

Updated: 2026.8

xTool F2 Ultra UV

Laser Engraver

User Manual

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



Video Tutorial



UV Laser Internal Engraver



The xTool F2 Ultra UV is a high-precision UV laser engraver, particularly suitable for the internal engraving of transparent materials such as glass and crystal. Through precise UV laser processing, text, patterns, and 3D images can be rendered inside the transparent material, creating creative works with rich depth and layers.

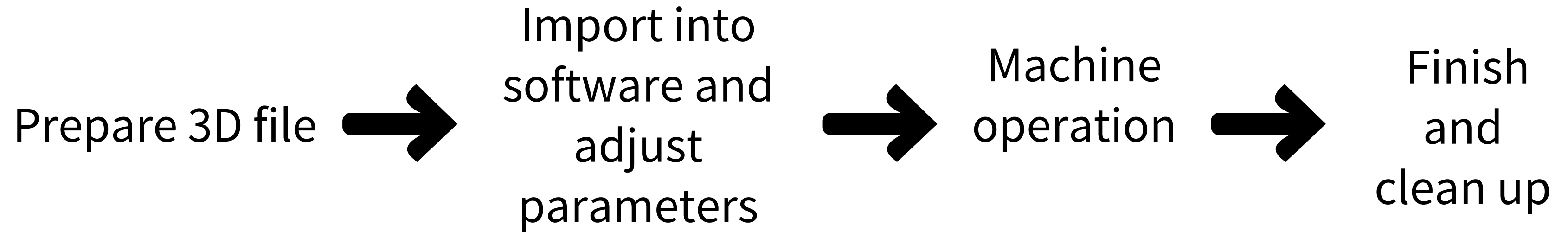
Material Used: K9 Crystal Cube

Crystal Cube sizes provided by the Maker Space:

- 4cm x 4cm x 4cm
- 5cm x 5cm x 8cm

※ Depending on the size of the model, please reserve at least 1 hour for operation.

Workflow Overview



Recommended
file type
.stl



Prepare 3D file

Prepare a 3D model. You can either create your own model or find an open-source file, and save it in .stl format.

Import into xTool and adjust parameters

The purpose of importing it into the software is to configure the engraving parameters, such as size settings, engraving power, and estimated engraving time.

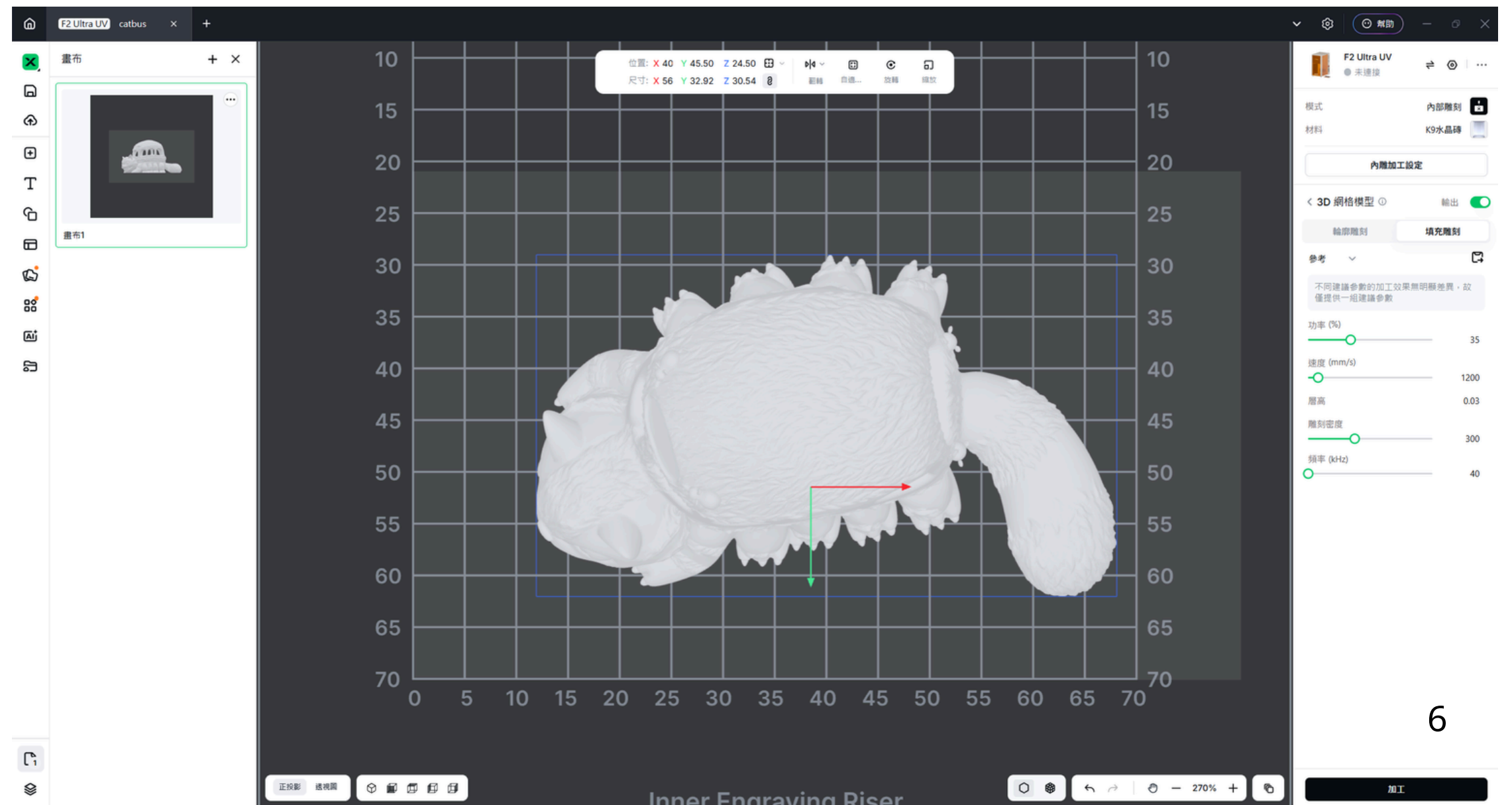
1. Open xTool Studio and Import the File

A. Open xTool Studio from the computer in the Maker Space.



B. Import the file:

- Method 1: Drag and drop the file into xTool Studio.
- Method 2: Go to File > Open File.



2. Set Mode and Material



The screenshot shows the F2 Ultra UV software interface. At the top, it says 'F2 Ultra UV' and '未連接'. Below this, there are two sections: '模式' (Mode) and '材料' (Material). In the '模式' section, '內部雕刻' (Internal Engraving) is selected, indicated by a red checkmark and an arrow pointing to the text 'Confirm the mode is internal engraving.' In the '材料' section, 'K9水晶磚' (K9 Crystal Tile) is selected, indicated by a red checkmark and an arrow pointing to the text 'Confirm the material is a crystal cube.' Below these sections is a button labeled '內雕加工設定' (Internal Engraving Settings). Further down, there is a section for '3D 網格模型' (3D Mesh Model) with a '輸出' (Output) toggle switch. Below this, there are two tabs: '輪廓雕刻' (Contour Engraving) and '填充雕刻' (Fill Engraving). '輪廓雕刻' is selected, indicated by a red checkmark and an arrow pointing to the text 'Confirm it is set to contour engraving.' Below the tabs, there is a dropdown menu for '點陣' (Dot Matrix) with '點陣' selected, indicated by a red checkmark and an arrow pointing to the text 'Confirm it is set to scanning or dot-matrix engraving mode. (Please see the next page for differences)'. At the bottom, there are several sliders for '雕刻模式' (Engraving Mode), '功率 (%)' (Power (%)), '打點時間 (μs)' (Punching Time (μs)), '層高' (Layer Height), '點間距' (Dot Spacing), and '頻率 (kHz)' (Frequency (kHz)).

Confirm the mode is internal engraving.

Confirm the material is a crystal cube.

Confirm it is set to contour engraving.

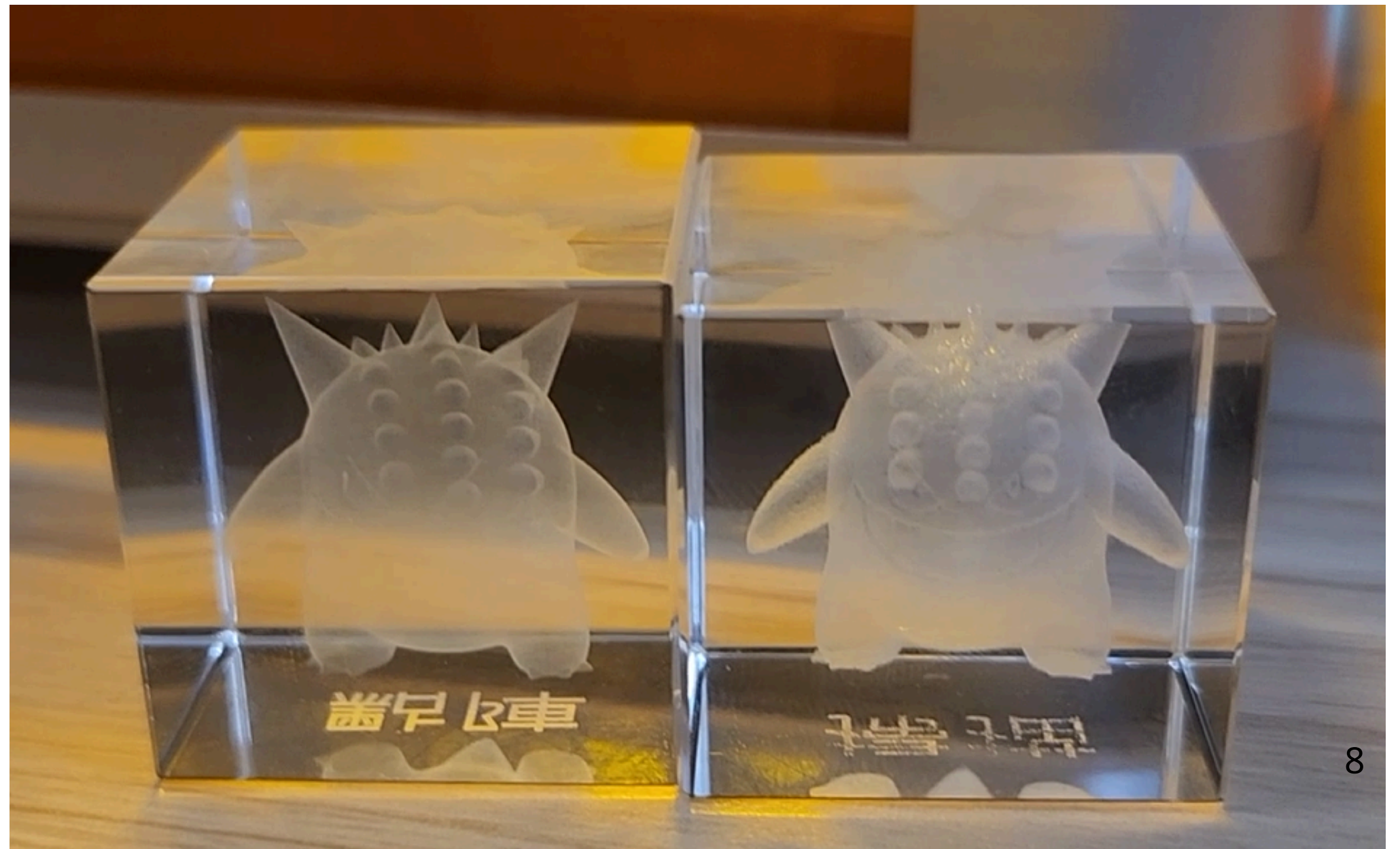
Confirm it is set to scanning or dot-matrix engraving mode. (Please see the next page for differences)

Scanning vs. Dot-matrix

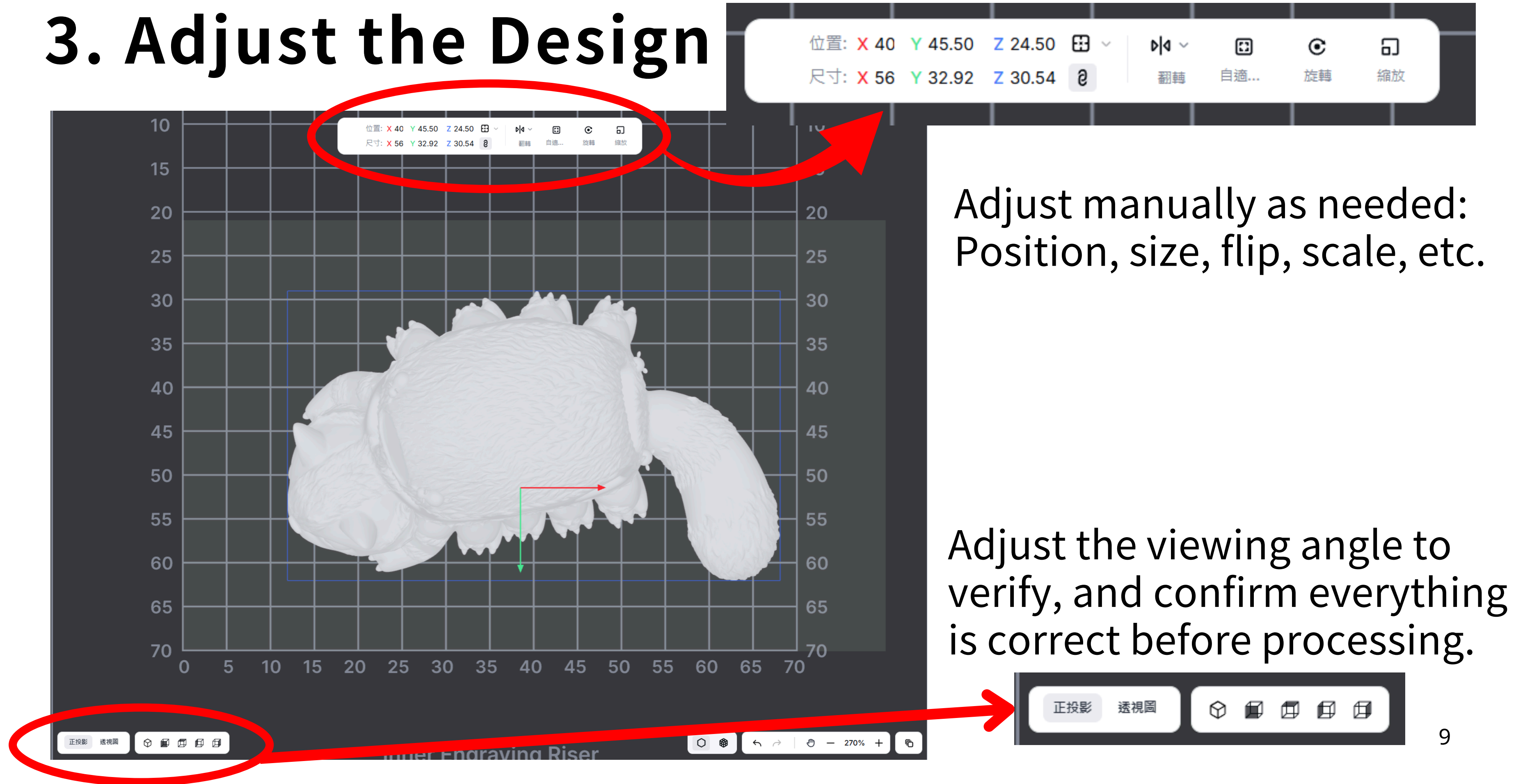
Recommendation: It is highly recommended to prioritize using Scanning, as it has a higher success rate!

Scanning: Shorter processing time.

Dot-matrix:
More transparent, but
longer processing time.

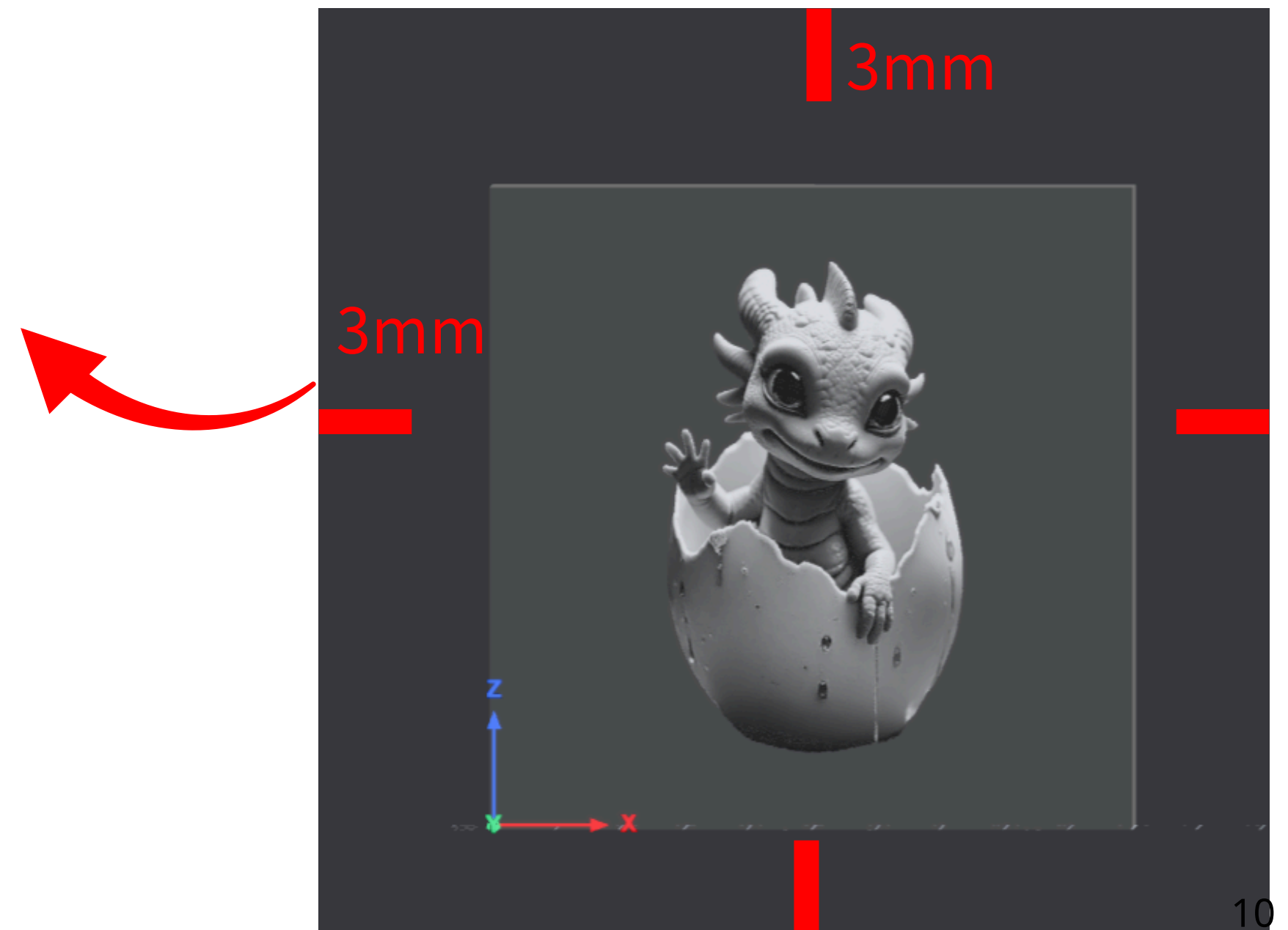


3. Adjust the Design



Pay attention to the engraving boundaries

Please leave a **3mm** margin on all sides (top, bottom, left, and right). Engraving too close to the edge will break through the crystal cube.

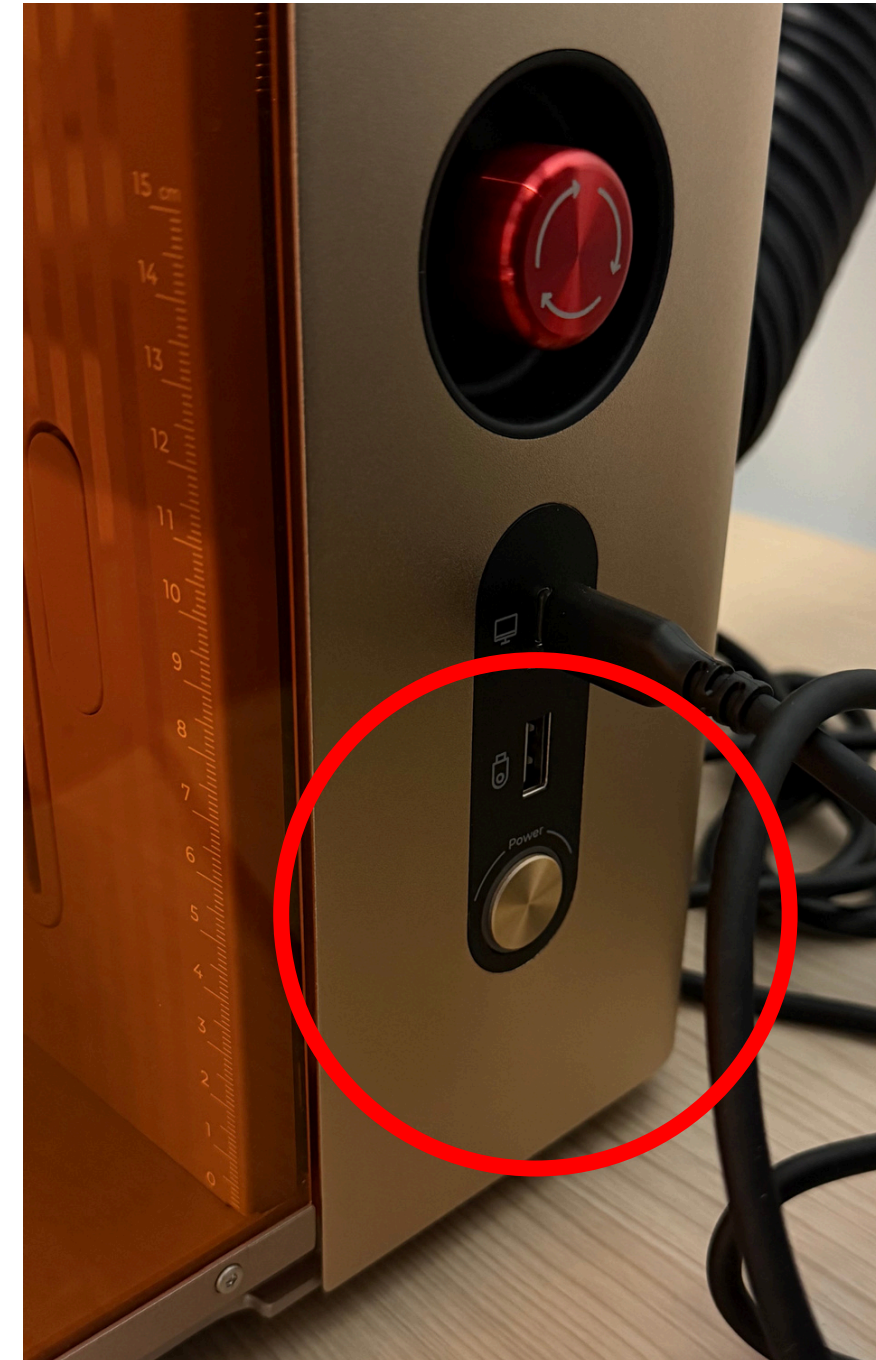


Machine operation

Please monitor the laser engraving status at all times and do not leave the machine unattended.

1. Power On

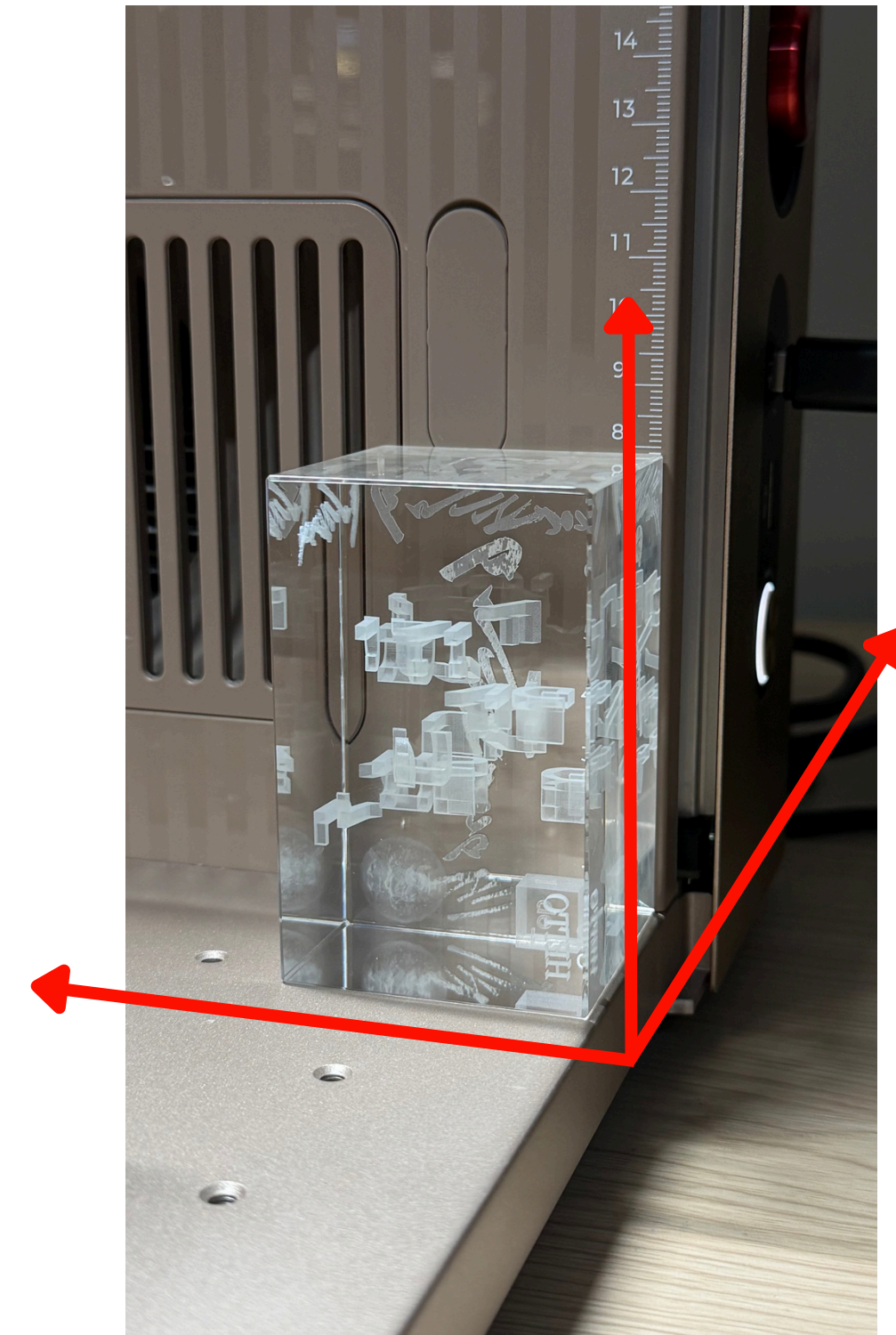
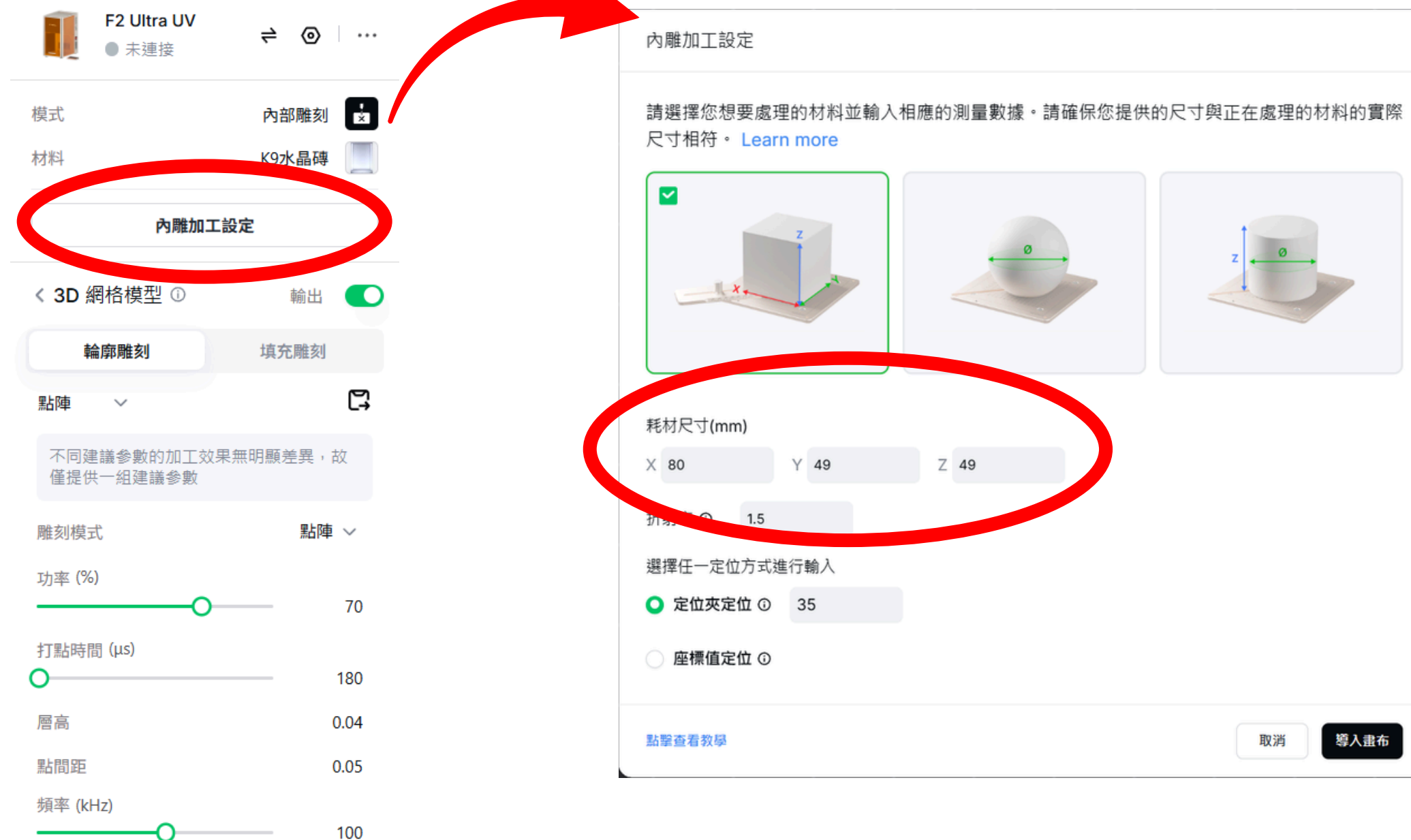
Turn on the power button on the right side of the machine.



2. Confirm Material Dimensions

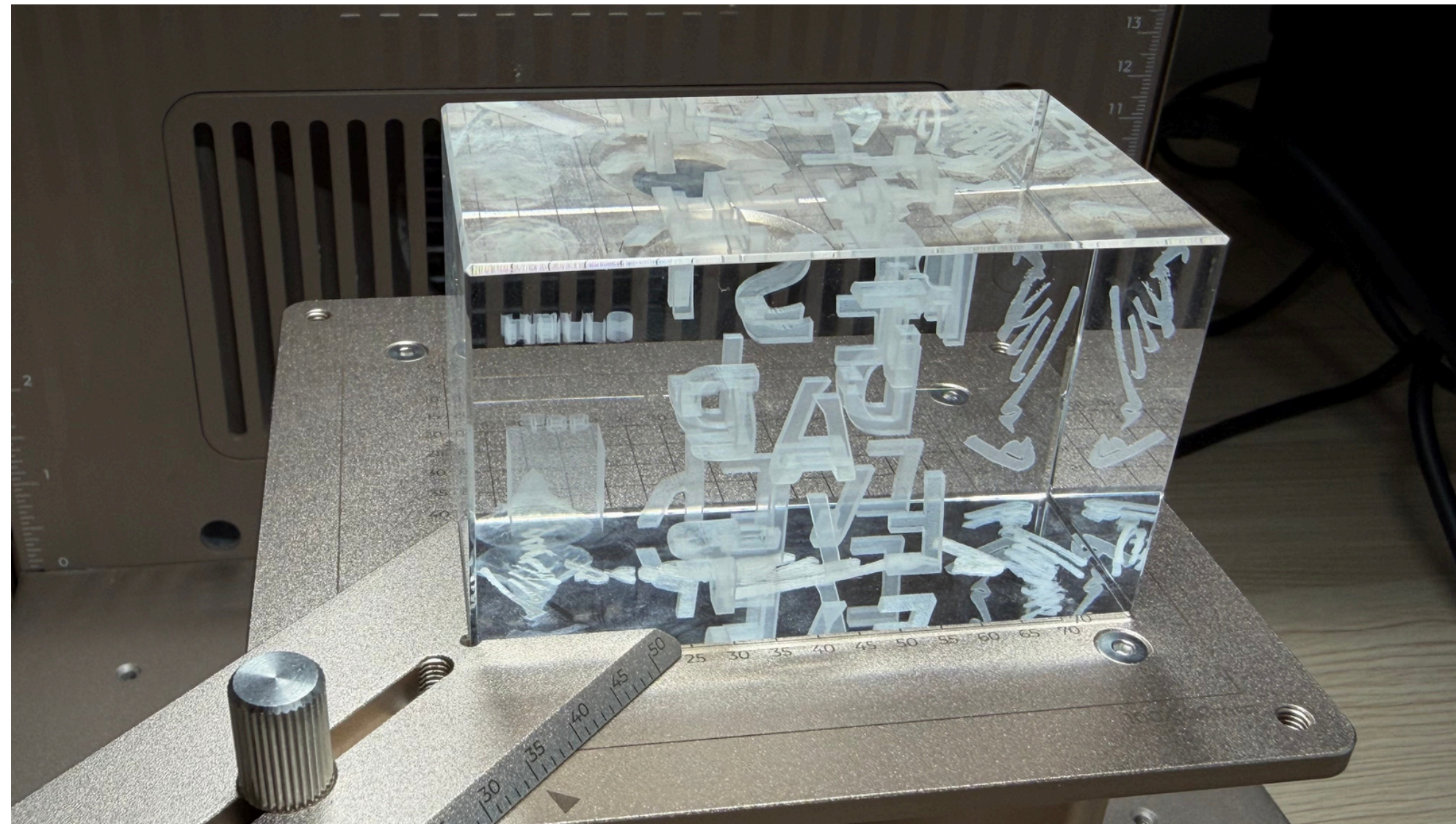
Click on the **internal engraving settings**, measure the length, width, and height of the crystal, and input the values.

Please wear gloves when handling the crystal block to avoid leaving fingerprints, which can affect the engraving quality!



3. Place and Align the Material

Ensure the glass block is perfectly aligned with the ruler without any gaps.



4. Start Laser Engraving

A. Click "Process"



B. Pull down the protective cover and click "Start"

基本信息

預計工作時間: 02:01:59

加工前確認

● 加工前請拉下保護罩



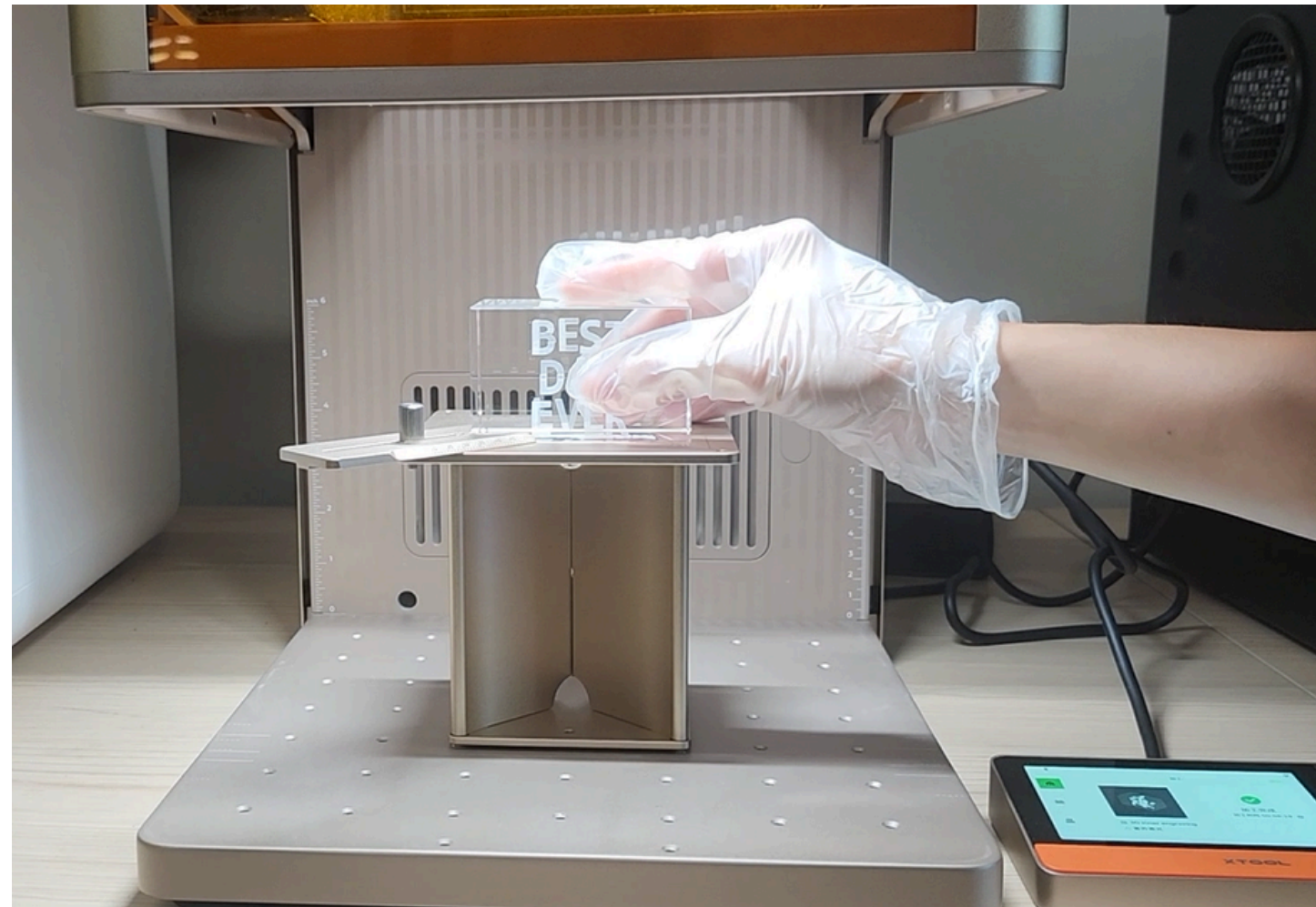
開始

C. Press the physical button to begin laser engraving.



5. Engraving Complete

- Please wait for the exhaust fan to completely stop before pulling open the protective cover.
- After taking out the crystal, pull the protective cover back down.
- When finished, make sure to turn off the machine and pull down the protective cover to prevent dust from damaging the lens.



Finish and Clean Up

Please help clean up any trash.

After completion, please remember to turn off the machine. Thank you for your cooperation.

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