

Updated: 2025.12

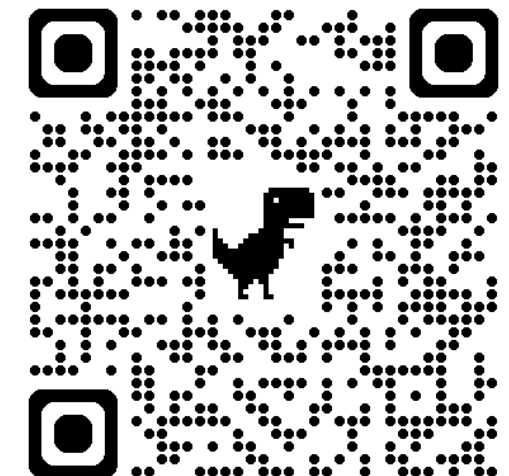
APEX 6090L

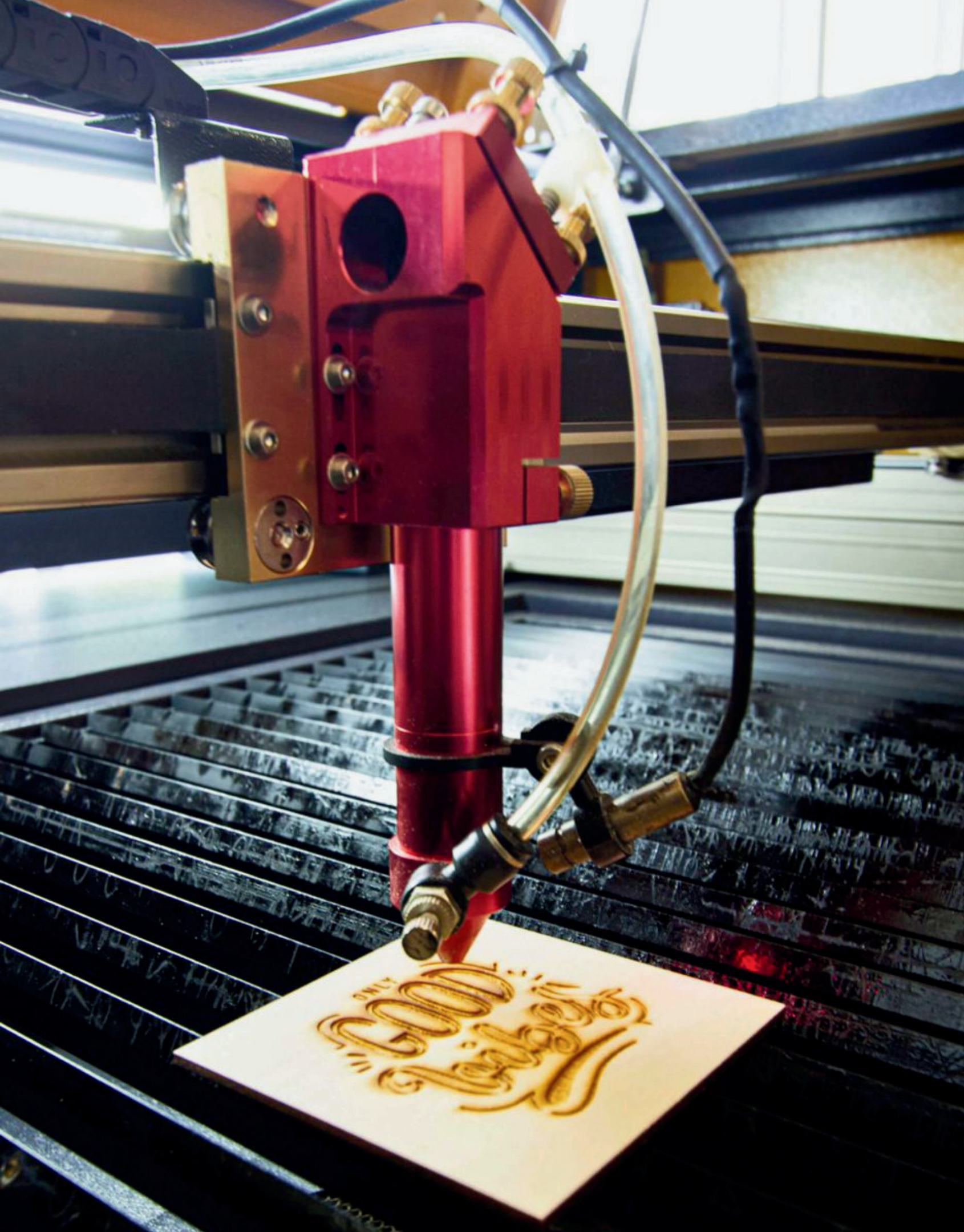
Laser Engraving and Cutting System

User Manual

Video Tutorial

*If you have any questions,
please ask the front desk staff!*





Laser Engraving and Cutting System

Uses a high-power laser focused on the material surface to engrave or cut, depending on power, speed, and mode.

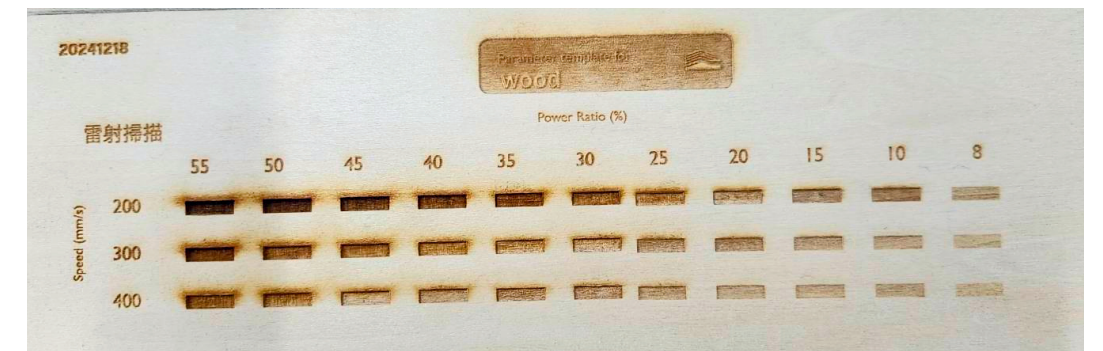
Materials Used

Wood, acrylic, paper, leather

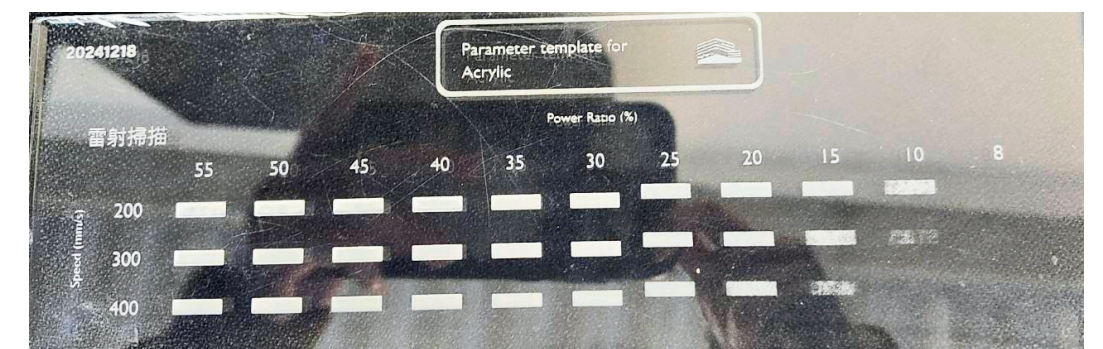
⚠️ **NOT FOR METALS**

What We Offer :

3mm Plywood

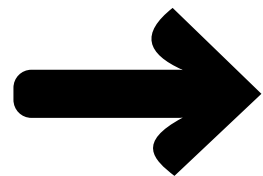


5mm Acrylic board

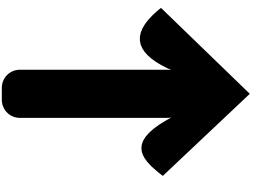


Workflow Overview

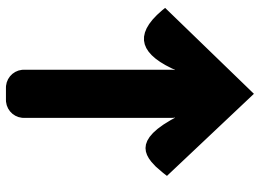
Pattern
Design



RDWorks
Settings



Machine
Operation



Post-
Processing



Pattern Design

The laser cutter only supports vector line artwork.
Please save your design in SVG, DXF, or AI (older CC versions) format.



What if my image is in JPG or PNG format?

Image Trace

Convert PNG, JPG, or other raster images into black-and-white line art that can be edited and recognized by the laser cutting software.

Window > Image Trace > Adjust Effect > Trace > Expand

Check "Ignore White" to skip background removal

You can use Adobe Illustrator at the Maker Space.



Adjust Line Art

Fine-tune Details

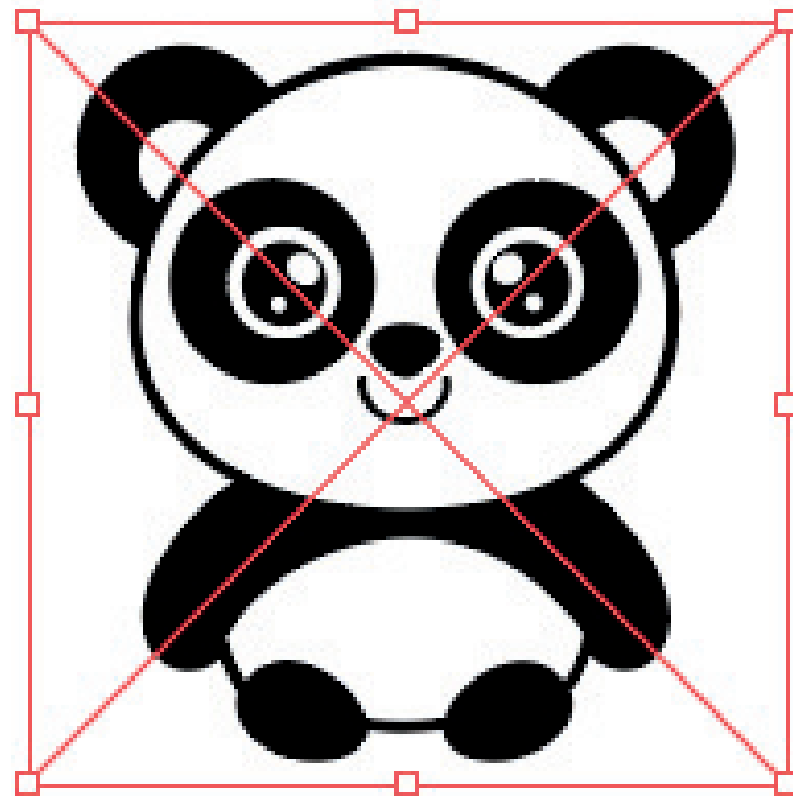
Remember to Click This (Expand)

How to tell if an image is a vector?

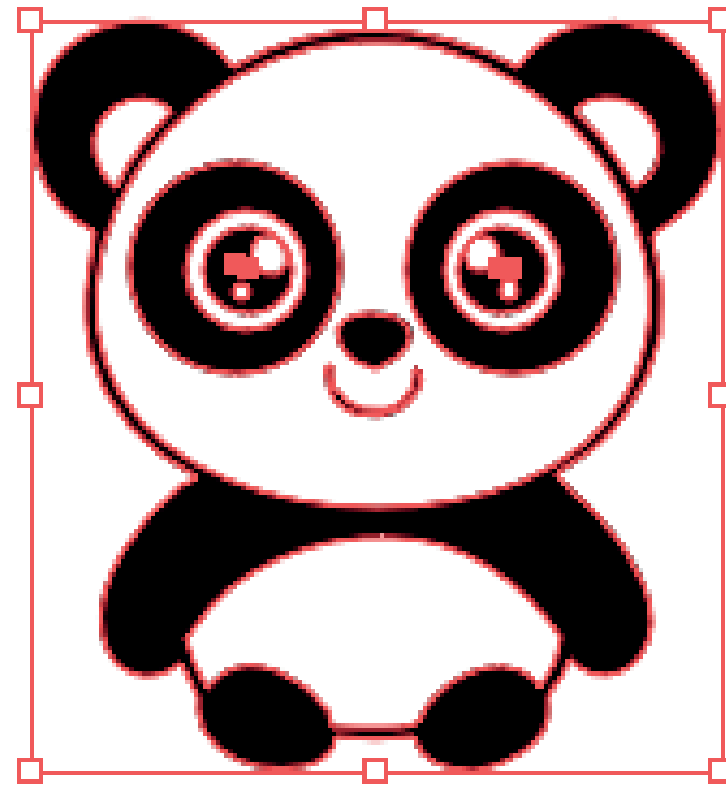
Original Image
– Color PNG



After Tracing
– Black & white,
not editable



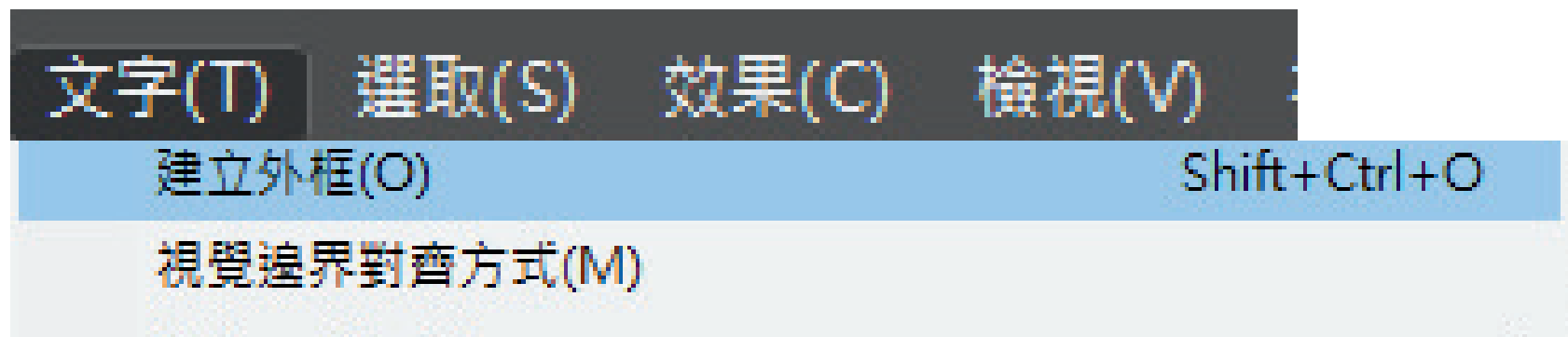
After Expanding
– Converted to paths,
editable



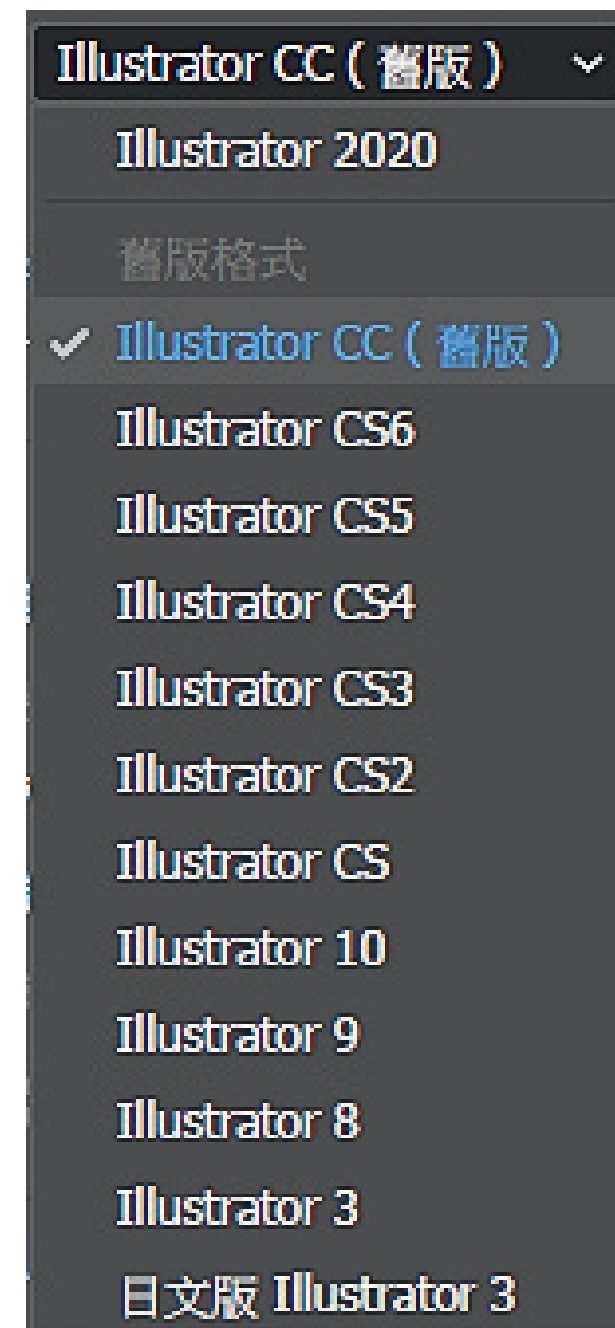
Notice the red outline on the panda's body – it indicates editable paths, ready for the laser cutter!

Important Reminders

1. Convert text to outlines for laser cutting



2. Save a new copy in **older CC version**



RDWorks Settings

RDWorks laser cutting software tells the machine which areas to cut and which areas to scan (engrave).



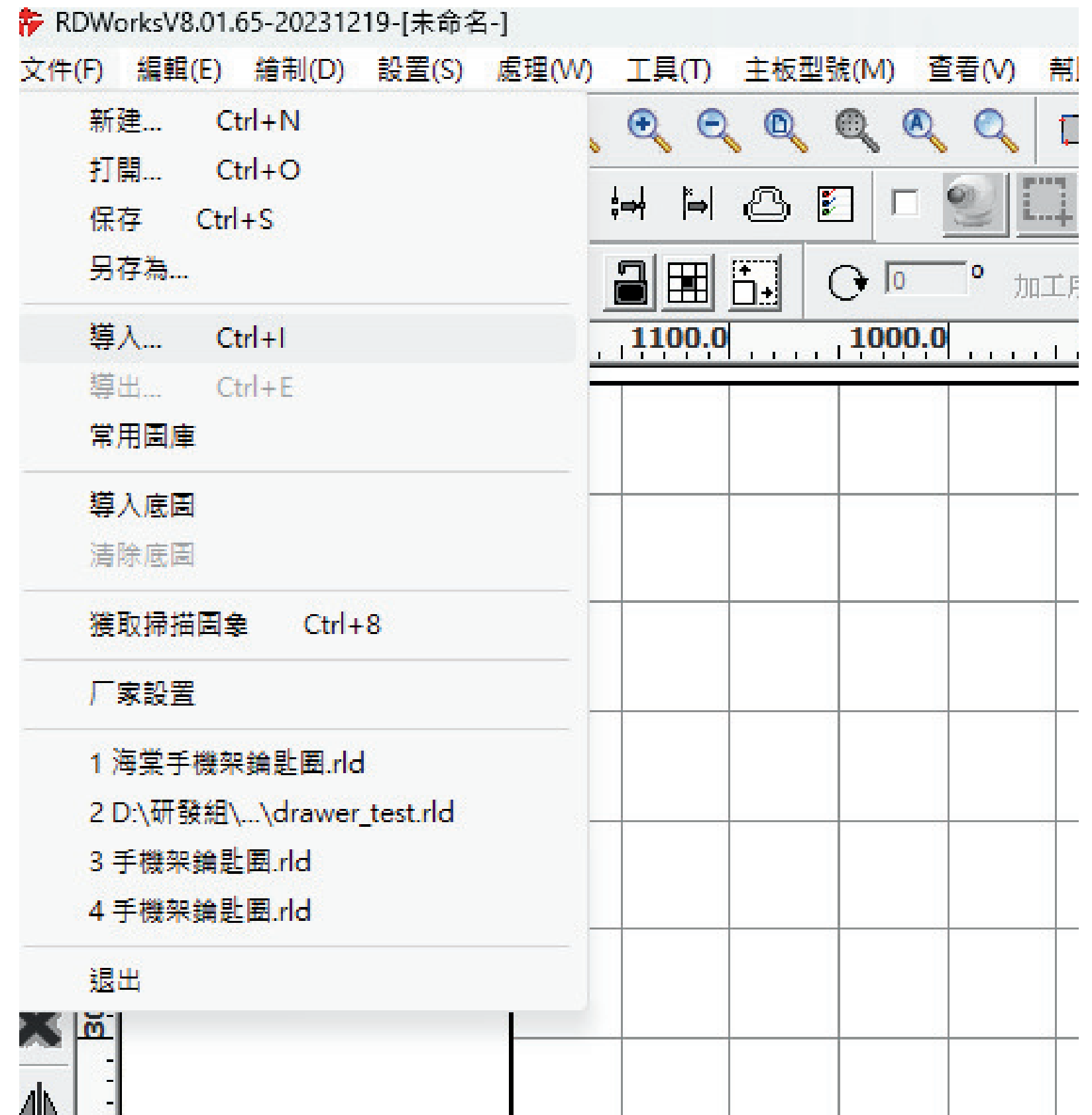
RDWorks

V8

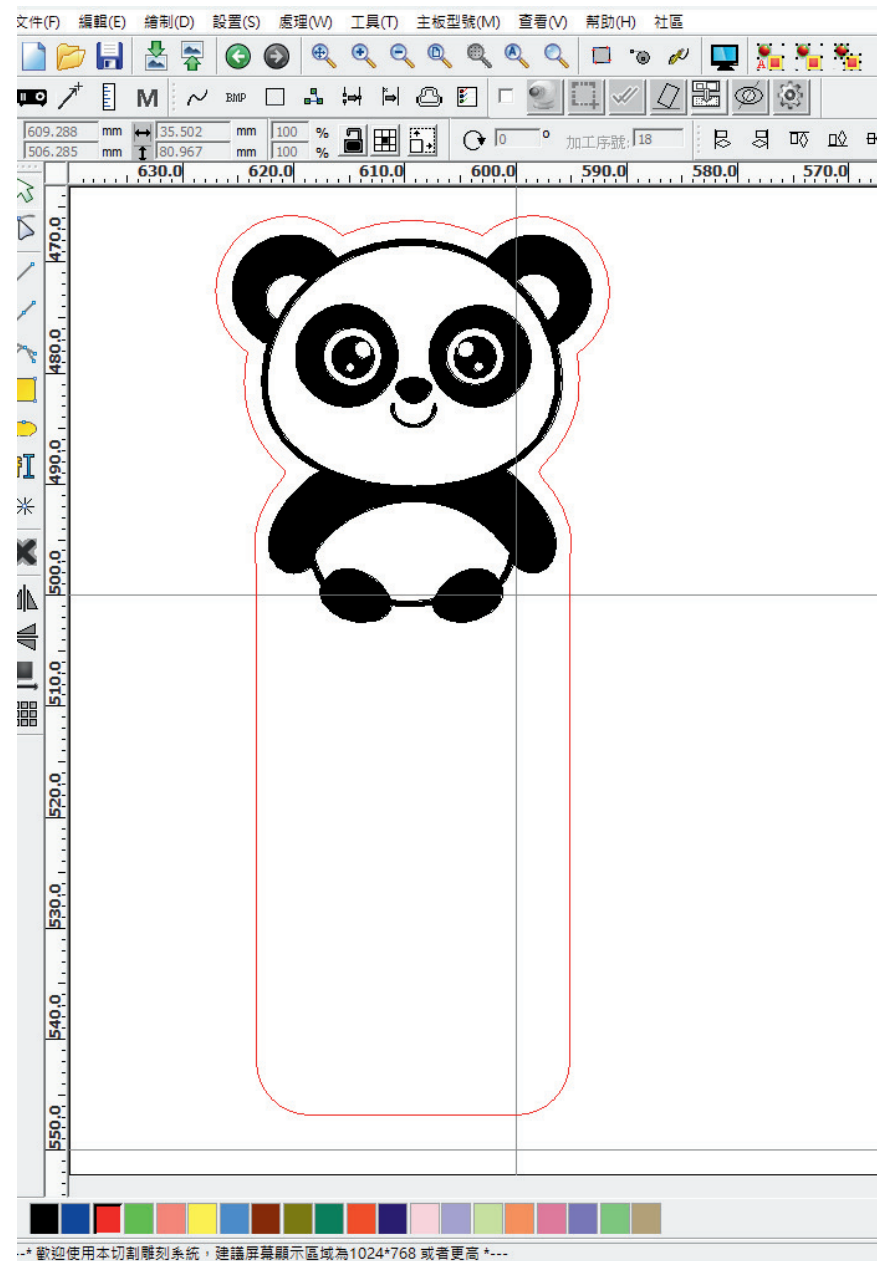
1.Import File

Go to File > Import > select your completed design file.

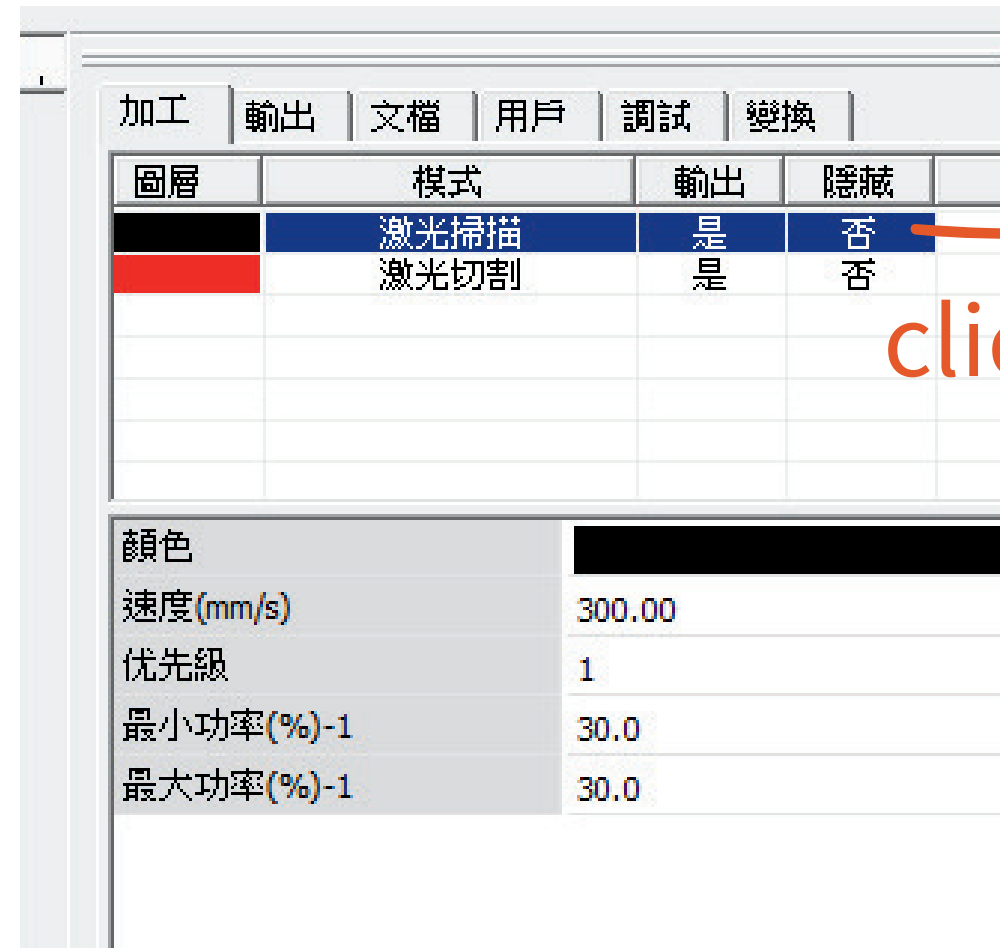
Supported file formats:
AI, SVG, DXF



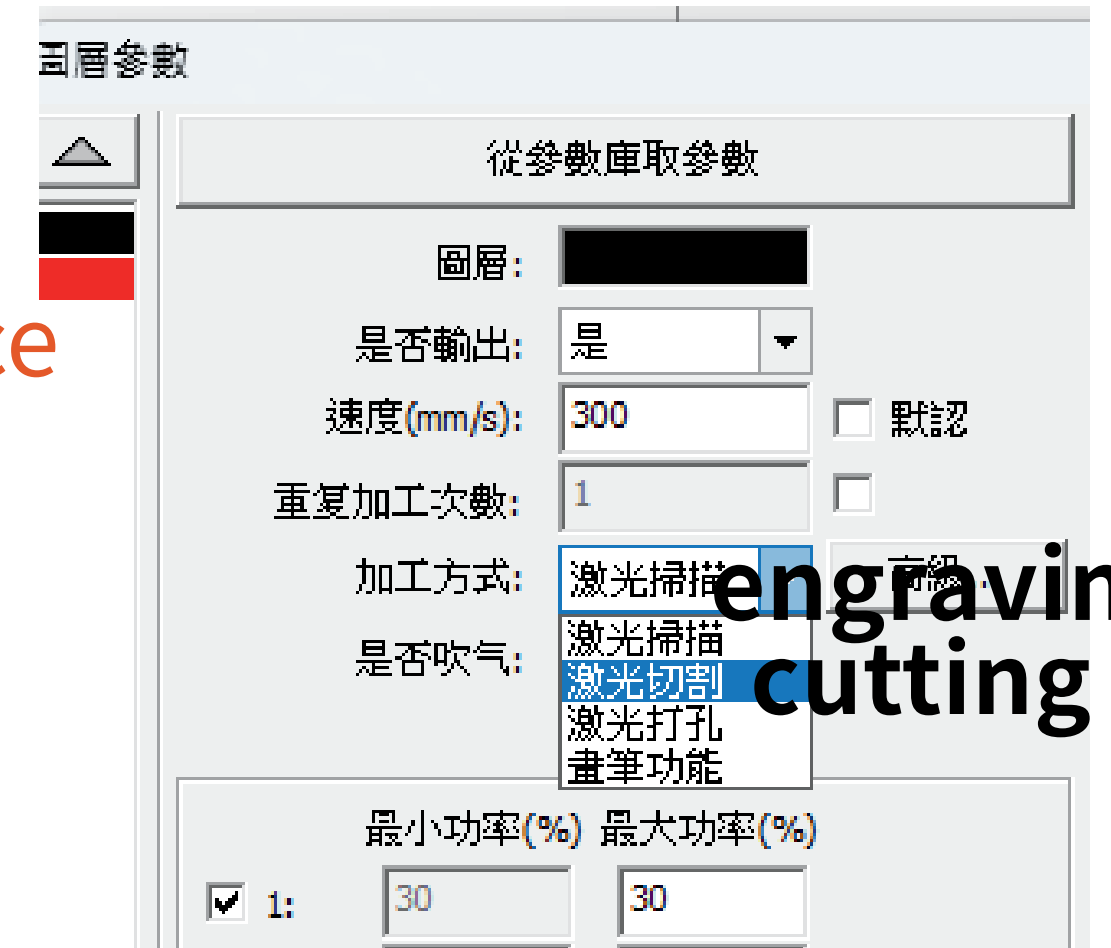
2. Set Cutting & Engraving



A. Select paths
assign colors for
cutting vs. engraving



B. Cutting order
cutting must be last!

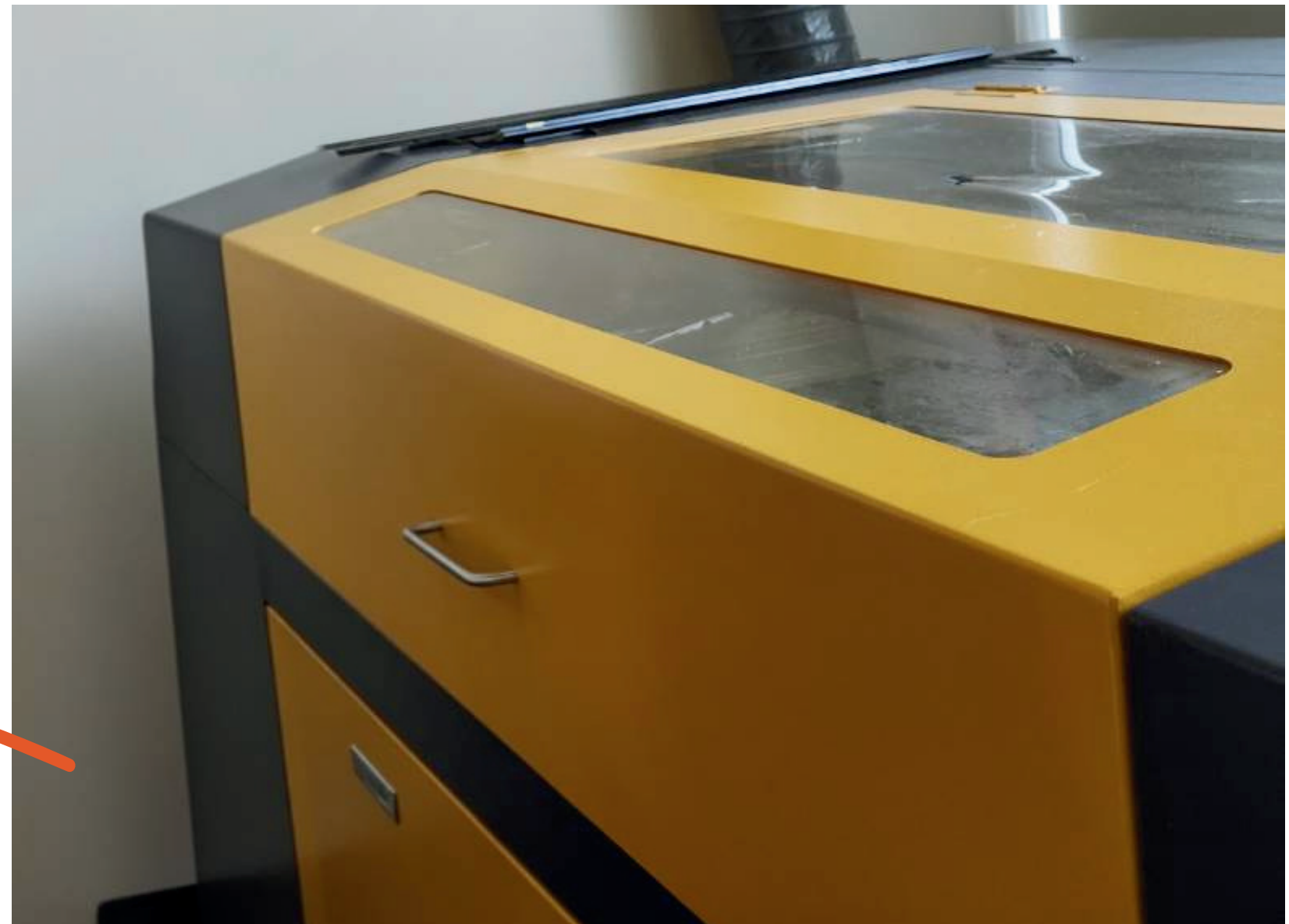


C. Set parameters

※ Refer to the power chart next
to the laser cutter for reference.

Remember to turn on the power first, then download the file to the laser cutter!

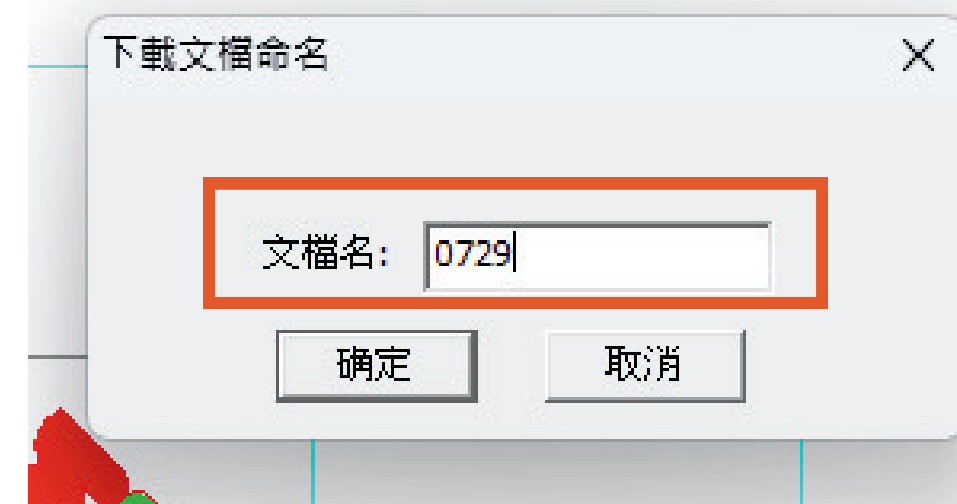
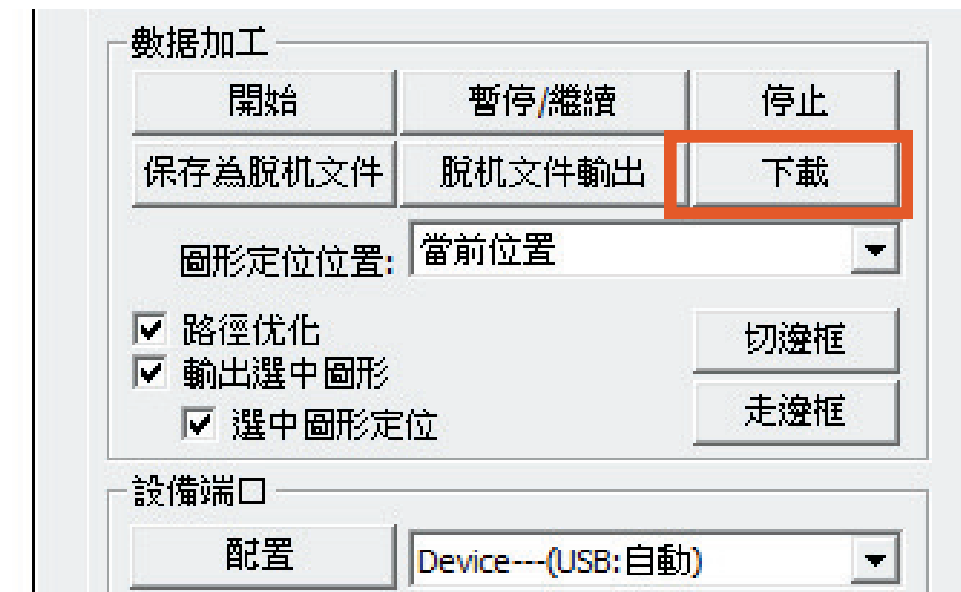
Switch on the extension cord power to the left of the laser cutter



2. Set Cutting & Engraving



D. Preview Job (加工預覽)
Click Simulate(仿真)



E. Download to Laser Cutter
Select the design → Download → Type file name (numbers or English letters)

3. Refer to Power Settings

※refer to the power chart next to the laser cutter.

Mode (Speed/Power)	3mm Wood	5mm Acrylic
Cut	20 / 50	10 / 50
Engrave	300 / 25	300 / 25
Cut Without Through	-	300 / 10

Machine Operation

Stay at the machine while it's running.

Do not open the lid unnecessarily to prevent danger.

1. Focus the Laser

A. Loosen the **focus adjustment knob**



B. Place the **focusing acrylic sheet** between the material and the nozzle



C. Gently lower the nozzle until it touches the **focusing sheet**



D. Continue lowering until silent → tighten knob



E. Focus complete – remove the focusing sheet

※ Always focus before cutting to protect the nozzle and improve results.



2. Confirm Job Area

A. File > select your file > B. Enter > C. Origin

> D. Frame > Make sure area stays within the material > close the lid

> E. Start



C. Origin

Set the starting point for the nozzle

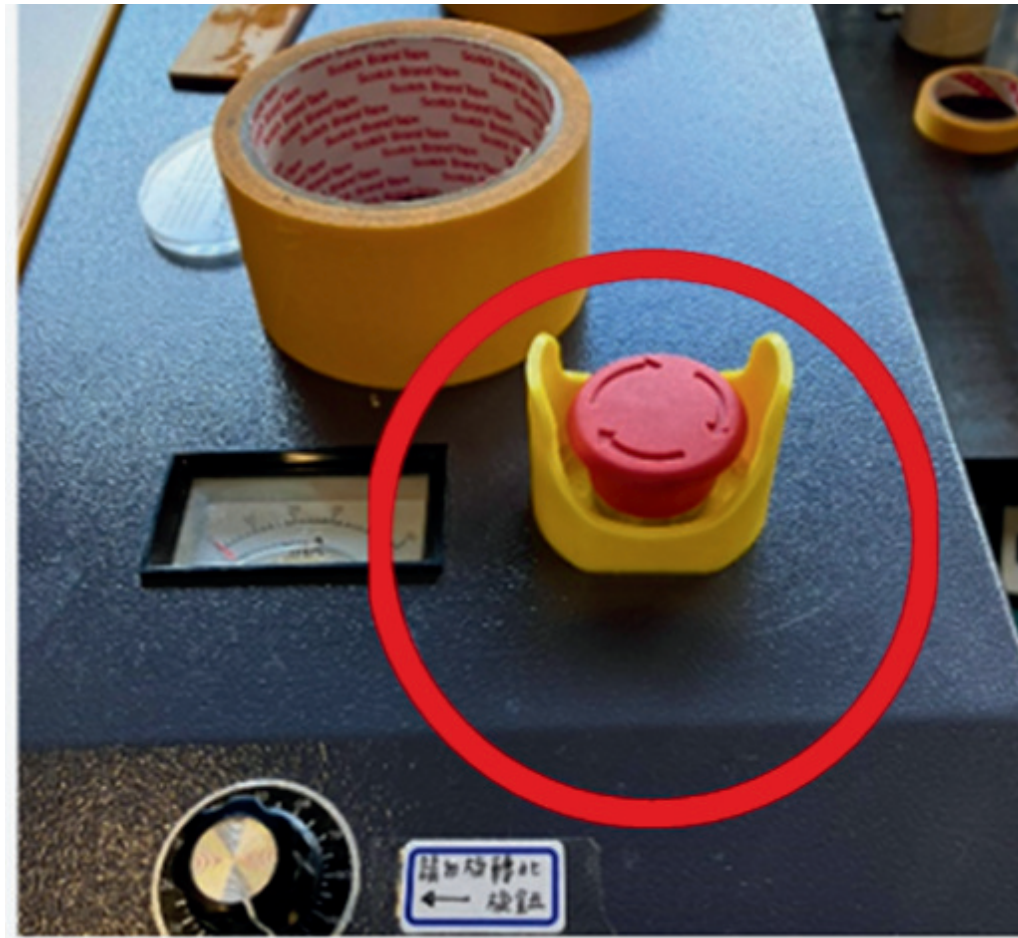
D. Frame

Defines the job area of the design

E. Start

3. Operation and Fire Safety

- Stay at the machine; do not open the lid unnecessarily.
- If fire occurs → press **emergency stop**, then extinguish.
- Use **CO₂ extinguisher** to avoid damaging the machine.
- Notify makerspace staff immediately.



4. Reset Nozzle, Power Off, Clean Up

A. Press **Reset** to return the nozzle to the top-right home position



B. Remove the material and clean debris from under the rails



C. Close the lid



D. Turn off the extension cord power



Reset

※ Help clean up waste material after cutting/engraving.
Stack used boards neatly next to the trash bin~

Post-Processing

Soak the acrylic's protective film in water and scrape it off by hand.
Sand any burn marks on wood lightly.
The rest... that's up to you!

Got questions?
Ask the front desk!