

# ← cubiio 2

User Manual v1.3



MADE IN  
**TAIWAN**

# About This Manual

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Thank you for purchasing Cubiio2 . This manual will help you quickly understand the functions and safety precautions of this product.

Please read carefully and follow the contents of this manual before starting to use Cubiio2: The principle of laser processing is focusing the high-power laser on surfaces of objects. After absorbing the laser, objects are instantly heated, burned, or gasified to engrave or cut the object. During the process, harmful light, temperature, and gases will be generated. It may cause fire, visual impairment, skin burns, or inhalation of poisonous gas and other hazards.

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No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Muherz.

Please keep this manual for future reference.

Please make sure you have the latest version of the Cubiio2 user manual. The latest version of the manual can be found at:



We provide online support worldwide. If you have any questions:  
[support@muherz.com](mailto:support@muherz.com)

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# 01 Safety



To prevent injury to yourself or to others or damage to Cubiio2, read the following safety precautions carefully. The owners of Cubiio2 are responsible for making sure all those who use the product read and follow the instructions.



### Set the machine in a room with good ventilation.

Avoid set it outdoor, direct sunlight, unventilated basement or top floor.

Do not use in direct sunlight or wet surroundings.

Ensure temperature is in the range of 0-30°C and humidity is in the range of 10-75% when operating.



### Set the machine on a stable and flat surface.

Tilting may trigger safety mechanisms and stop working.



### Ensure proper supervision of children or pet.

Cubiio2 is not intended for children under the age of 15 years. Children under the age of 15 years should be supervised to ensure they do not play around the machine. Teenagers aged between 15 and 18 years can use the machine with the consent and/or assistance of their parents or persons who have parental authority over them.



### Never run Cubiio2 unattended.



### Do not use Banned materials. [Refer to 5.2 Materials]

Materials containing chlorine will produce extremely toxic and corrosive fumes when laser process. Reflective materials, such as materials with mirror surfaces, will cause the laser to be reflected and potentially causing injury to the user or damage to the machine.

# 01 Safety



**Do not look directly at the flame light generated during processing.**

Looking directly at the light may cause visual impairment or other light hazards.



**Do not place any liquids or flammable materials near or around the device.**

The dangerous items can result in electric shock or explosion or fire.



Choose dry powder or foam type fire extinguisher according to different processed objects. If you see flame or fire - Immediately stop the machine and extinguish. Immediately call the fire brigade for Supports.



**Clean and maintain the machine regularly. [Refer to 04 Caring]**

Always unplug the power supply before cleaning and maintenance. Cleanliness is important to safety and perform optimally. Processed debris and ash left in the machine may reduce efficiency or cause fire.



**Do not operate machine if damaged**

Any damages to any components to the machine could compromise its safety and cause injury. If any part of the machine is damaged, contact your reseller or Muherz directly.

## 02 Notices



**Caution: Use of controls or adjustments, or performance of procedures other than those specified herein may result in exposure to hazardous laser radiation.**

### Use only Cubiio Certified Accessories

Only accessories certified by Cubiio specifically for use with your Cubiio2 are engineered and proven to operate within its operational and safety requirements. The use of non-certified accessories could damage your Cubiio 2 and void your warranty.

### Notices for Customers in the U.S.A.

Federal Communications Commission (FCC) Radio Frequency Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/television technician for help.

## CAUTIONS

### Modifications

The FCC requires the user be notified that any changes or modifications made to this device that are not expressly approved by Muherz may void the user's authority to operate the equipment.

### Notices for Customers in Europe

This symbol indicates that this product is to be collected separately.

The following apply only to users in European countries:  
This product is designated for separate collection at an appropriate collection point. Do not dispose of as household waste.  
For more information, contact the retailer or the local authorities in charge of waste management.

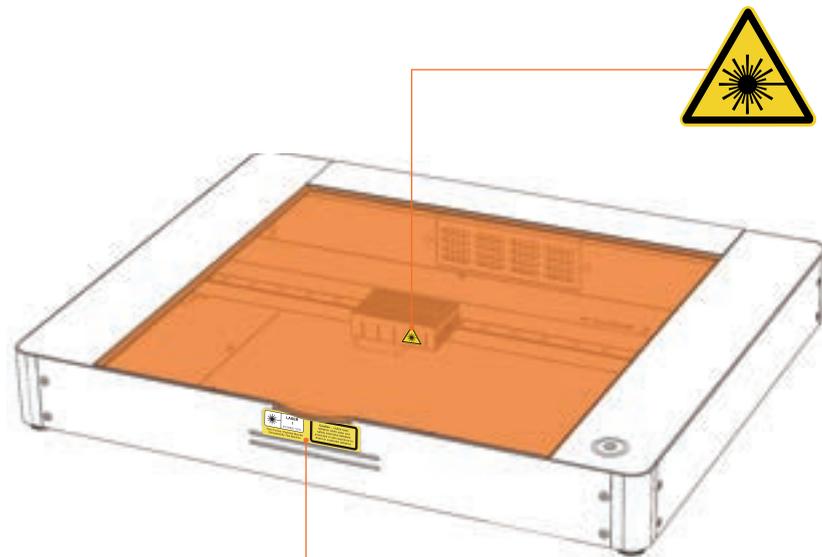


# 02 Notices



## Warnings & Signs

All signs of warnings and information on Cubiio 2 locate where they must be, where may contains sources of dangers before and/or during operations. Do not remove any of the signs for the safety.



	<b>LASER</b>
	<b>1</b>
IEC 60825.1:2014	
Toxic Fumes / Particles May Be Generated By This Machine	

**Caution – visible laser radiation when open and safety interlocks defeated avoid eye or skin exposure to direct or scattered radiation.**



Cubiio 2

台灣團隊設計·製造 Designed & Made in Taiwan		211-171102
產品名稱 Product Name	Cubiio2 雷射雕刻機 cubiio metal engraver	
型號 Model No.	PL-02	
額定電壓 Power Rating	12V = 5A, 60W	
製造商 Manufacturer	原力精密儀器股份有限公司 Force Precision Instrument Co., Ltd	
地址 Address	新北市汐止區新台五路一段99號13F之2 13F.-2, No. 99, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan	
<p><b>Serial number label</b></p>		Importer Muherz, Inc. Address 2035 Sunset Lake Road Suite B-2, Newark, Delaware 19702 Contains FCC ID 2A7Z-ESPWROOM32D Complies with 21 CFR 1040.10 and 1040.11 except for deviations pursuant to Laser Notice No.50, dated June 24, 2007

Cubiio2 Plus

台灣團隊設計·製造 Designed & Made in Taiwan		211-171102
產品名稱 Product Name	Cubiio2 雷射雕刻機 cubiio metal engraver	
型號 Model No.	PL-02B	
額定電壓 Power Rating	12V = 5A, 60W	
製造商 Manufacturer	原力精密儀器股份有限公司 Force Precision Instrument Co., Ltd	
地址 Address	新北市汐止區新台五路一段99號13F之2 13F.-2, No. 99, Sec. 1, Xintai 5th Rd., Xizhi Dist., New Taipei City 221, Taiwan	
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## 03 Getting Started



### 3.1 Preparing Creative Space

A good environment is very important for using Cubiiio2. We recommend you build a comfortable and safe space of creativity by following the picture below.

#### SMOKE DETECTOR

It provides critical early warning for dangerous situations.

#### EXHAUST VENTING

Vent exhaust safely out of working space.  
A fume extractor purifier is recommended.

#### STABLE TABLE

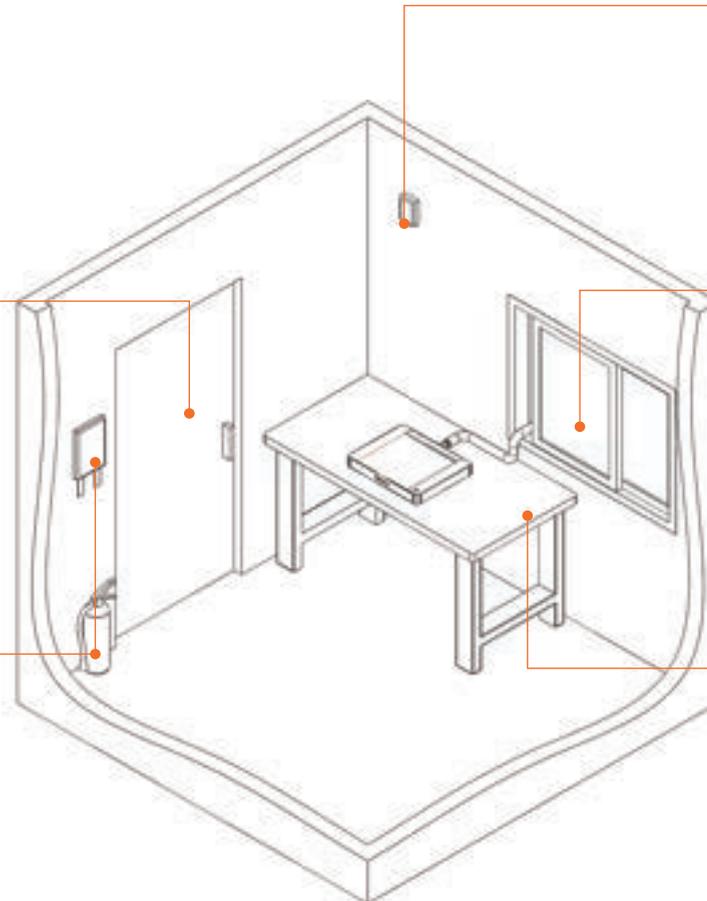
Ensure machine is away from the edge and keep flammable materials away from the machine.

#### RESTRICTED AREA / REMOTE INTERLOCK

Keep children / pets away from the machine.  
User can set a remote interlock between machine and door if needed.

#### FIRE BLANKET/ EXTINGUISHER

Necessary equipments.

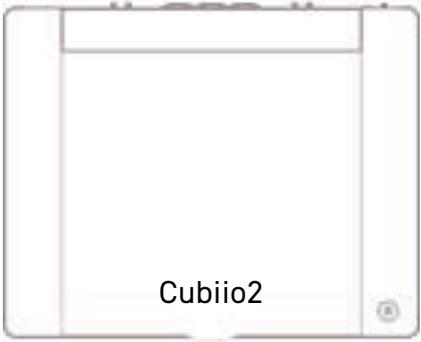
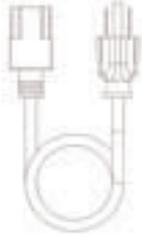


# 03 Getting Started

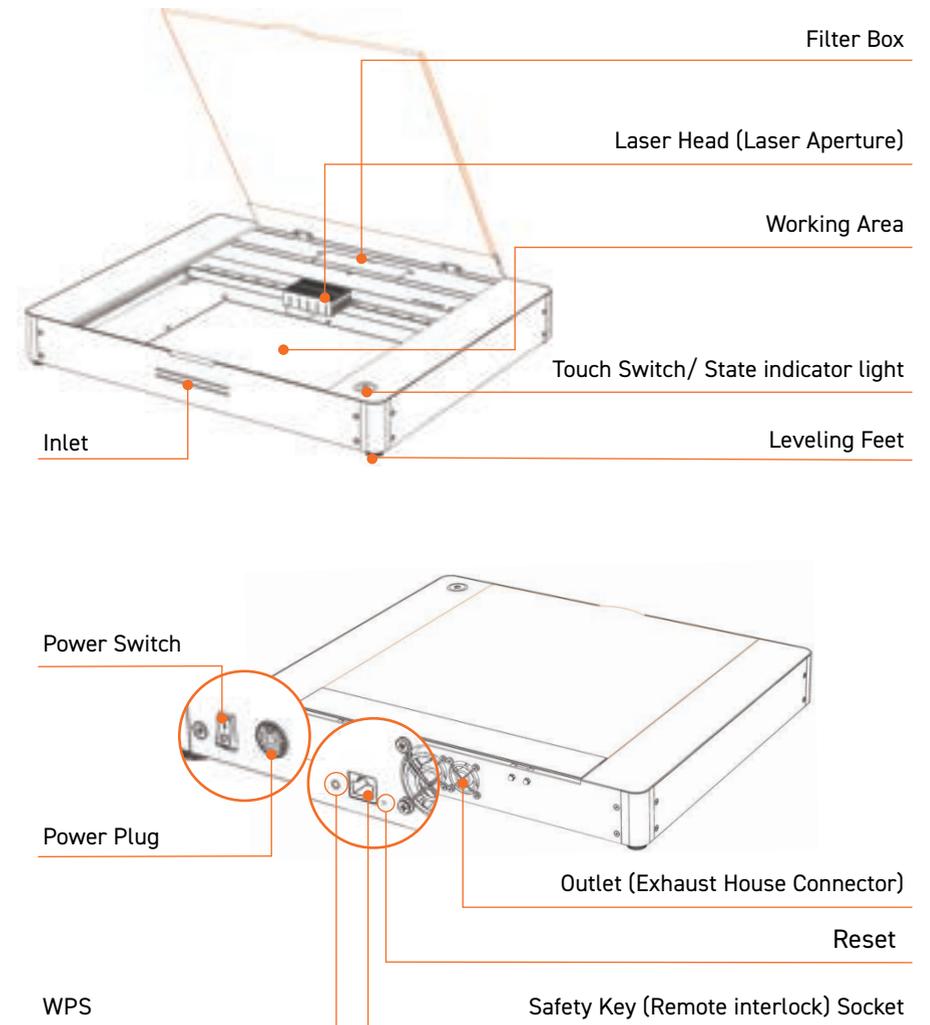


## 3.2 Unbox

### Packing List

 Cubiio2		
 Adaptor	 Power cord *US type only	 Exhaust hose & socket
Other Accessories *Contents depend on your order		

## 3.3 Overview



# 03 Getting Started



## 3.4 Switch & Indicator Light Meanings

### Homing

While Cubio2 is pending (Breathing Green), you can run the laser head back to the origin position by touching the switch for 3 seconds.

### Pause/Resume

During a laser process (Warning Purple), you can pause or resume the work by short touching the switch.

### Stop

During a laser process (Warning Purple), you can STOP the work by touching the switch for 1.5 seconds.

### Breathing

Slow on and slow off.

### Three-flash

Periodically flash three times.

### Warning

Instant on and slow off.

Example	Indicator Light	State
	<b>Breathing Cyan</b>	Initializing / Wi-Fi configuration
	<b>Three-flash Cyan</b>	WPS setting
	<b>Breathing Green</b>	System is ready (Pending)
	<b>Warning Purple</b>	Laser is ON
	<b>Warning Red</b>	Error
	<b>Three-flash Red</b>	Updating firmware

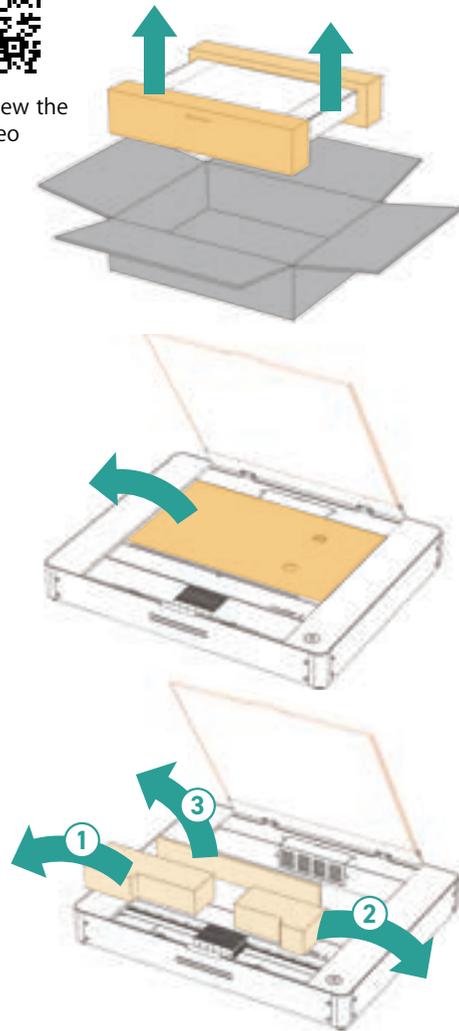
# 03 Getting Started



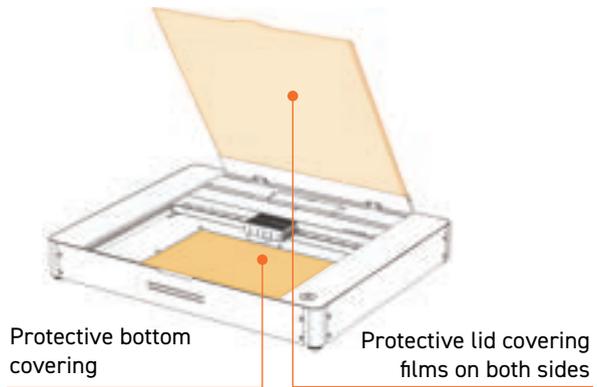
## 3.5 Setup



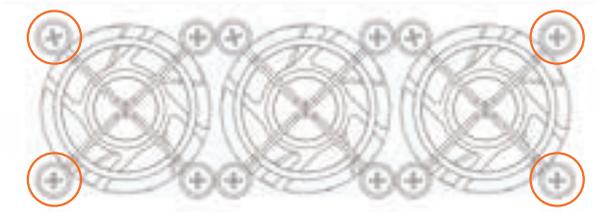
Scan to view the demo video



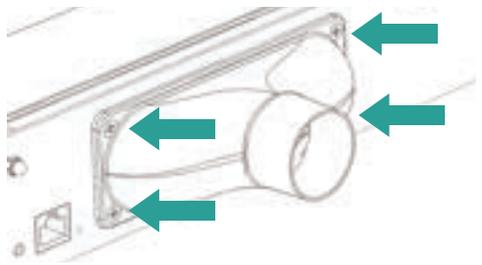
### Step 2 Peel off protective coverings



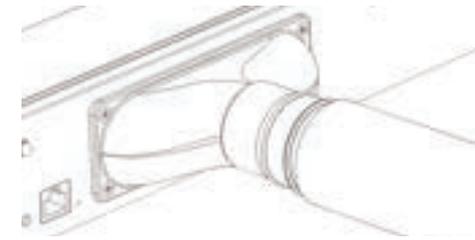
### 3. Attach Exhaust Hose



Loosen the 4 screws of rear fans by a PH2  screw driver.

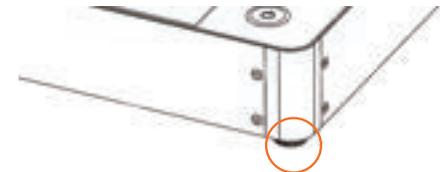


Mount the socket by the 4 screws.



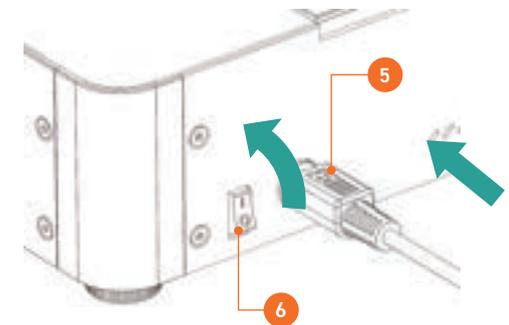
Attach the end of the exhaust tube to the socket. Ensure the other side is placed to allow venting of fumes safely out of the working space.

### 4. leveling



Adjust the 4 leveling feet to level the machine. The two door sensors should be triggered by the acrylic lid same time after leveling.

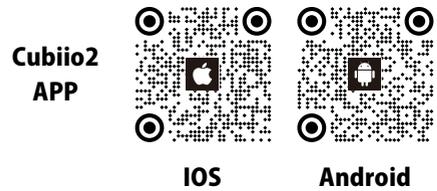
### Step 5 Connect the power & witch on.



## 03 Getting Started



### 3.6 Install the App



### 3.7 Connection settings

Scan the QRcode to view the demo video

#### Configure Cubiio2 to Join Your Wi-Fi Hot Spot

Cubiio2 connects your mobile devices wirelessly through a Wi-Fi network. You can control your Cubiio2 once your Cubiio2 and your devices join the same Wi-Fi network. There will not be one more annoying wires in your work area, and you will never be tied up next to your Cubiio 2.

There are two ways to configure a Cubiio2 to join your hot spot

You don't need to do all of them. Choose a way that works for you, and that's enough.

1. Use WPS of your Wi-Fi router if it had the feature.
2. Use Cubiio2 App to configure the **Wi-Fi's name (SSID) and the password.**

\* WPS refers to "Wi-Fi Protected Setup." This feature allows users to set up their Wi-Fi network securely without any typing of SSID and password. (search WPS to see more details of WPS)

\* The following instructions will walk you through all necessary steps to make your Cubiio2 join your Wi-Fi network, and then you can connect your Cubiio2 through it.

#### Way 1 Use the WPS feature of your Wi-Fi router **Recommended**



1. Press the WPS button until the indicator light turns into three-flash cyan. [Refer to 3.3 Overview ]
2. Follow the instructions of your Wi-Fi router to launch WPS hand shaking.  
\*If you have any questions, please check the instruction manual of the router.
3. Wait for your Cubiio2 joining your Wi-Fi network. The indicator light will become breathing green after joining the Wi-Fi network successfully. [ Refer to 3.4 Switch & Indicator Light Meanings ]
4. [3.8 First work] Continue.

#### Way 2 Use Cubiio2 App to configure your Cubiio2

Use Cubiio2 App to configure the **Wi-Fi's name (SSID) and the password.**



### 3.8 First Work



## 04 Caring



 Always unplug the power supply before cleaning and maintenance.

Regular lubrication and maintenance can extend Cubiio2 's service life.

Suggested caring schedule:

**Cleaning** 2-3 days  
**Maintenance** 3-4 weeks

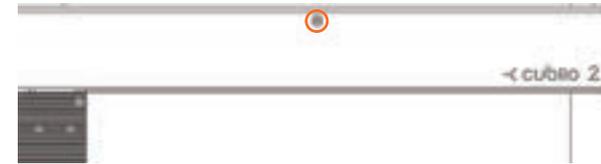
\* The time will vary depending on the pollution caused by processing different objects.

### 4.1 Cleaning

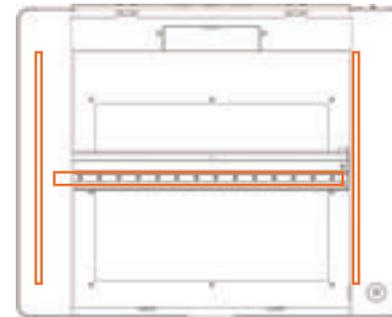
1. Clean the debris and ash in the machine with a brush and/or a vacuum cleaner
2. Open the filter box and clean the DC fans.
3. Clean the guide bars with a lint free cloth. **DO NOT** use water, alcohol or other surfactants to wipe this part.
4. Clean the workspace and the lid with a lint free cloth. Never use paper towel or abrasive materials on the lid as these will cause scratching.
5. Wet one side of the cloth with a glass cleaner and carefully wipe the lens. Make sure not to touch the lens after cleaning.

Required tools: vacuum cleaner, Brush, lint free cloth, glass cleaner

### 4.2 Maintenance



1. Remove the X-axis cover by a T10H  screwdriver.
2. Clean both X and Y axis guide bars with a lint free cloth. **DO NOT** use water, alcohol or other surfactants to wipe this part.
3. Wiped the guide bars with a lint free cloth and a small amount of lubricant.



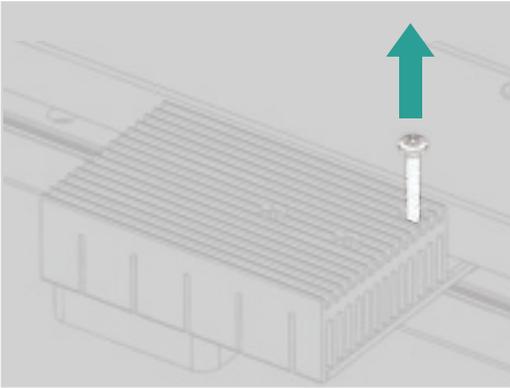
4. Screw the X-axis cover back. Move the laser head manually several times.

Required tools: T10H screwdriver, lint free cloth, Grease (ISOVG32~68)

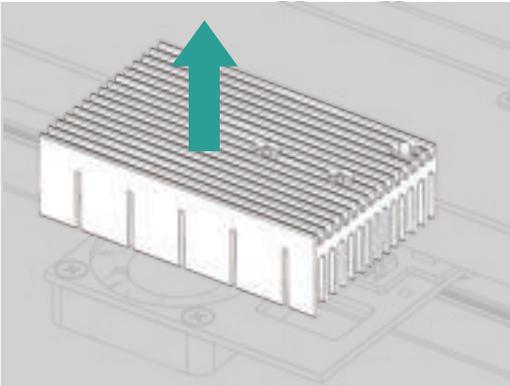
## 04 Caring



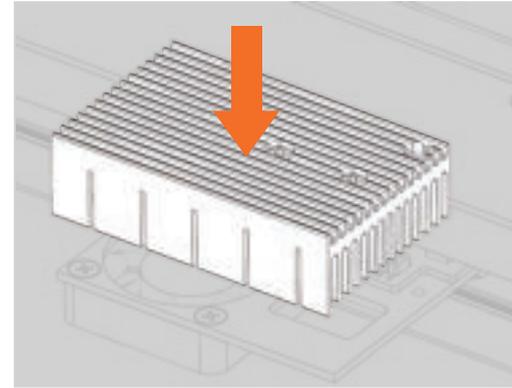
### 4.3 Changing Laser Cartridge



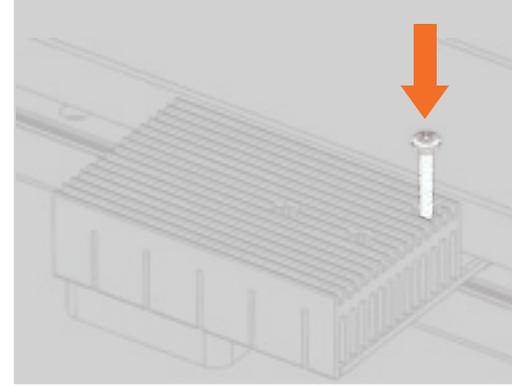
1. Remove the screw in the upper right corner of the laser cartridge with a H2.5  screwdriver.



2. Carefully take the laser cartridge in vertical. **DO NOT** twist or tilt it.



3. Align the new laser cartridge with the stage and gently press down vertically  
\*It will not be set if not in the correct position. **DO NOT** force to install.



4. Fasten the screw back  
Required tools: H2.5 screwdriver

## 05 Reference



### 5.1 Specification

	Cubiiio2	Cubiiio2 Plus
Dimension	500 x 400 x 60 mm	620 x 490 x 60 mm
Weight	6 kg	8 kg
Working Range	300 x 220 x 10 mm	420 x 300 x 10 mm
Operating Temperature	0 - 30 °C	
Operating Humidity	10 - 75 %	
Laser Source	<5W @ 450 nm	
Power Input	AC 100-240 v , 60 W	
Connection	Wi-Fi with WPS (2.4GHz only)	

### 5.2 Materials

Please be sure to read this table carefully to avoid processing BANNED materials.

### Cut / Engrave

Material	Engrave	Cut	Description
Paper	✓	>1mm	⚠ Paper is flammable. Flames may be generated when processing speed set too low.
Wood	✓	>3mm	Wood grain and the protective painting will affect the processing results.
Plywood	✓	>3mm	The glue and wood used in different plywood will affect the processing quality. Please pay attention that some plywood may contain formaldehyde.
MDF	✓	>3mm	The glue and wood used in different MDF will affect the processing quality. Please pay attention that some MDF may contain formaldehyde.
Acrylic	✓	>3mm	The result is color dependant.
Genuine leather	✓	>1mm	A lot of gas will be generated when processing leathers, please ensure ventilation. ⚠ Flames may be generated when processing speed set too low.
EVA	✓	>5mm	Commonly used for making mats or seals. It is a non-toxic material that can be processed safely by laser.

# 05 Reference



## Engrave only

Material	Engrave	Cut	Description
Shale	✓	⊘	Golden lines can be produced by the laser.
Concrete	✓	⊘	Different parameters can show different results.
Anodized Aluminum	✓	⊘	Different parameters can show different results.
Matte SUS 304	✓	⊘	Only 5W laser cartridge can engrave SUS 304.



Paper



Wood



Acrylic



Genuine leather



Shale



Concrete



Anodized Aluminum



SUS 304

## BANNED material ⚠

Banned Material	Description
 ABS	<b>BANNED material.</b> Although ABS is easy to process, it is not recommended for general users since carcinogens can be produced when not completely burned.
 Chlorine-containing materials	<b>BANNED material.</b> Using chlorine-containing materials such as PVC, cutting sheet or artificial leather will produce extremely toxic fumes, leading to severe health issues and machine damage.
 Reflective material	<b>BANNED material.</b> Using reflective materials such as mirrors, polished metals, etc., may emit laser light out from unexpected directions and cause injury.
 Container with pressurized contents	<b>BANNED material.</b> such as sparkling wine bottle, beer bottle, spray paint bottle, etc. The temperature rise or surface cracks caused by the laser may result in an explosion.

## 05 Reference



### 5.3 Laser Safety

To assess the potential hazards of laser systems, they are divided into eight safety classes: 1, 1C, 1M, 2, 2M, 3R, 3B and 4. Cubiio2 is a class 1 laser. This is guaranteed by its enclosed protective housing and its safety devices. However, a class 4 laser source is used in the housing of Cubiio2.

The class 4 laser is very dangerous to the eye (complete loss of eyesight) and very dangerous to the skin (risk of burning). Diffused light can also be dangerous. There is a risk of fire when using this laser light. Without protective devices, this direct light or diffused reflected light is dangerous to both persons and objects.

Please note that improper commissioning of the device will invalidate the status of Class 1 safety, and may result in the release of harmful light. The following risks may result from using laser lights without protective measures:

**Eyes:** retinal burns, complete loss of sight

**Skin:** burns

**Clothing:** fire hazard

**The laser may only be operated under the conditions specified by Cubiio2. Never modify or disassemble Cubiio2.**

### 5.4 Engraving Oversize Objects

Cubiio2 provides free mode for users with laser professional skills to process objects that cannot be placed in the machine. In this mode, Cubiio2 is NOT in the safe state as laser class 1 and may cause the dangers mentioned in the previous chapter. Be sure to read and observe the following precautions before removing bottom.

#### Required tools and locations:

Safety key or remote interlock

Laser safety glasses (OD5+, 450nm)

Fire blanket and fire extinguisher

Well-ventilated indoor space

Surface that does not reflect / diffuse blue light, such as concrete floor

Wear a mask or set a dust filtering equipment

#### Process:

1. Unplug the power cord, and then turn Cubiio2 upside down.
2. Remove the 8 screws on the stainless steel base plate by a T10H screwdriver.
3. Turn the machine back . Plug in the safety key (or remote interlock.)  
\* Laser will not emit in the free mode before the safety key is inserted
4. Wear laser safety glasses and a mask. Turn on the dust filtering equipment. And complete other necessary protective measures.
5. Adjust the height of 4 leveling feet to keep the machine body level.
6. Turn on the machine normally.

## 06 Warranty

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The products, including Cubiio2 and laser cartridge, are guaranteed against any manufacturing defects for 12 months from the date of shipment. If during this period of guarantee the product proves defective due to improper material or workmanship, MUHERZ LIMITED. ("MUHERZ") will, without charge for labor and parts, repair the product. MUHERZ reserves the right (at its sole discretion) to replace or repair the product.

### **The warranty will not be applicable in the case of:**

Damage caused by misuse including but not limited to failure to use the product for its normal purpose or according to the manual on the proper use and installation, or use of the product inconsistent with the safety standards in force in the country where it is used, modifications or adjustments ,hacking.

Damage caused by accidents including but not limited to lightning, water, fire, misuse or neglect.

Defacing, illegibility or removal of the warranty seal or serial number on the product.

### **This warranty will not cover:**

- 1. Accessories or consumables such as filters.**
- 2. Cosmetic damage or normal wear and tear, such as scratches, nicks, and dents.**
- 3. Products that are obtained and/or used in contravention of the laws of your country.**
- 4. Power decay of laser source due to normal use. The output of the laser cartridge will naturally decay with the use time. The definition of the laser cartridge failure is that it does not emit at all or decay to less than 50% of the rated power. The manufacturer's laser power meter is used as the measurement benchmark.**

Dealer stamp

Date of purchase

DD / MM / YY