust the Work Table

Remove the grid metal board and clean the dust.



### 4. Pre-use Check



- 1 No cover on the heat vents;



- 2 Turn on the air pump, use your finger to check if there is any air coming out, if the air volume is suitable;



- 3 **3.1. Flat Item Mode:** Poke the direction switch to Y axis mode.  
**3.2. Roller Device Mode:** Poke the direction switch to X axis mode.

### 5. Adjust the Focal Length

The most suitable distance between laser nozzle and objects is **6mm**, so we have prepared a 6mm acrylic measurement board for easier distance setting.

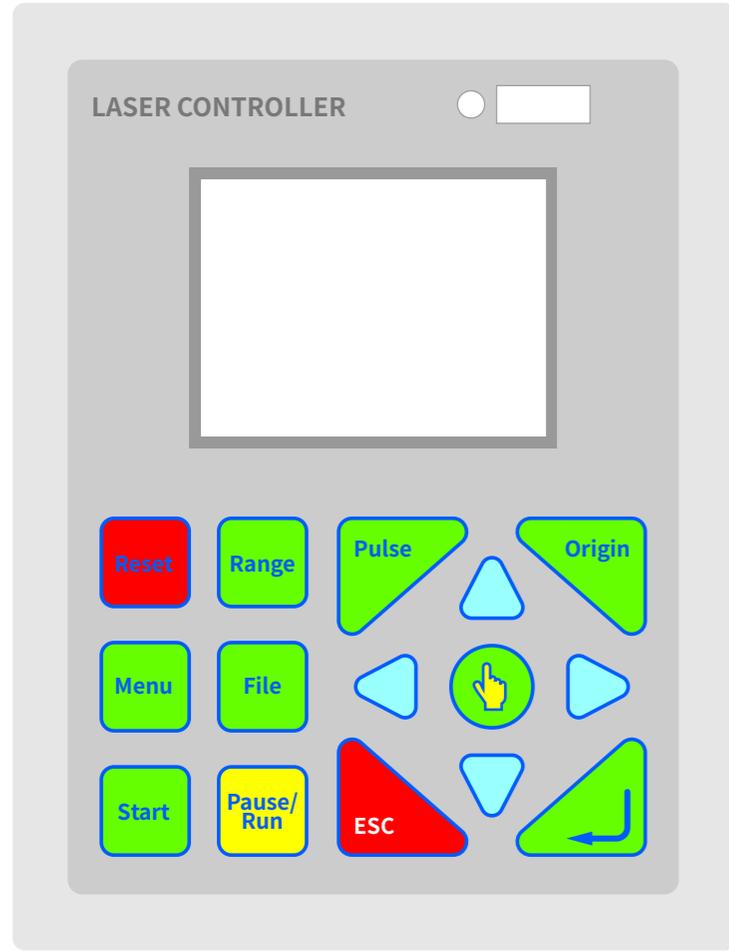


- 1 Turn the yellow knob on the laser nozzle to adjust its height;



- 2 Use the measurement board to check if the distance is suitable.

# CONTROL PANEL INSTRUCTION



Press to reset the machine no matter which mode it's in.



Press to enter main menu.



Press to start engraving or cutting.



In the standby interface, press to preview the moving range of the laser nozzle.



Press to select file.



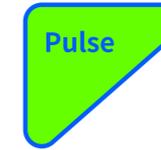
When the machine is engraving or cutting, press this button to pause the process, and press again to continue running. After pausing the machine, move the X or Y axis and press the button again to automatically return to the original point to continue working. In standby mode, press the button, the laser nozzle will automatically return to the positioning point.



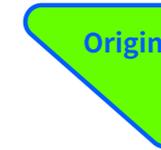
Press to change the speed of the axis shift in standby interface, and to adjust parameters in other interfaces.



Press to move X and Y axis. In other interfaces, up and down buttons can also be used to select in menu.



Press to test the laser emission path and power. Press the button, the laser nozzle will blink.



Press to set the starting point of the project.



Press to cancel current operation and return to the last one. In the main interface, press this button to enter Z/U axis moving interface.



“Enter” Button: Press to agree with the current operation. In the main interface, press this button to enter the parameter setting interface, and set the graphic layer parameters and clear the processing times.

# MAIN INTERFACE

## 1. In-Memory File

In standby interface, press “File” button or select “File/Memory File” in menu interface. The screen will show as below:

Memory File		
001:12345678. OUT	100K	
002:12345678. OUT	100K	
003:12345678. OUT	100K	
004:12345678. OUT	100K	
005:12345678. OUT	100K	
Total		500
Select		1
Number		0
Time		00:00:00

1. Total File: Indicates how many files are in the machine. The machine can store up to 500 files.
2. Selected File: Indicates the file that is currently selected.
3. Number: Indicates the processing times
4. Time: Indicates how long it takes to complete the project

\* Press “←→” direction buttons to check files and “↔” buttons to turn page;

\* Press “👉” button to jump to the file that is being processed;

\* Press “ESC” button to exit this interface;

\* Press “↵” button to enter the operation towards this file.

Memory File
Read File
File Edit
Write To Udisk
Delete
Del All

1. Read File: Set as the file that is being processed
2. File Edit: Adjust file parameters.
3. Write to Udisk: Copy files to U disk.
4. Delete: Delete the file.
5. Del All: Delete all the files.

As shown below, you can set the parameters of graphic layers and files in File Edit interface. Press “↵” button to enter the next interface.

File Edit
Layer Parameter
File Parameter

## 2. USB File

Select “File” in menu interface, then you can choose to enter “Memory File”, “U Disk File” or “File Settings” interface.

File
Memory File
U Disk File
File Settings

Choose “U Disk File”, and the screen will show as below:

U Disk File		
001:12345678. OUT	100K	
002:12345678. OUT	100K	
003:12345678. OUT	100K	
004:12345678. OUT	100K	
005:12345678. OUT	100K	
Total		500
Select		1

1. Total: Indicates how many files in the USB
2. Select: Indicates the current selected file. Press

“Approve” button to start file operations.

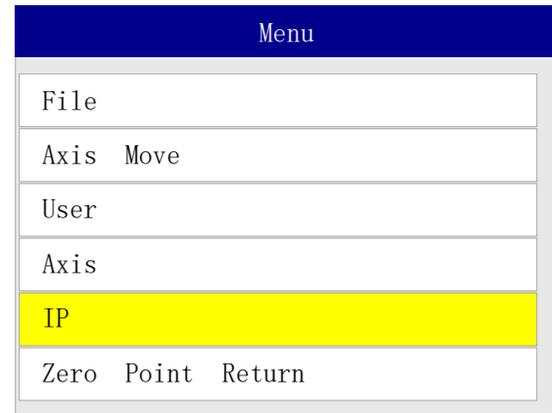
1. Write To Memory: Copy the file to the in-memory folder
2. Delete: Delete the file.

U Disk File
Write To Memory
Delete

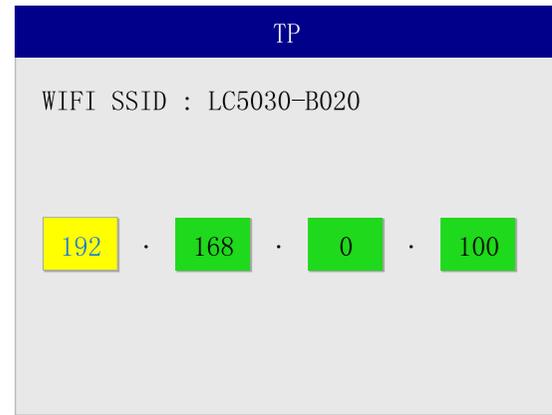
File Settings	
Save Type	General
Current Select	Yes
Save and Execute	NO
File Work Mode	General

### 3. Enter IP Address

Connect the machine to the software using Wi-Fi. The IP address of the machine should be the same as the one on the software.

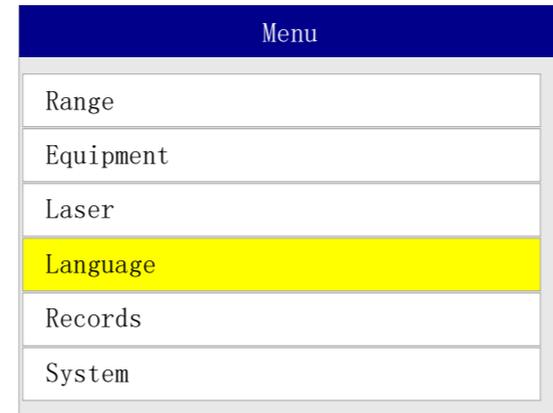


Press “Menu” to enter menu, select “IP” and press “Enter” to enter IP setting interface;

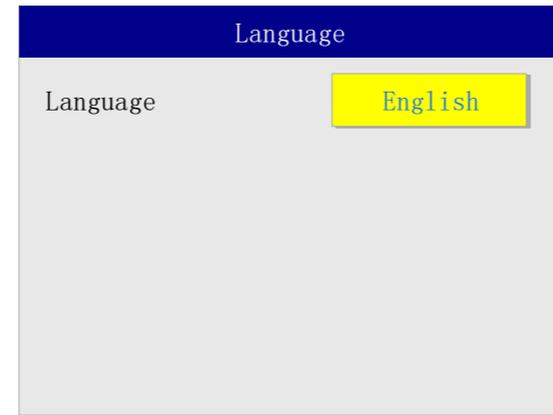


Here show the Wi-Fi name and the IP address of the machine, press “Enter” to modify them.

### 4. Choose Language

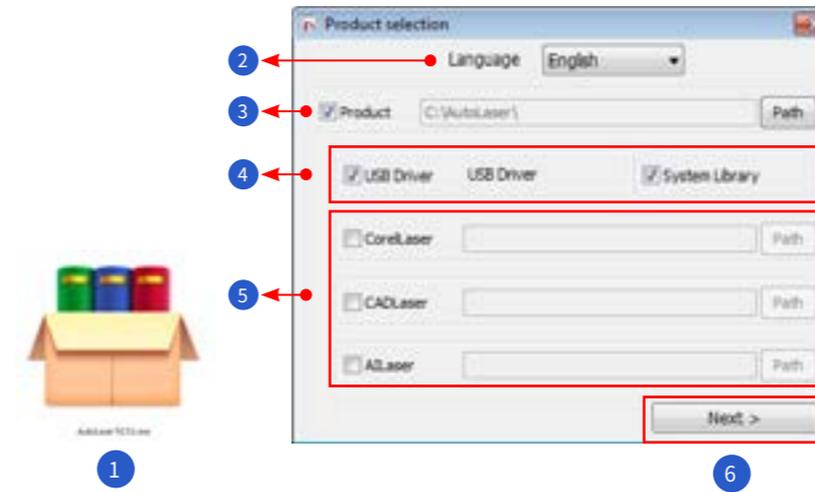


Press “Menu” to enter menu, select “Language” and press “Enter” to enter language setting interface;

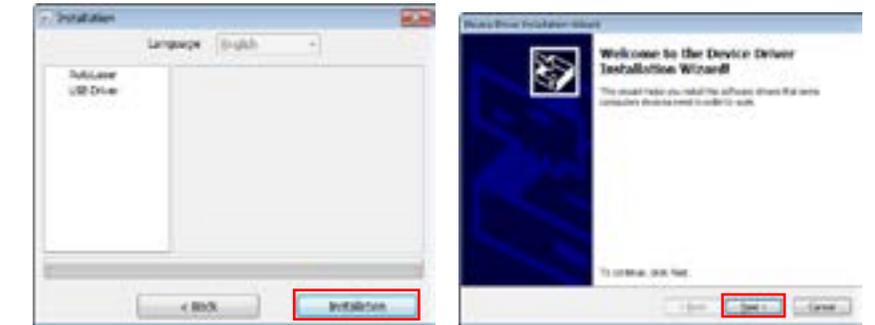


Press “Enter” to switch the language, and press “Enter” to save the setting.

## SOFTWARE INSTALLATION



1. Please double click AutoLaser.exe.
2. Choose the language you want;
3. Choose the installation path you want;
4. In the first installation, some program functions that users must use are selected by default, such as Product, USB Driver, and System Library.
5. The software is compatible with other design softwares such as CorelDraw, CAD, AI, etc. If you need to use with these softwares, please check to install related plugins;
6. Click “Next” to install;



7

8

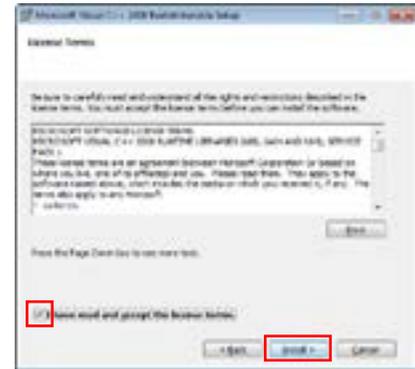
Install USB drive



9

10

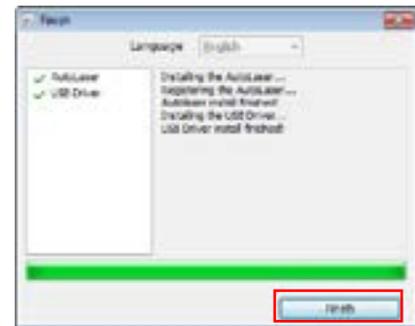
C++ Runtime Library



11



12

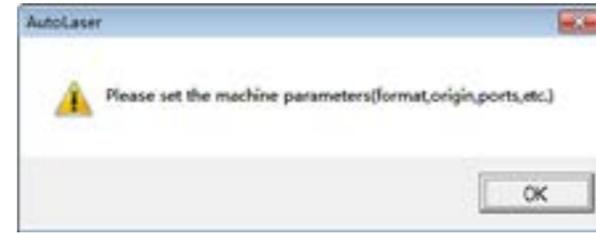


13

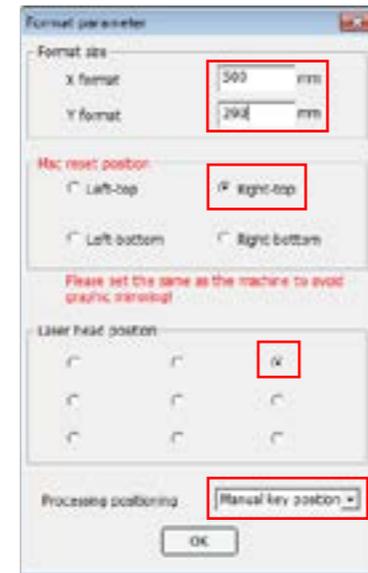
Installation Finished

## CONNECTION AND MANAGEMENT

### 1. Format Parameter



1 The dialog box below will pop up when you open the software for the first time. Please click "OK" ;



2 Enter setting interface. Set X Format to be 500mm, Y Format to be 290mm. Leave other options as default, and click "OK" .

The machine support Wi-Fi and USB cable connection. The priority of the Wi-Fi connection is higher than USB. The software will choose Wi-Fi connection, if it is connected to the machine through both the two communications simultaneously.

### 1. Wi-Fi Connection

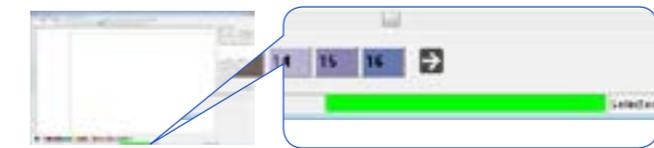
1 Each machine has its own Wi-Fi and a special Wi-Fi name. You can find it on the IP Setting Interface of control panel or the bottom right corner of the back of the lid;



2 Open the software, click "Machine" on the upper right corner, and the edit box below will pop up. Modify the IP address, make sure it's the same as the machine IP address. If you want to connect to multiple machines with the same IP address, please make sure their names are different so that the software can identify them;



3 Choose the machine you want to connect, choose network connection, and click "Search" ;



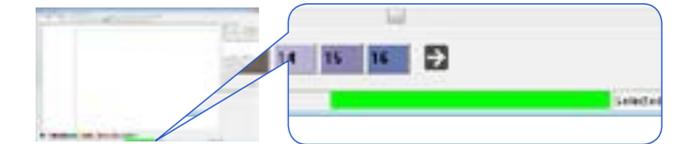
4 The red progress bar at the bottom will turn green, which indicates successful connection.

### 2. USB Connection

1 Connect the machine to the computer using data cable;



2 Choose the machine you want to connect, choose "COM" connection, and click "Search" ;



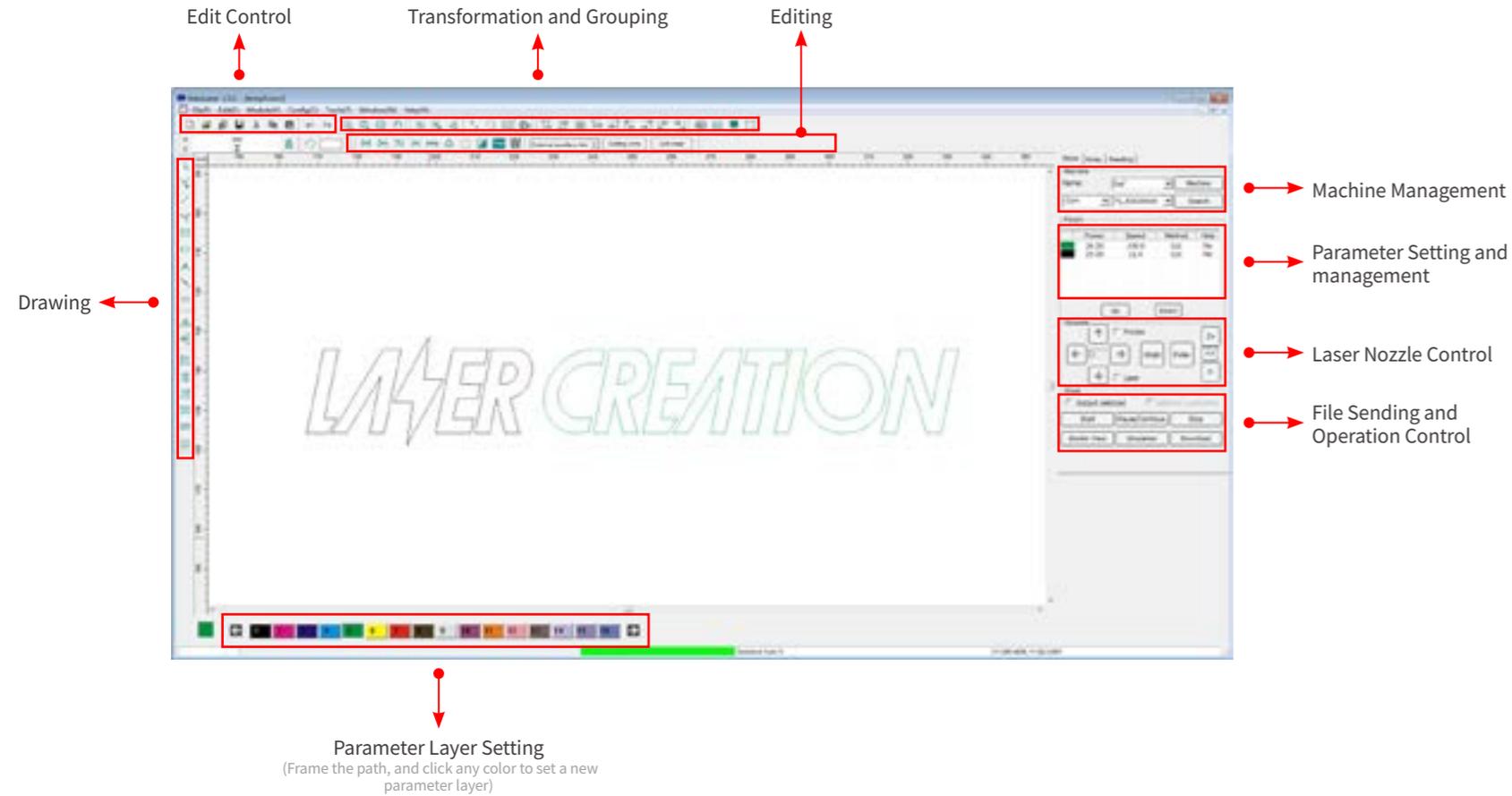
3 The red progress bar at the bottom will turn green, which indicates successful connection.

### 4 Connection Failed

1. Please re-install the USB drive.
2. If you want to connect to two or more machines, please make sure their names are different.
3. When connected to the machine using data cable, and the computer will automatically assign a COM port for communication to the machine. However, connection failure will occur if the COM port number assigned is greater than COM9, so we have to change the port number which should be between COM3 to COM9.

# BASIC DESIGN FUNCTION

## 1. Software Interface

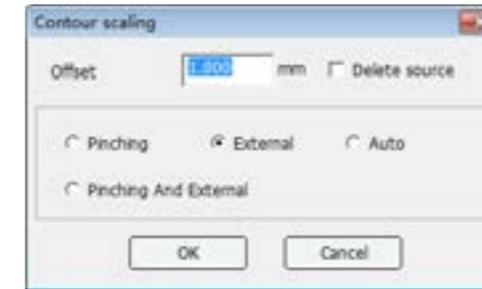


## 2. Contour Scaling

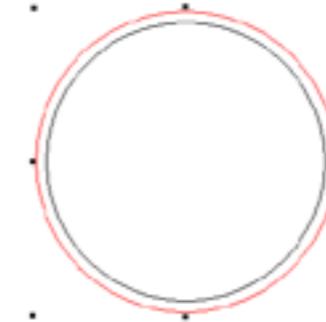


Modify the outline of all the original graphics to cancel out the error caused by the laser spot. The upper toolbar is as shown as above.

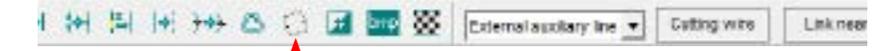
- 1 Select contour zooming icon “”, and the following edit box will pop up;



- 2 Zoom in or zoom out the contour and modify the distance if you need to, and click “OK”. The contour will be zoomed in or out as shown below:

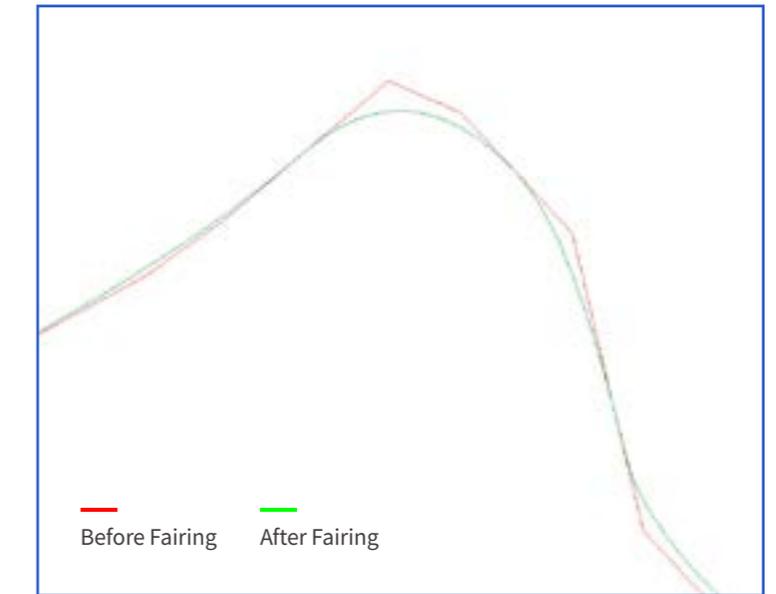


## 3. Fairing



Some DST, DSB, and PLT files might not have smooth outline.

Click to select the image, and use fairing tool “” to make the outline more curved and smooth.



### 4. Anti-Color



To reverse the colors of the image, click  in the tool bar, and the image will turn into the following different effects:



1 Color reversing of bitmap image



2 Use “bmp” to reverse the colors on bitmap image

### 5. Bitmap Processing



Select the bitmap image to be processed, click “bmp” to open the dialog box below:

You can try different parameters to get various effects. After processing, the image can be recognized by the machine more easily and engraved down more precisely and detailedly.



1 Before processing



2 Binary image effect

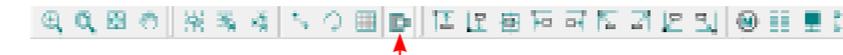


2 Grid graph effect. After processing, the detail will be more refined.



2 Diffusion dithering effect. This effect can generate more refined detail than that of grid graph effect.

### 6. Show Fill



Frame the engraved path, change the work methods to carve in the parameter layer edit box, and click “” to fill the image with color. (Only works in engraving mode)



### 7. Cross-Layer Grouping



To group graphics of different layers, frame those graphics and click “”.



**Note:** After grouping, there will be a slight change of the processing sequence and time.

### 8. Parameter Layer



1 Frame the path, and click any color to set a new parameter layer.

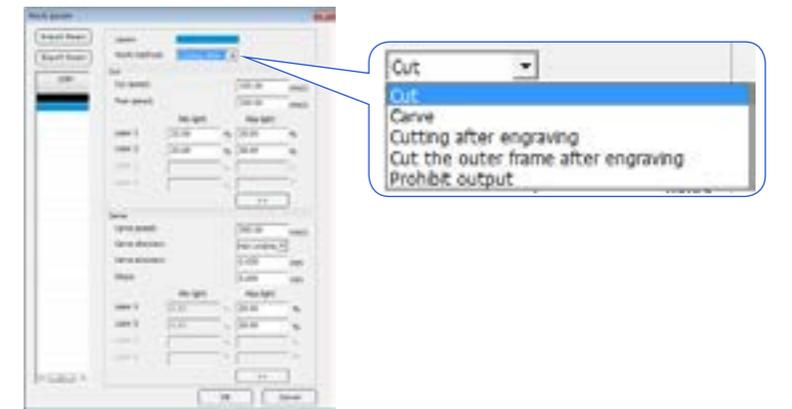
Param	Power	Speed	Method	Hide
	20.00	100.0	Cut	No
	20.00	300.0	Carve	No
	30.00	100.0	Cut	No

2 The layers will be processed in the top-to-down order in the list. You can change the sequence by selecting one layer and click “up” or “down”.

3 Select one layer, double click to open parameter setting edit box.

### 9. Work methods

You can choose single work mode or simultaneous double work mode in word method options.



### 10. Cutting Parameter Setting

Only three value need to be modified generally, other values can be kept as default.



- 1. Out Speed:** The moving speed of laser nozzle when cutting.
- 2. Free Speed:** The moving speed of laser nozzle when it's not working.
- 3. Min. Light/Max. Light:** The laser power. It takes a longer time for the laser nozzle to move on a curved path than on a straight path, and the power should be reduced, so we need two parameters to control the laser nozzle. Generally, the two parameters differ by about 5%.

### 11. Engraving Parameter Setting

Only three value need to be modified generally, other values can be kept as default.



**Note:** The power is inversely proportional to engraved result, which means that with the same power, the faster the speed is, the shallower the engraved depth is.

- 1. Carve Speed:** The moving speed of laser nozzle when engraving.
- 2. Carve Direction:** The way that the laser nozzle emits laser.
- 3. Carve Accuracy:**
- 4. Max Light:** The maximum laser power when engraving.

## WORK PREVIEW

### 1. Border View

Press "Border View" to preview the moving range of laser nozzle.



**Note:** If you check "Idemitsu" option, the laser nozzle will draw the moving range using the set power parameters.

### 2. Simulation

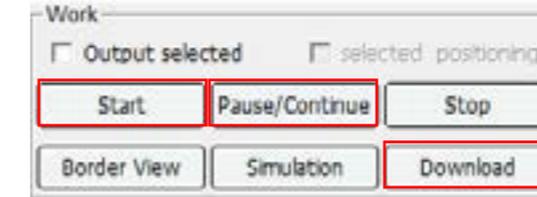
You can perform simulation processing on the files to be downloaded to the machine and view the processing path.



**Note:** Click "Estimate" to estimate processing time.

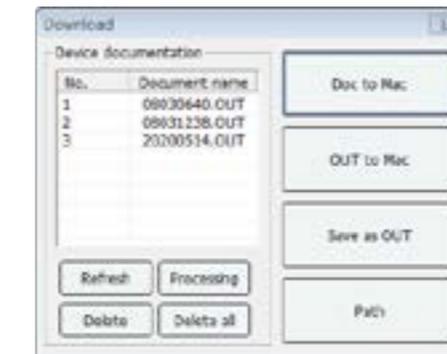
### 3. Export and Process

After parameter setting, you can export the image to the machine and start processing.



**Start** Export the file on the screen to the machine, and start processing.  
**Pause/Continue** Pause or continue to process  
**Stop** Stop processing

**Download** Click "Download", the dialog box below will pop up:



**Refresh** Check the files on the machine  
**Doc to mac** Download the file on the screen to the controller (not to process)  
**OUT to mac** Download the saved OUT file on to the controller (not to process)  
**Save to OUT** Save the file on the screen as processable OUT format file to the computer in the path you want.

### 4. Manual Process

- Without using the control panel of the machine, only need to check "Precise" to make the laser nozzle move precisely, enter its moving length (the unit is millimeter), check "Laser" if you want it to emit laser, and make sure the connection between controller and computer is working, then you can move the direction keys to move the laser nozzle. You can also position the laser nozzle and test its emission path and power here.
- V-axis, U-axis and Z-axis can be switched by clicking the "↔" in control interface.



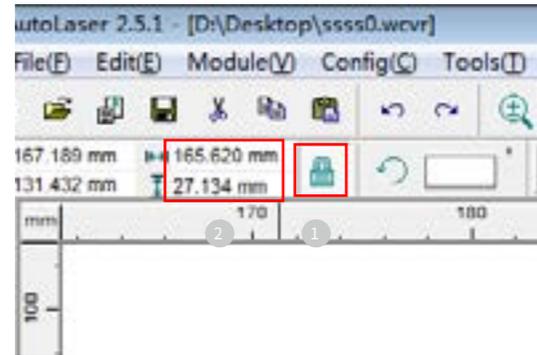
# QUICK START GUIDE – CUTTING



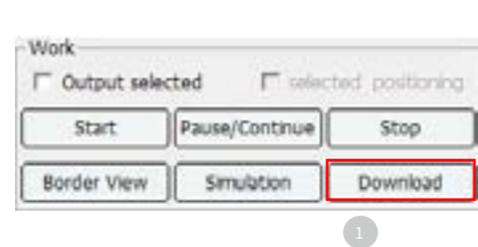
1 Import the file



1. Choose "Cut" in work methods options;
2. Set out speed to be 12mm/s
3. Set min light to be 20% and max light to be 25%.



2 Frame all the paths, click "Fix" to fix the scale, and set the image size;



5 Make sure the machine is being connected to the computer, click "Download", "Doc to Mac", and "OK" to send the image to the machine;



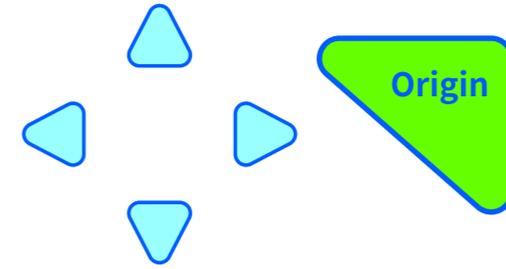
3 Double click parameter layer to open the parameter edit box;



**Note:** The parameter setting of 3mm wood board is for your reference. Please adjust the parameters according to your materials.



6 When the image has been sent to the machine, you will hear a beep and see the image is on the control panel;



7 Press direction keys to move the laser nozzle, "Origin" key to set the position to be the starting point where the laser nozzle starts to work;



8 Use the acrylic board to adjust the height of laser nozzle. It is the right height when the laser nozzle just touches the board;



9 Press "Range" to preview the moving range of laser nozzle to avoid waste of material;



10 Check if the exhaust system and air pump is working, close the lid, and press "Start" to start cutting. Please don't open the lid when the machine is working, or it will pause, and keep your eyes on the machine in case of fire.



## QUICK START GUIDE – ENGRAVING



- 1 Import file. Our Laser Creation can engrave vector image formats such as jpg, bmp, etc. If you want high-resolution results, the vector file should be at 300dpi at least;
- 2 Fix the scale, and set the image size;

Param	Power	Speed	Method	Hide
	20.00	300.0	Carve	No

- 3 Double click parameter layer to open the parameter edit box;



- 4
  1. Choose “Carve” in word methods options;
  2. Set carve speed to be 300mm/s;
  3. Choose “Hori two-way” carve direction;
  4. Set accuracy to be 0.1mm;
  5. Set Max light to be 18%.

**Note:** The power is inversely proportional to engraved result, which means that with the same power, the faster the speed is, the shallower the engraved depth is.



- 5 Send the image to the machine;
- 6 Adjust the height and the position of laser nozzle, and set the position as the work starting point;
- 7 Preview the moving range of laser nozzle;



- 8 Press “Start” to start engraving. The result is shown as below:

## QUICK START GUIDE – PHOTO ENGRAVING



- 1 Import the photo. We recommend choosing photo in dark and bright colors and with clear structure;
- 2 Fix the scale, and set the photo size;
- 3 Set the engraving parameters;



Select the bitmap to be processed and click “bmp” to open the bitmap dialog box, and enter the parameters;



- 5 Turn the photo into dot pattern;
  1. Check “Grid graph” ;
  2. Set dot size to be 0.4mm;
  3. Click “Test” ;
  4. Click “OK” .



- 6 Photo after dotting;



- 7 Set engraving parameters;
  1. Choose “Carve” in word methods options;
  2. Set carve speed to be 300mm/s;
  3. Choose “Hori two-way” carve direction;
  4. Set accuracy to be 0.1mm;
  5. Set max. light to be 17%.

- 8 Send the photo to the machine
- 9 Adjust the height and the position of laser nozzle, and set the position as the work starting point;
- 10 Preview the moving range of laser nozzle;



- 11 Press “Start” to start engraving. The result is shown as below:

# QUICK START GUIDE – CUTTING & ENGRAVING COMBINATION



1 Determine the result you want. As the pattern shown above, we want red path to be cut out, green path to be engraved in line (Low-power half cut without cutting through), and black path to be engraved;



1. Import the pattern;
2. Select the path to be cut, click red color below to make a parameter layer;
3. Select the path to be engraved, click back color below to make another parameter layer;
4. Select the path to be engraved in line, click green color below to make the last parameter layer.

Param	Power	Speed	Method	Hide
Black	20.00	300.0	Carve	No
Green	30.00	100.0	Cut	No
Red	30.00	100.0	Cut	No

3 Adjust the sequence of parameter layers by clicking “Up” and “Down” . For this pattern, we want to engrave the words first, then the frame line, and cut out in order to avoid displacement, so the sequence should be black, green, and red from top to bottom.

Set parameters for different layers;

4 Black Path Parameter Setting

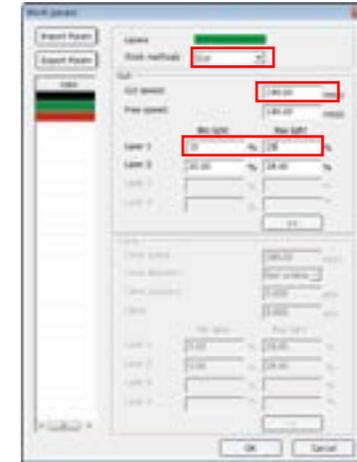
1. Choose “Carve” in word methods options;
2. Set carve speed to be 300mm/s;
3. Choose “Hori two-way” carve direction;
4. Set accuracy to be 0.1mm;
5. Set max. light to be 20%.



5 Green Path Parameter Setting

1. Choose “Cut” in work methods options;
2. Set out speed to be 100mm/s
3. Set min. light to be 15% and max light to be 25%.

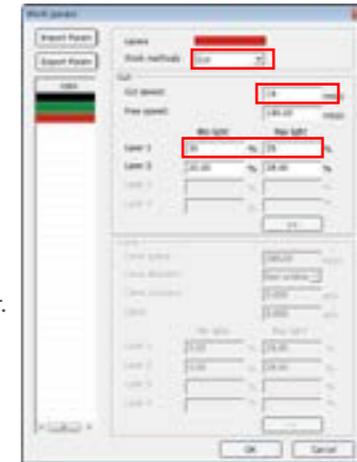
**Note:** We don’ t want to cut through the board, so the power needs to be lower.



6 Red Path Parameter Setting

1. Choose “Cut” in work methods options;
2. Set out speed to be 10mm/s
3. Set min. light to be 30% and max light to be 35%.

**Note:** We want to cut through the board, so the power needs to be higher.



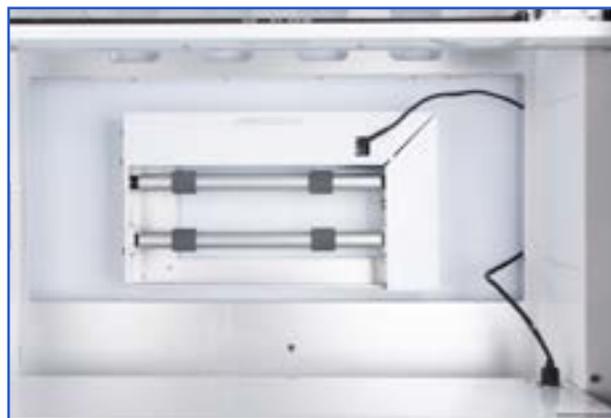
- 7 Send the pattern to the machine;
- 8 Adjust the height and the position of laser nozzle, and set the positon as the work starting point;
- 9 Preview the moving range of laser nozzle;



10 Press “Start” to start engraving. The result is shown as below:

## QUICK START GUIDE – ROLLER DEVICE

In this section, the roller device for the machine is needed, and it requires additional purchase.



1 Install the roller device. Please refer to page 6;



2 Put the bottle onto the roller;



1



2



3

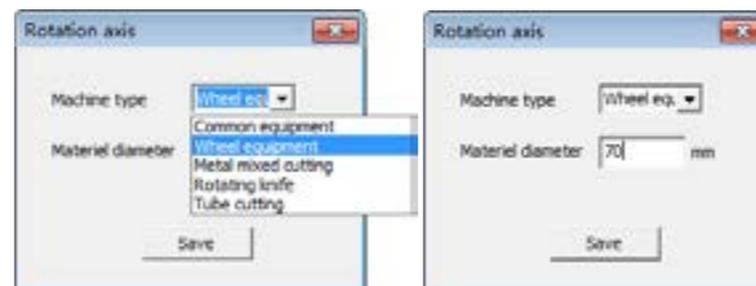
3 Poke the axis direction switch to Y axis, adjust the position of laser nozzle and fix it by pressing “Origin” button, adjust the height of laser nozzle using acrylic board, and poke the direction switch back to the axis of rotation;



4



4 Click “M” to open the edit box for making settings;



5 Choose “Wheel equipment” in machine type options, enter the diameter of the bottle;



6 Import the pattern and set engraving parameters;



7 Press “Range” to preview the moving range of laser nozzle to avoid waste of material;



8 Press “Start” to start engraving. The result is shown as below:

**L<sup>A</sup>ER CREATION™** **bestsub®**  
Impress Best Creativity



**Guangzhou Office**

Rm 4411, Grandview East  
International Plaza, No. 372,  
Huanshi E Road, Yuexiu  
District, Guangzhou 510060,  
China



**Heat Press Factory**

Xincheng Industrial Zone,  
Xiegang Town, Dongguan  
523000, China



**Mob/WhatsApp:**

+86-131-47045331

**Tel:** +86-20-83375464/

83314360/83311437



**Fax:** +86-20-83325659

**E-mail:** [best@bestsub.net](mailto:best@bestsub.net)