P2 (Class IV) Assessment Guidelines

Product Description

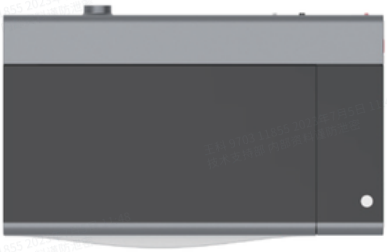
xTool P2 is an intelligent desktop 55W CO2 laser cutter. With dual 16MP cameras providing the positioning accuracy of 0.3mm, it allows you to get started easily. In addition to the common cutting and engraving functions, it supports engraving of curved surfaces, automatic passthrough, and rotary engraving, significantly broadening your creation boundaries.

Product Video: https://www.youtube.com/watch?v=ixQFmcKP3L4&t=1s

Please identify whether your machine is class Ⅰ or class IV by this lable

Class 1 laser　　Class 4 laser

Product List



xTool P2

Power cable

USB cable (Type-C)

Smoke exhaust pipe components

Antifreeze

Funnel

Basswood 3 mm

Corrugated paper 3.5 mm

Transparent acrylic

Screwdriver

Hex key

Quick Start Guide

Instructions

Screw M3*6 (spare parts)

Screw M3*22 (spare part)

Material clamp

P2 user manual

Download

You can also visit our support websit to get more info:Click here

XCS software (PC version)

Download address：

Mac: Download
Mac arm-64: Download
Window: Download

Software User Guide： Use XCS to Operate xTool P2

Highlights of P2

1. High power, high speed

55W power is currently the highest power desktop-level intelligent CO2 laser cutting machine. Combined with the fastest speed of 600mm/s, it also doubles the user's work efficiency.

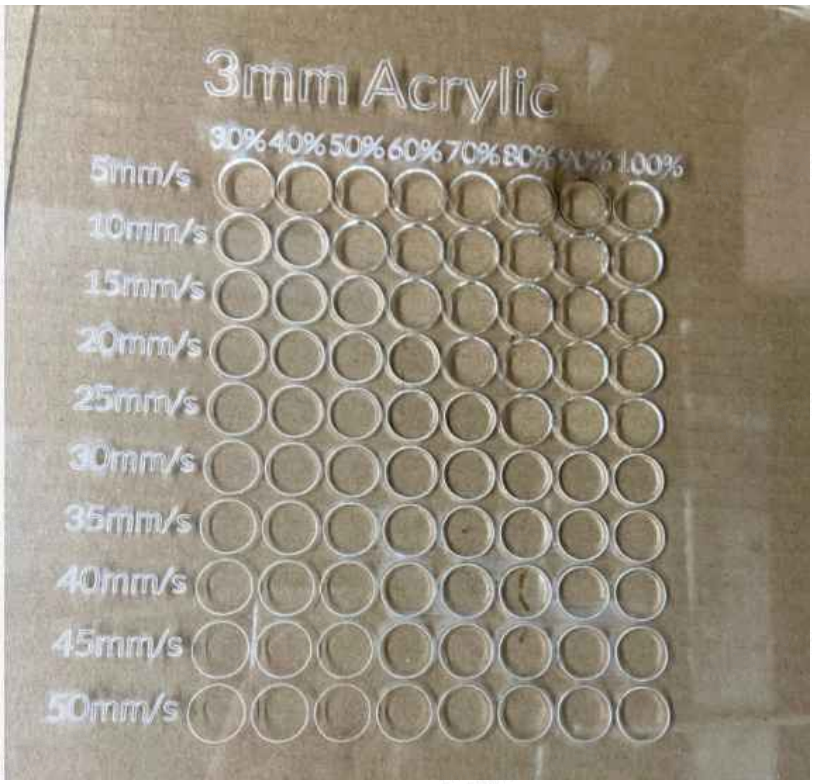
The laser wavelength with high power and higher absorption rate doubles the cutting efficiency of xTool P2.

The following table is the speed reference when using different xTool products to cut 3mm basswood boards. It can be seen that the speed of P2 is 5 times that of D1 pro 20W and 2.3 times that of D1 pro 40W.

	A	B
1	Product	Speed
2	P2 55W	30mm/s
3	D1 Pro 40W	13mm/s
4	D1 Pro 20W	6mm/s

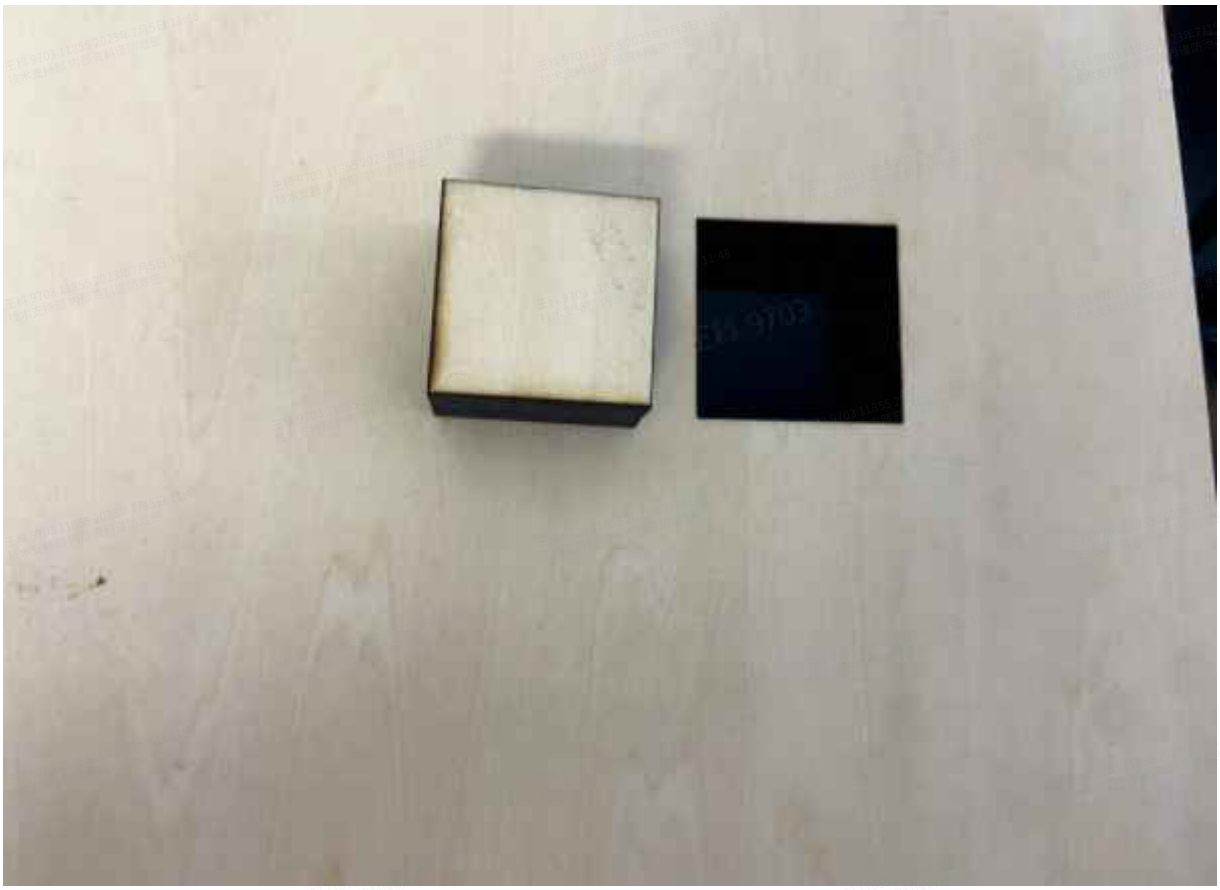
Test 1-1: Test item 1-1: Use different speeds and powers to cut 3mm thick basswood boards and acrylic boards, 1 pass

- - Parameters: power 30%-100%, speed 5mm/s-50mm/s
- Test file： Dowload
- Test result： When the speed reaches 35mm/s, it can still cut through 3mm basswood, and when the speed reaches 25mm/s, it can cut through 3mm acrylic, as shown in the figure below



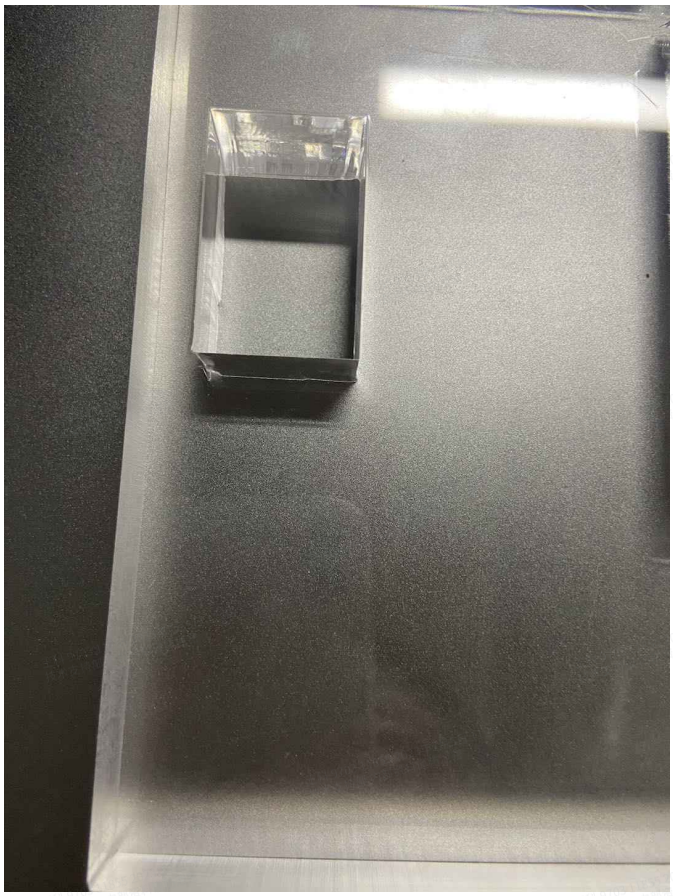
Test item 1-2: Cut 15mm thick basswood, 1pass

- Parameters: power 100%, speed 2mm/s.
- Test file：Download
- Test result： Successfully cut through,1 pass



Test item 1-3: Cut 20mm transparent acrylic， 1pass

- Parameters: power 100%, speed 2mm/s.
- Test file：Download
- Test result： Successfully cut through,1 pass



2. Dual cameras for precise positioning

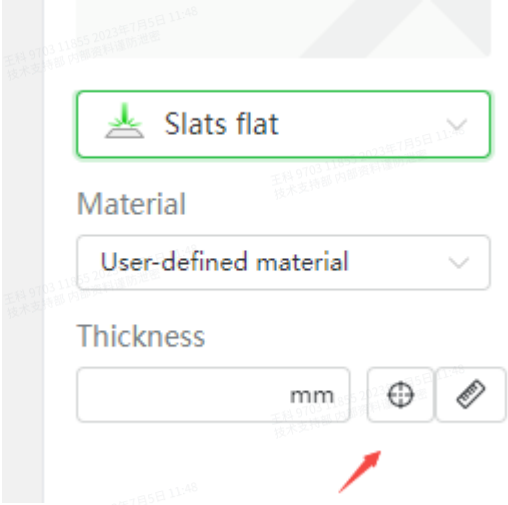
Dual 16MP cameras provide real-time preview and visual accuracy of 0.3mm error

Panoramic camera: quickly generate panoramic photos in 3 seconds, and check the workbench at any time

Close-up camera: can move to any position with the laser head to take more accurate photos

Test item 2: The positioning accuracy of test P2 is as high as 0.3mm

- Test steps:
  1. Select the Slats flat mode, and use precise measurement to measure the material thickness of the position to be engraved.



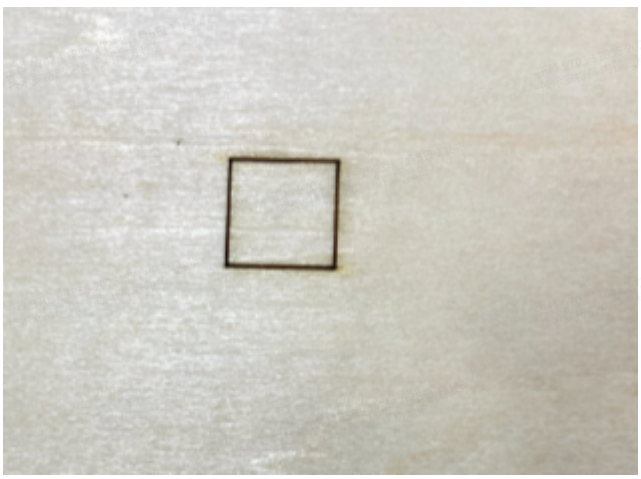
2. On the surface of the material, engrave a 10mm*10mm rectangle in the measured position.
Dowload

3. After the engraving is completed, use the close-range camera to take photos of the engraved graphics area.

4. Move the rectangle on the engraving software to coincide with the rectangle on the carved wooden board.

5. Reprocessing. After the processing is completed, use a ruler to measure the offset value of the two processed rectangles.

- Test results: The two processing patterns overlap, and the error is very small, almost negligible.



3. Engraving on curved surfaces

Through the point capture of the smart camera, the surface model is automatically simulated, and xTool P2 can adjust the focus during motion to realize surface engraving. At the same time, for materials with warped edges, the surface engraving mode can also be used to ensure the engraving effect.

Test item 3: Engraving pattern on the outer edge of the bowl

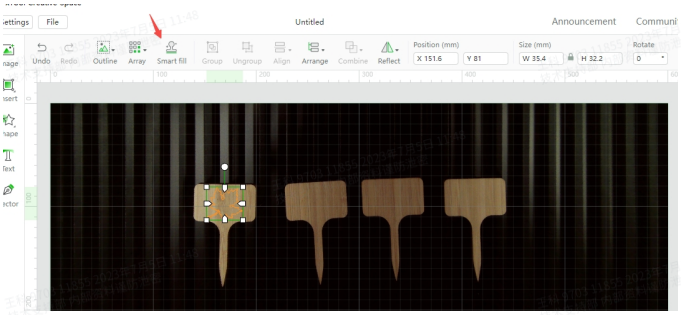
Note:Before starting to test, please read carefully here： Process Materials with Curved Surfaces

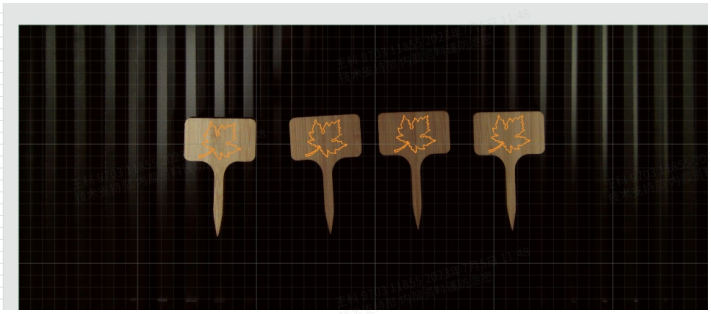
- Parameters: power 40%, speed 80mm/s
- Test file： Download
- Test results: Succeeded in engraving pattern on the outer edge of the bowl (different heights, curved surfaces)

4. Batch processing

Intelligently recognize the shape through the camera, and after dragging a pattern, intelligently match all parts with one key to speed up efficiency

Test item 4-1: Use the intelligent smart filling function to complete batch processing and engraving





- Parameters: power 100%, speed 250mm/s
- Test file：Dowload
- Test results: Each pattern was successfully engraved in the same position on different materials.

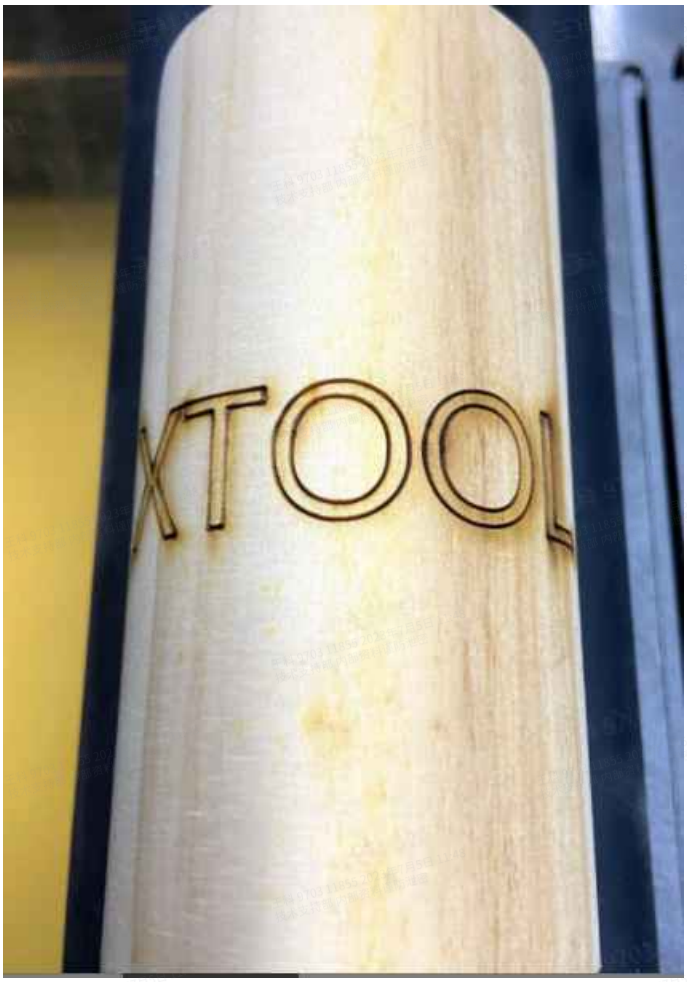
5. Cylinder engraving

Like other xTool machines, the P2 can also engrave cylinders through using the rotary attachment.

Test item 6-1: Processing on a cylinder with RA2

Note:Before starting to process, please read carefully here： How to use the Rotary Attachment on xTool P2

- Parameters: power 40%, speed 250mm/s,
- Test file： Download
- Test result: the engraved text will not deform with the surface, as shown in the figure below:



Note: The diameter range of cylinders that can be processed by machines are:
Roller:3-180mm

Chuck:0-100mm

6. Engraving super long format

Combined with the automatic converyor, xTool P2 can realize the automatic through door function, making it more precise and convenient for you to process large works. The stand-alone machine supports the pass-through door function, with a thickness of 18mm and a width of 700mm. With a raised platform, it can support the Passthrough function with a thickness of up to 115mm. With the Passthrough feature, your length can become infinitely long.

Test item 5-1: Engraving on long extra-long materials with Riser base and Conveyor feed

Tips for accessories:

About Setting of Automatic Conveyor Feeder

xTool P2 Riser Base Unboxing Guide

Note:Before starting to process, please read carefully here： User Guide for xTool Conveyor Feeder for P2

- - Parameters: power 40%, speed 200mm/s, density 100

- Test file：Download
- Test results: As shown in the figure below, the case of successfully processing beyond the original machine processing area by conveyor feeder

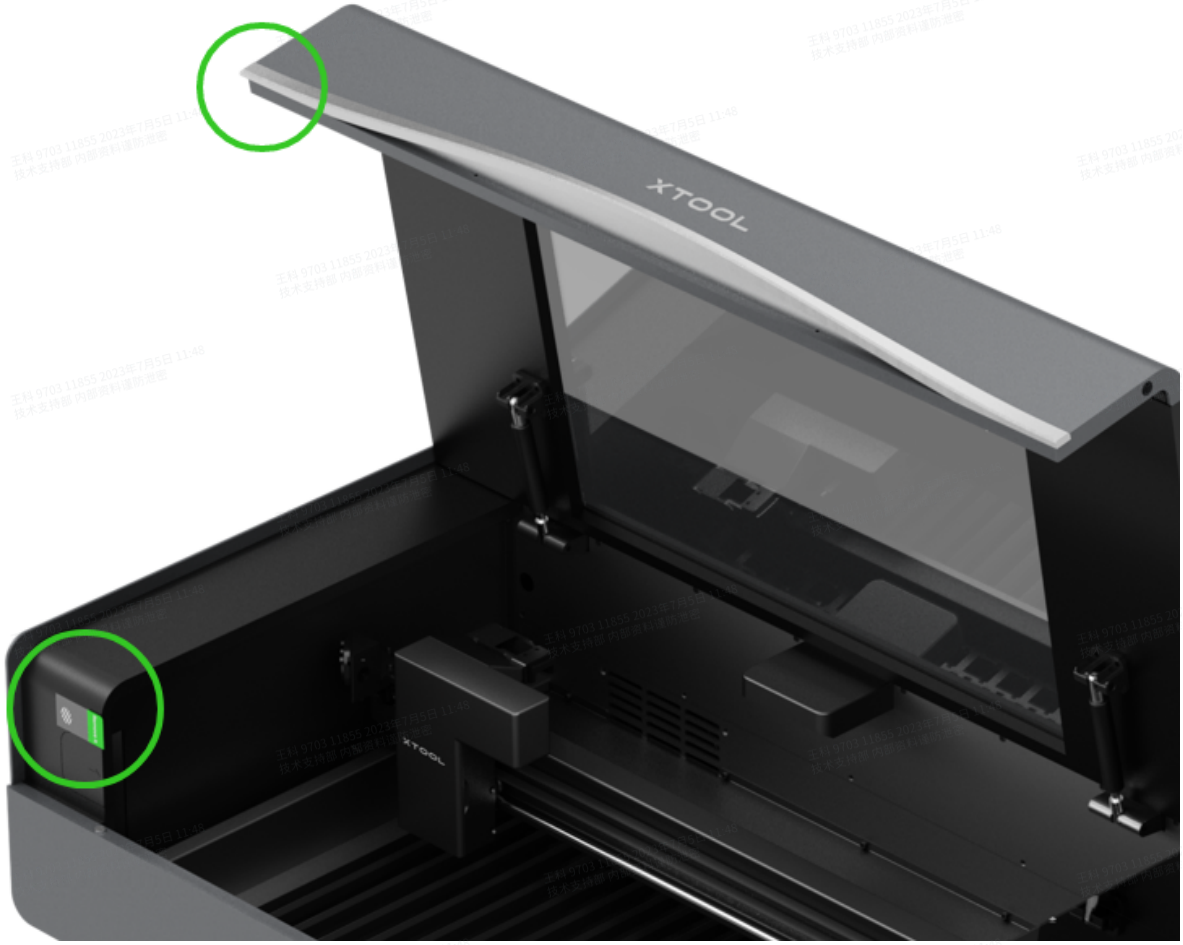
7. Other highlights

Enclosed Design

Enclosed design is ready for home use.

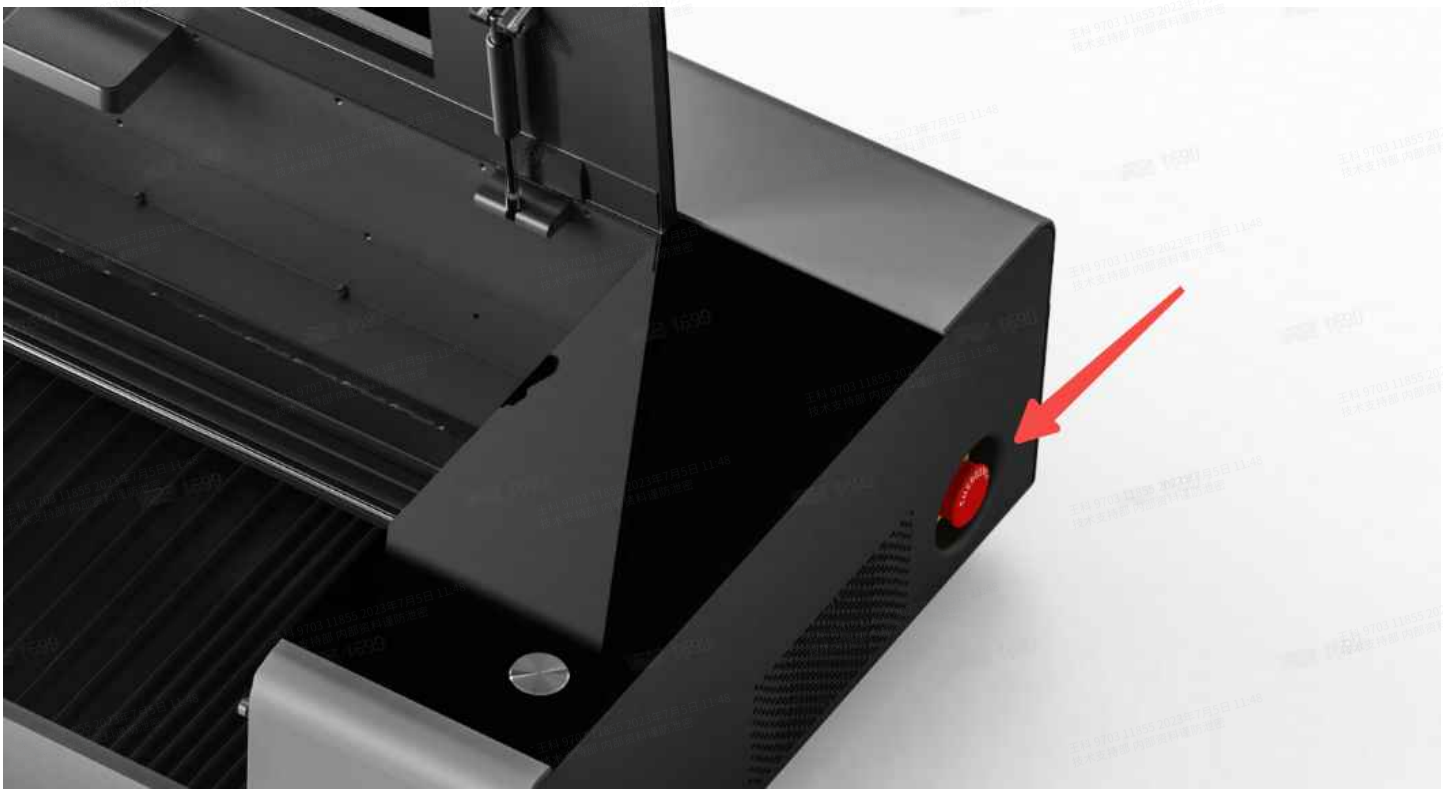
Automatic lock

The lid of the machine will be automatically locked once you press the start button, and will be kept locked until the process is done or stopped. This feature makes it an extremely safe machine, especially for families with kids or pets.



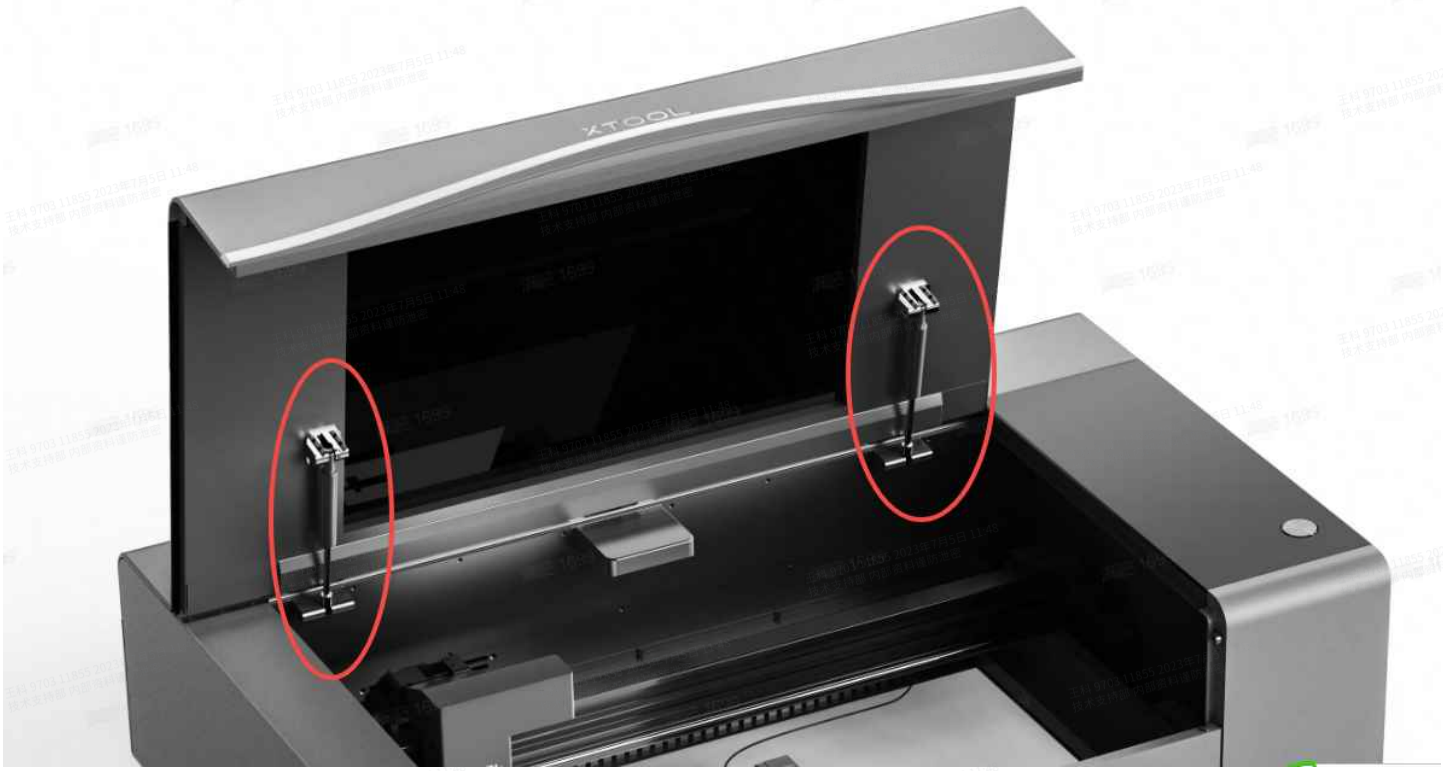
Emergency Stop Button

xTool P2 has a built-in emergency stop button for a quick shutdown in case of emergency.



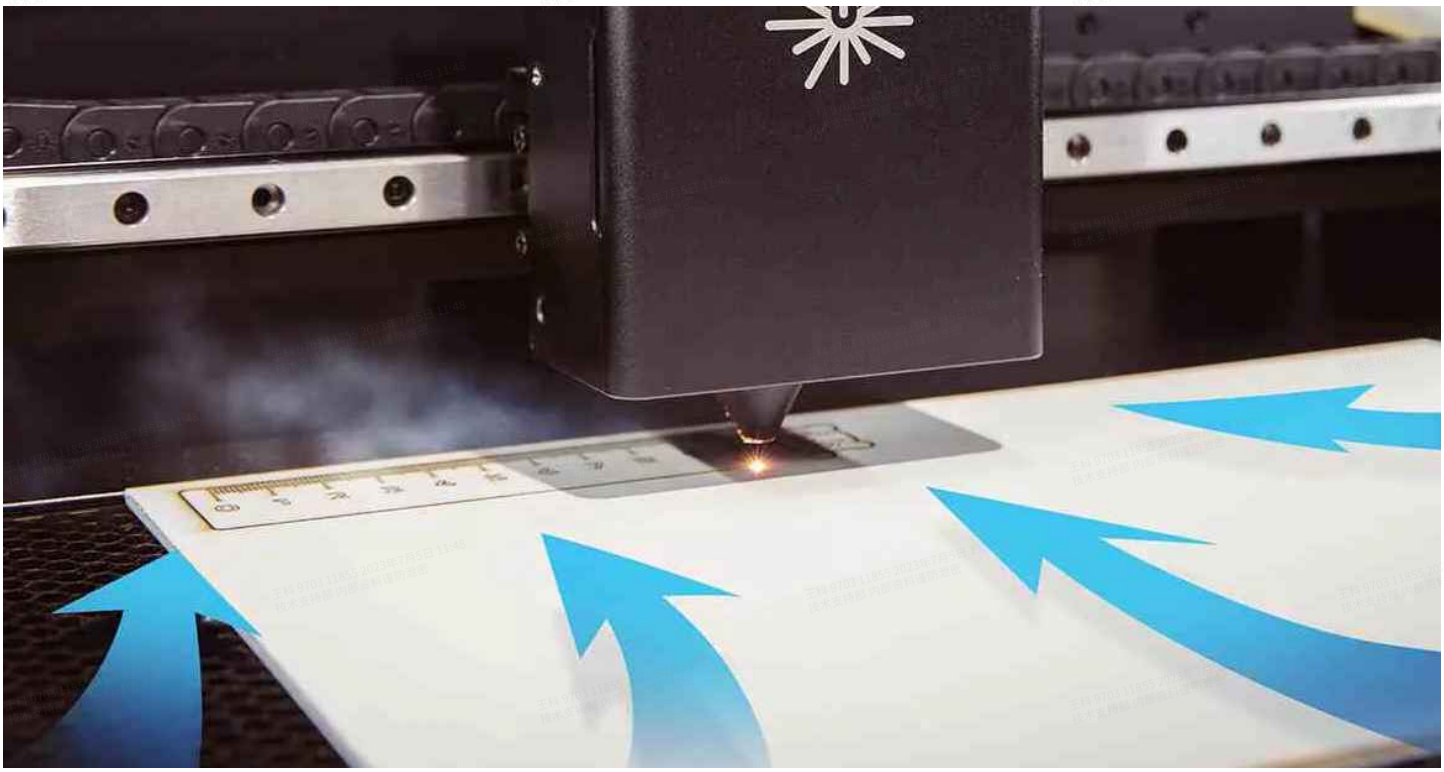
Hydraulic Support

The hydraulic support can hold the lid at a 70° angle, and the resistance in the supporting poles makes sure the lid falls steadily and you won't get hurt by accidental shutdown of the lid.



Build-in air assist

The air assist makes a clean surface possible and extends the lifetime of laser lens.



Slat

The slat can facilitate smoke exhaustion and thus protect materials such as wood against the smoke and improve the result.

Compared to the honeycomb panel, the slats have more space between each piece and underneath, making smoke exhaustion easier and thus final results better.

Exhaust Fan

The 145CFM exhaust fan can quickly exhaust smoke, suitable for indoor use.

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Attachment:

Applicable Materials

	A	B	C	D	E	F
1	**Material**	**Engraving**	**Cutting**	**Material**	**Engraving**	**Cuttin**
2	Wood	√	√	PVC	√	√
3	Acrylic	√	√	Glass	√	×
4	Kraft Paper	√	√	Ceramic	√	×
5	Corrugated Paper	√	√	Jade	√	×
6	Cardboard	√	√	Marble	√	×
7	Bamboo	√	√	Shale	√	×
8	Felt	√	√	Cement	√	×
9	Leather	√	√	Brick	√	×
10	Fabric	√	√	Coated Metal	√	×
11	Plastic	√	√	Electroplated Metal	√	×
12	MDF	√	√	Painted Metal	√	×