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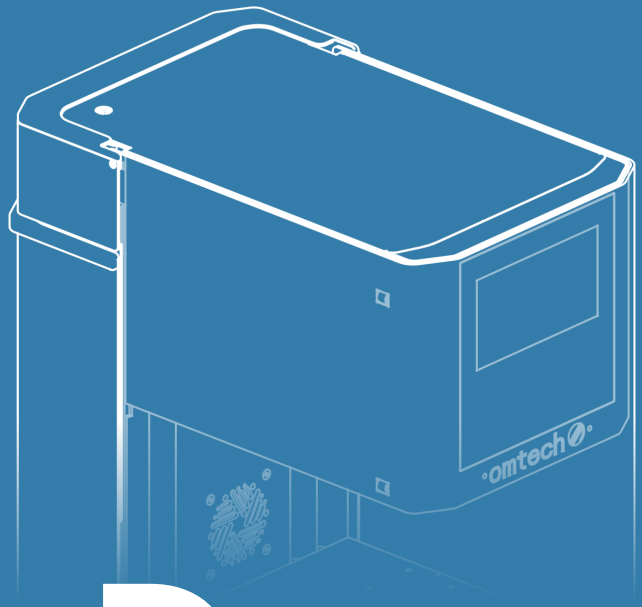

Solis Duo

Fiber & Diode Dual Laser Engraver

User Manual

Read Carefully Before Use
Keep for Future Reference

BEAMING WITH POSSIBILITIES

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For helpful hints and instructional videos, visit our **Help Center** or join our official laser group! If you encounter any issues with your engraver, feel free to contact us. Our support team will respond **ASAP** to address your concerns.

Help Center

help.omtech.com

First Time Setup | Safety | Maintenance | Troubleshooting | FAQ | Hot Tips

Explore on Your Smart Device

Website: omtech.com

Technical Support Email: support@omtech.com

Technical Support Number: +1 (949) 438-4949, Monday – Friday from 9:00 am – 5:00 pm (PT)

Address: Rygel Advanced Machines, 1940 E Deere Ave, Ste 100, Santa Ana, CA 92705, USA

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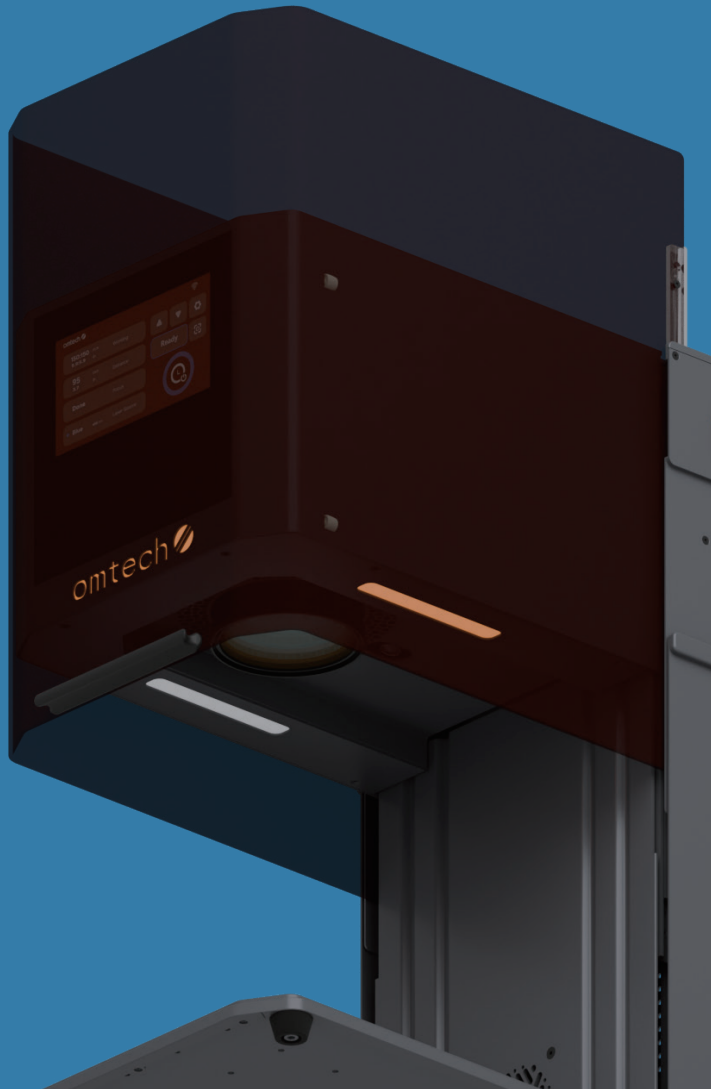
Solis Duo

Dual Laser Engraver

30W Fiber & 20W Diode

50W Fiber & 40W Diode



Content

1 Safety Information

1.1 Disclaimer

Read this disclaimer completely and carefully before proceeding with the rest of the manual content.

1. **Product Modifications**

   Any modifications or alterations to OMTech products void any warranties and may result in damage or injury. OMTech shall not be liable for any damages resulting from such modifications or alterations.

2. **Compliance with Laws**

   Customers shall be liable for ensuring that the use of OMTech products complies with all applicable laws and regulations in their respective jurisdictions. OMTech shall not be responsible for any violations of laws or regulations resulting from the use of OMTech products.

3. **Correct Use**

   Always use OMTech products only as directed in the accompanying manuals. Failure to follow instructions may result in injury or damage.

   Always ensure the assembly, installation, operation, maintenance, or repair of OMTech products is carried out by a competent person.

   Regular maintenance should be performed throughout the lifecycle of OMTech products. You are responsible for ensuring the products operate as intended.

   Always wear appropriate protective gear.

4. **Third-Party Products**

   OMTech shall not be liable for any damages or losses resulting from the use of third-party products in conjunction with OMTech products. Customers shall refer to the third-party's guidelines and/or warranties (if any) for any third-party products used.

5. **Limitation of Liability**

   OMTech shall not be liable for any direct, indirect, punitive, incidental, special, or consequential damages to property or life, whatsoever arising out of or connected with the use or misuse of OMTech products. In no event shall OMTech's liability exceed the value of the products sold.

6. **Warranty**

   Refer to the sales page for warranty information.

This disclaimer states the entire obligation of OMTech with respect to OMTech products. If any part of this disclaimer is determined to be void, invalid, unenforceable, or illegal, including but not limited to the warranty disclaimers, liability disclaimers, and liability limitations set forth above, the invalid or unenforceable provision will be deemed superseded by a valid and enforceable provision that most closely matches the intent of the original provision and the remainder of the agreement shall remain in full force and effect.

1.2 Symbol Guide

The following symbols are used on this machine's labeling or in this manual:

These items indicate an imminent hazard that **WILL** result in death or severe injury if not avoided.

These items indicate a potential risk that **COULD** result in death or serious injury, as well as significant equipment damage.

These items address similarly serious concerns about the laser beam.

These items address similarly serious concerns about electrical components.

These items address similarly serious concerns about fire hazards.

These items address pinching and crushing hazards.

Protective eyewear should be worn by anyone around this machine during operation.

These items address tips that help.

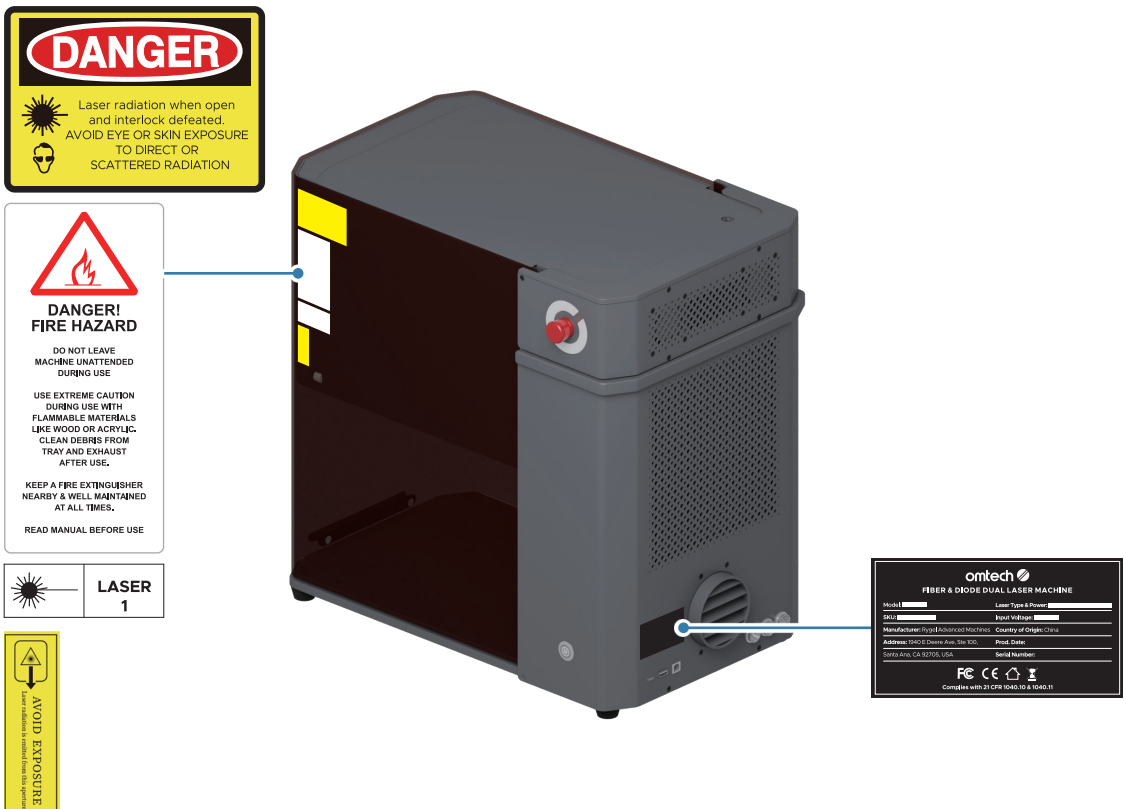
This product is sold in conformity with applicable EU regulations.

This product contains electrical components that should not be disposed of with regular garbage.

1 Safety Information

1.3 Safety Instruction Labels

Your machine should come with instruction labels in the following locations. Replace these labels when they are missing, illegible, or damaged.



1.4 General Safety Instructions

- **ALWAYS** keep a fire extinguisher, water hose, or other flame-retardant system nearby in case of emergencies. Ensure that the phone number of your local fire department is clearly displayed in the vicinity. In the event of a fire, cut the electrical power before attempting to extinguish the flames. Before using an extinguisher, familiarize yourself with its proper range. Avoid using the extinguisher too close to the flame, as the high pressure could cause blowback and worsen the situation.
- **DO NOT** allow minors, untrained personnel, or anyone with a physical or mental impairment that precludes their ability to follow this manual and the software manual to install, operate, maintain, or repair this machine.
- **DO NOT** leave this machine unattended during operation. If it behaves abnormally, immediately cut off **ALL** power to the machine and contact our customer service or your dedicated repair service. **ALWAYS FULLY** power off the machine (including using the emergency stop switch) after each use.

- Use this laser marking machine **ONLY** in accordance with **ALL** applicable local and national laws and regulations.
- Use this machine **ONLY** in accordance with this instruction manual and the manual for the engraving software included. **ONLY** allow this machine to be installed, operated, maintained, repaired, etc. by others who have also read and understood both manuals. Ensure that this manual and the software manual are included with this machine if it is ever given or sold to a third party.
- Any untrained personnel near this machine during operation **MUST** be informed about its dangers and **FULLY** instructed on how to avoid injury during use.

1.5 Laser Safety Instructions

This machine complies with 21 CFR 1040.10 and 1040.11 except for conformance with IEC 60825-1 Ed. 3, as described in Laser Notice No. 56, dated May 8, 2019.

When used according to these instructions, the machine is classified as a **CLASS 4** laser product. Unauthorized adjustments, controls, or procedures not specified in this manual may result in hazardous radiation exposure. Improper use of the machine can lead to serious property damage and personal injury, including—but not limited to—the following:

- The laser will easily burn nearby combustible materials.
- Some working materials may produce radiation or harmful gases during processing.
- Direct exposure to the laser will cause bodily harm including serious burns and irreparable eye damage.

- **NEVER** interfere with the laser beam.
- **DO NOT** place any part of your body under the laser lens during operation. Take measures to protect yourself from potentially reflected laser beams including the use of screens or personal protective equipment.
- **NEVER** attempt to view the laser directly without protective eyewear. Always wear safety goggles or glasses designed to filter the specific wavelength of your machine's laser with an optical density (OD) of 5+. As even seemingly matte materials can produce harmful reflected beams, care should be taken to keep anyone without protective eyewear from observing the machine during operation. EVEN WITH protective eyewear, do not stare or allow others to stare continuously at the laser beam during operation.
- **DO NOT** leave potentially combustible, flammable, explosive, or corrosive materials nearby where they could be exposed to the direct or reflected laser beam.

1 Safety Information

- **DO NOT** use or leave sensitive EMI equipment nearby. Ensure the area around the laser is free of strong electromagnetic interference during any use.
- The laser settings and working process must be properly adjusted for specific materials.
- **Ensure** the area is kept free of airborne pollutants, as these might pose a similar risk of reflection, combustion, etc.
- **NEVER** use this machine with the laser source's housing open, as the closed laser light path is necessary to prevent laser radiation leakage.
- **DO NOT** modify or disassemble the laser and do not use the laser if it has been modified or disassembled by anyone except trained and skilled professionals. Dangerous radiation exposure and other injury may result from the use of adjusted, modified, or otherwise incompatible equipment.

1.6 Electrical Safety Instructions

- **ONLY** use this machine with a compatible and stable power supply with less than 5% fluctuation in its voltage.
- **DO NOT** connect other machines to the same fuse, as the laser system will require its full amperage. Do not use with standard extension cords or power strips. Use only surge protectors rated over 2000 J.
- **ONLY** turn on the power to this machine when it is well grounded, either via a firm connection to a 3-prong outlet or via a dedicated grounding cable firmly connected to the proper slot on the cabinet. Do not use with an ungrounded 3 to 2-prong adapter. The machine's grounding should be checked regularly for any damage to the line or loose connections.

- The area around this machine should be kept dry, well-ventilated, and environmentally controlled to keep the ambient temperature between **32–104 °F (0–40 °C)**. The ambient humidity should not exceed **90%**.
- **DO NOT** handle your water pump or the water it's submerged in while the pump is attached to its power supply. Place it in water before connecting it to power and disconnect it from power before removing it.
- Adjustment, maintenance, and repair of the electrical components of this machine must be done **ONLY** by trained and qualified professionals to avoid fires and other malfunctions, including potential radiation exposure from damage to the laser components. Because specialized techniques are required for testing the electrical components of the system, it is recommended such testing only be done by the manufacturer, seller, or repair service.
- Unless otherwise specified, **ALWAYS** perform adjustments, maintenance, and repairs of the machine when it is turned off, disconnected from its power supply, and fully cooled.

1.7 Material Safety Instructions

- Users are responsible for ensuring that the materials to be processed can withstand the heat of the laser and will not produce any emissions or byproducts either harmful to people nearby or in violation of local or national laws or regulations. In particular, **DO NOT** use this machine to process polyvinyl chloride (PVC), Teflon, or other halogen- containing materials under **ANY** circumstances.
- Users are responsible for ensuring that every person present during operation has sufficient PPE to avoid injuries from the emissions and byproducts of the materials being processed. In addition to the protective laser eyewear mentioned above, you may also need goggles, masks or respirators, gloves, and other protective outer clothing.

- Never use this machine under any circumstances if the exhaust system is not functioning properly. **ALWAYS** ensure that the exhaust fans can remove the dust and gas produced by the working process in accordance with **ALL** applicable local and national laws and regulations. Immediately stop use if the exhaust fans or vent pipes malfunction. Periodically check the air assist intake filter to ensure it stays free of any dust or debris.
- Exercise special caution when working with conductive materials as the buildup of their dust and ambient particles may damage electrical components, cause short circuits, or produce other effects including reflected laser radiation.

This machine **CAN** be safely used with the following materials:

CAN be used	
Aluminum	Tungsten
Brass	Wood, including Cork, MDF, Plywood, Balsa, Birch, Cherry, Oak, Poplar, etc
Carbide	
Gold	Paper and Paperboard
Silver	Bamboo
Steel	Plastics
Stone, including Granite, Marble, etc.	Cloth
Titanium	Fur

This machine **CANNOT** be used with **THE FOLLOWING MATERIALS OR ANY MATERIALS THAT INCLUDES THEM**:

CANNOT be used
Artificial Leather containing Hexavalent Chromium (Cr[VI]), due to its toxic fumes
Astatine, due to its toxic fumes
Beryllium Oxide, due to its toxic fumes
Bromine, due to its toxic fumes
Chlorine, including Polyvinyl Butyrale (PVB) and Polyvinyl Chloride (PVC, Vinyl, sintra, etc.), due to its toxic fumes
Fluorine, including Polytetrafluoroethylenes (teflon, PTFE, etc.), due to its toxic fumes
Iodine, due to its toxic fumes
Phenolic Resins, including various forms of Epoxy, due to their toxic fumes

For all other materials, if you are unsure about its safety or laserability with this machine, seek out its material safety data sheet (MSDS). Alternatively, contact our customer service for further guidance.

Pay especial attention to information about safety, toxicity, corrosiveness, reflectivity, and reaction(s) to high heat. Never operate the laser on any (such as PVC, teflon, and other halogen- containing substances) that can produce corrosive, hazardous, or even deadly fumes.

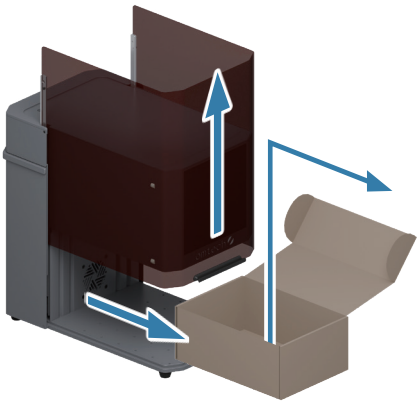
1.8 Disposal Safety Instructions

Electrical products should not be disposed of with household products. In the EU and UK, according to the European Directive 2012/19/EU for the disposal of electrical and electronic equipment and its implementation in national laws, used electrical products must be collected separately and disposed of at the collection points provided for this purpose. Locations in Australia, Canada, and the United States may have similar regulations. Contact your local authorities or dealer for advice.

2 Technical Specifications

Product Model		DL-3020	DL-5040
Voltage		AC 110–240 V, 50–60 Hz	
Overall Rated Power		360 W	500 W
Max Marking Speed		393.7 ips | 10,000 mm/s	
Marking Accuracy		0.002 mm	
Field Lens Aperture (Processing Area)	Field Lens 1 (Preinstalled)	9.8 × 9.8 in | 250 × 250 mm	
	Field Lens 2	5.9 × 5.9 in | 150 × 150 mm	
Applicable Rotary Axis Type		D50/D60	
Fiber Laser	Rated Power	30 W	50 W
	Adjustable Power Range	0–100%	
	Expected Service Life	100,000 hr	
	Wavelength	1064 nm	
	Modulation Frequency	40–60 kHz	45–170 kHz
	Pulse Width	80–120 ns	90–120 ns
	Class	4	
	Operating Temperature Range	32–104 °F | 0–40 °C	
Diode Laser	Rated Power	20 W	40 W
	Expected Service Life	10,000 hr	
	Wavelength	455 nm	
Laser Safety Goggles Protection Level		OD 6+	
Operating Software		OMTech Lab (Windows 7/8/10/11) Lightburn (Windows 7/8/10/11, MacOS)	
Applicable Image Formats		BMP, GIF, JPG, JPEG, DXF, DST, AI, etc.	
Dimensions (L × W × H)		12.6 × 19.7 × (18.7–35.2) in | 320 × 500 × (475–895) mm	
Net Weight		55.1 lb | 25 kg	58 lb | 26.3 kg

3 Package List



Power Adapter

Adapter Power Cord

Handwheel

Remote Control
(Including a CR2032 Battery)

USB Type-B Cable

USB Type-C Cable

Field Lens

Laser Key

USB Drive

Exhaust Pipe

Pipe Clamp

Magnet

L-shaped Positioning Piece
& M5 × 14 Hex Bolts

M5 Hex Wrench

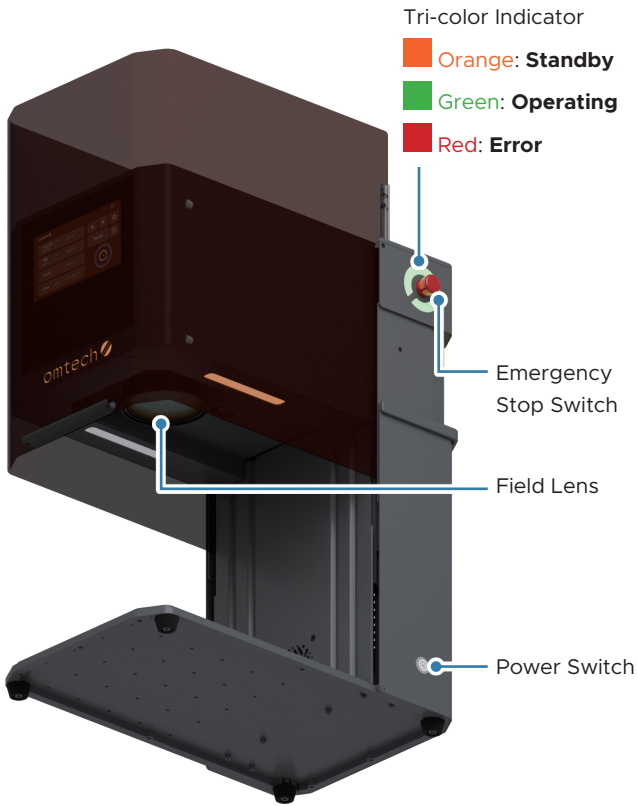
Sample Card

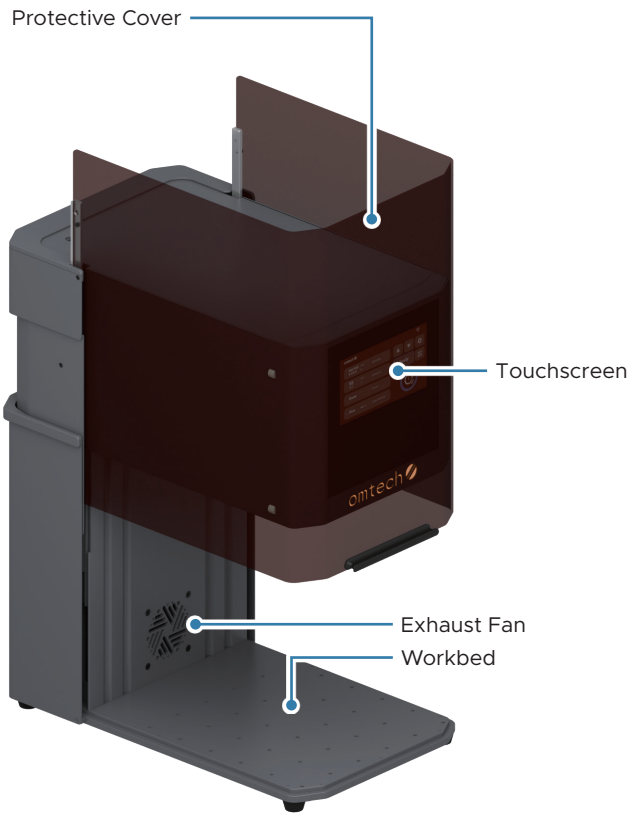
Slatted Panel

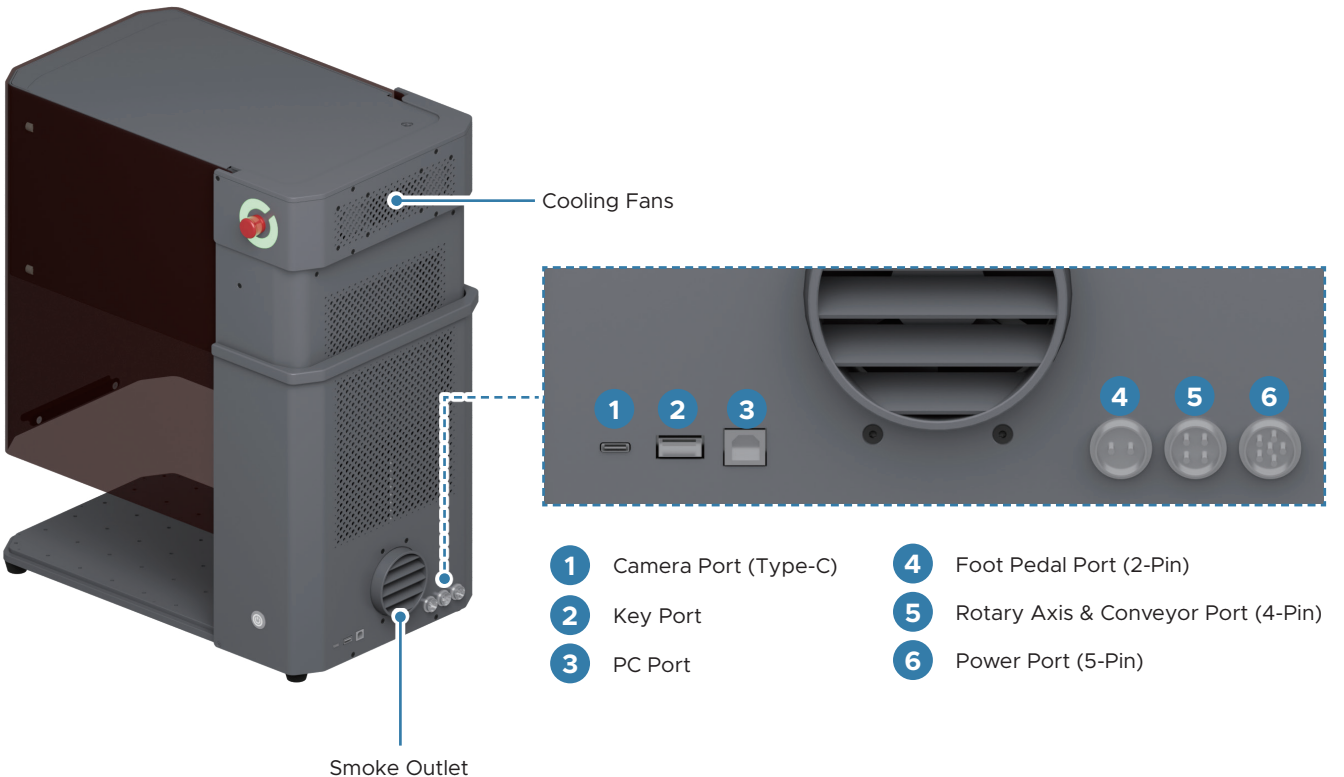
Material Pack

4 Components

4.1 Main Parts





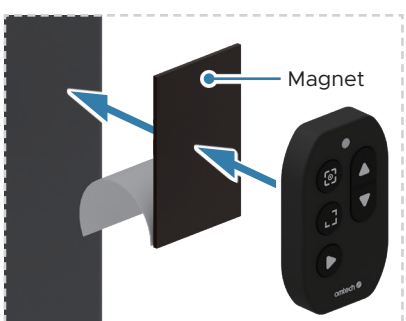


1. Camera Port (Type-C)
2. Key Port
3. PC Port
4. Foot Pedal Port (2-Pin)
5. Rotary Axis & Conveyor Port (4-Pin)
6. Power Port (5-Pin)

4 Components

4.2 Remote Control

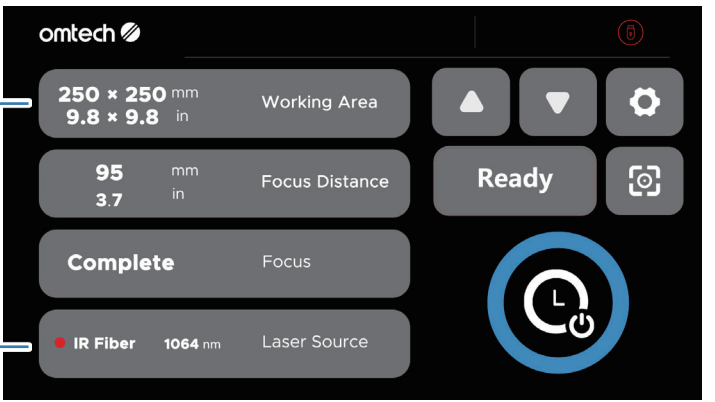
	Autofocus Button	Automatically focuses on the material and calculates its height.
	Preview Button	Previews the estimated engraving area on the material and the engraving time on the software.
	Start/Pause Button	Starts or pauses engraving.
	Up Button	Lifts or lowers the laser module with the protective cover.
	Down Button	



- The remote control range (unobstructed) is 16.4 ft. (5 m).
- When not in use, the remote control can be conveniently stored on the surface of the machine using the provided magnet.

4.3 Control Panel

Displays the working area, focus distance, focus status, and laser source.

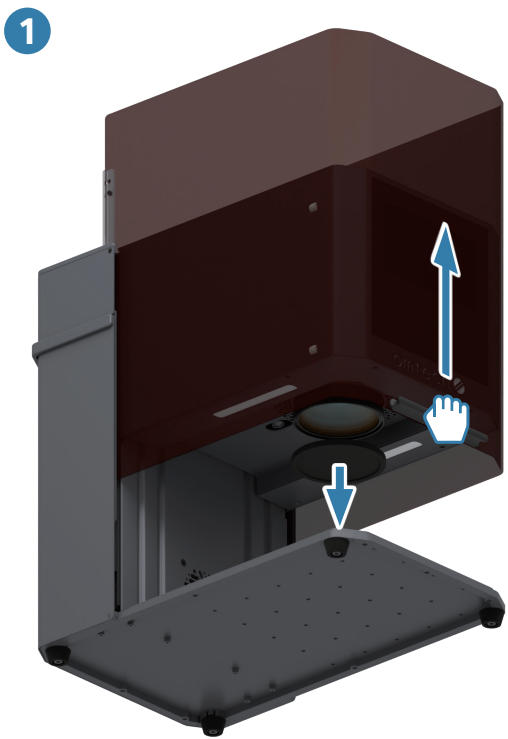


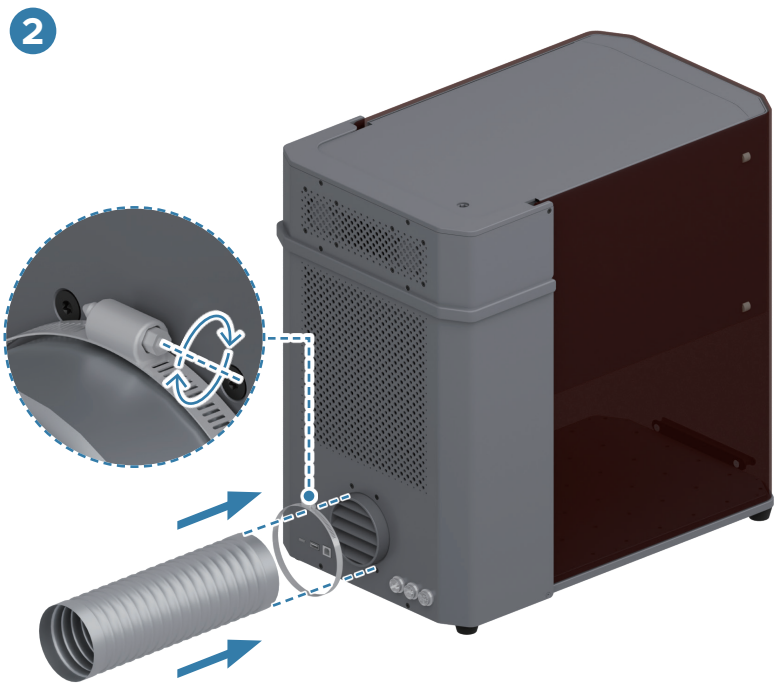
Ready	Displays the current machine status: **Ready**, **Operating**, or **Error**. The **Error** status appears only when the protective cover is open. To resolve the error, close the protective cover.
	Tap to auto-focus on the material and measure its height.
	Displays the ready status or remaining time during engraving.

	Tap to lift or lower the laser module with the protective cover.
	Tap to set the system language, display theme, brightness, and sound volume.

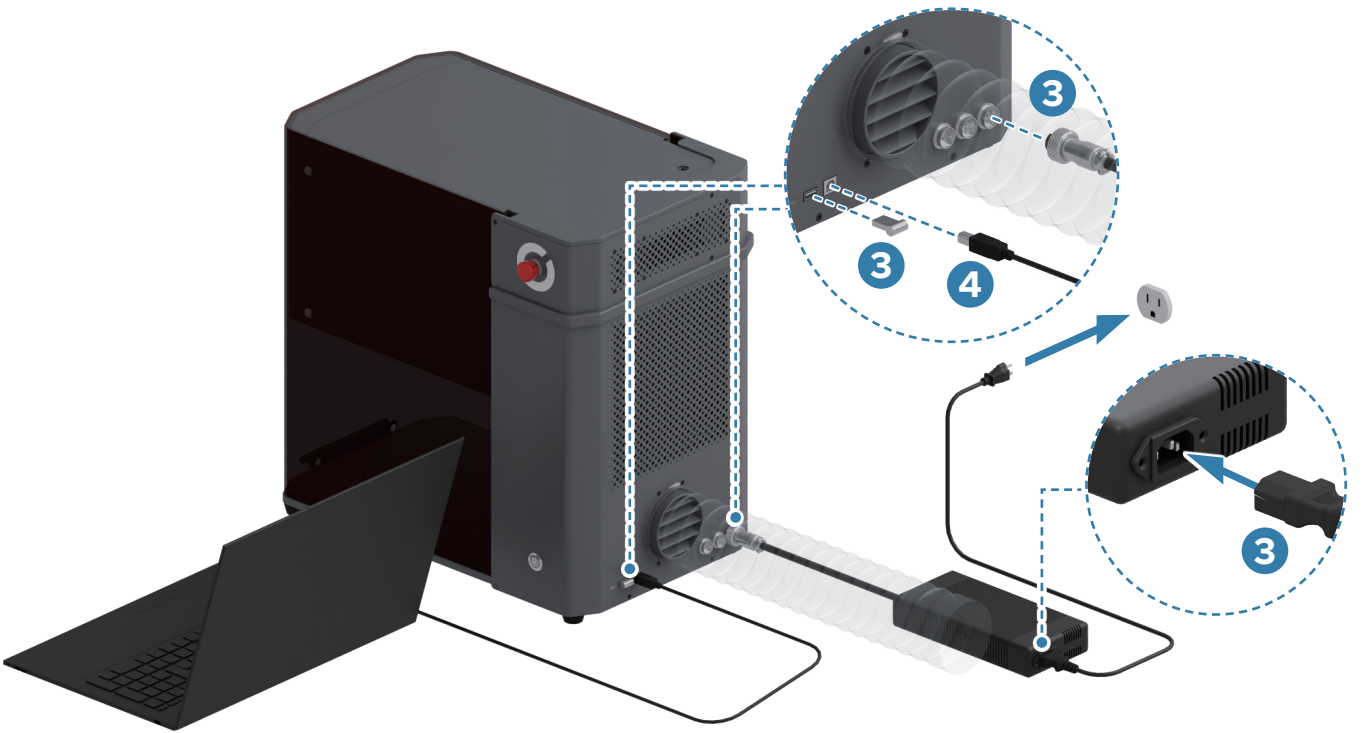
5 Assembly

1. Remove the field lens cover.
2. Install a pipe.





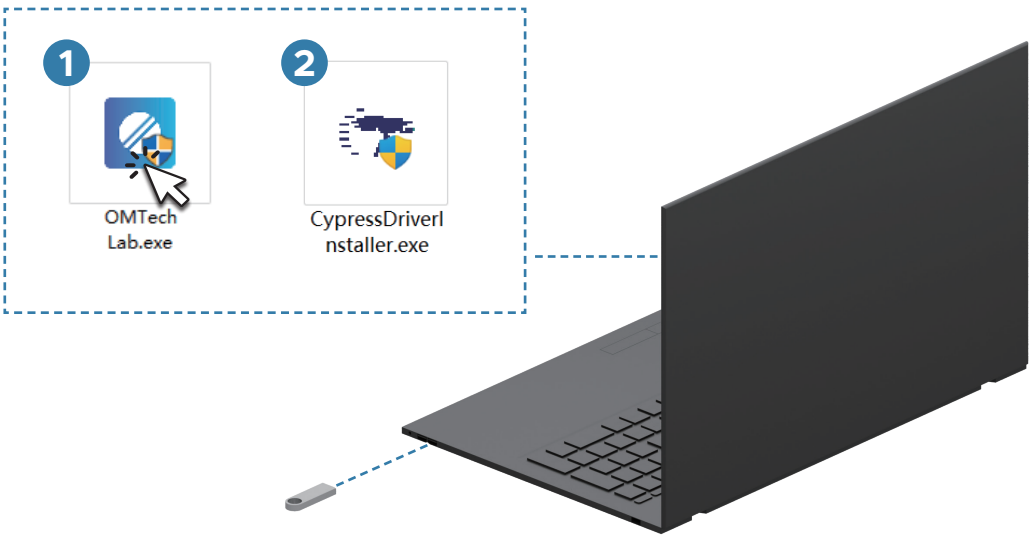
3. Connect to a power source. Insert the laser key.
4. Connect the machine to your computer through the USB cable.



To utilize the remaining accessories, see 8 More Applications.

6 Software Installation

Insert the provided USB drive. Run **OMTech Lab.exe** to install the software. Then install the driver by executing **CypressDriverInstaller.exe**. For easier access, right-click **OMTech Lab.exe** and select **Create shortcut** for desktop access.



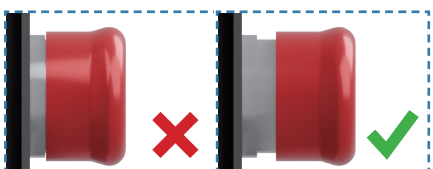
LightBurn is compatible with this machine, but the Photo Positioning feature is not supported.
To use LightBurn, download and install it from help.omtech.com/en/download. For more information, visit the LightBurn's official website and consult the manual.

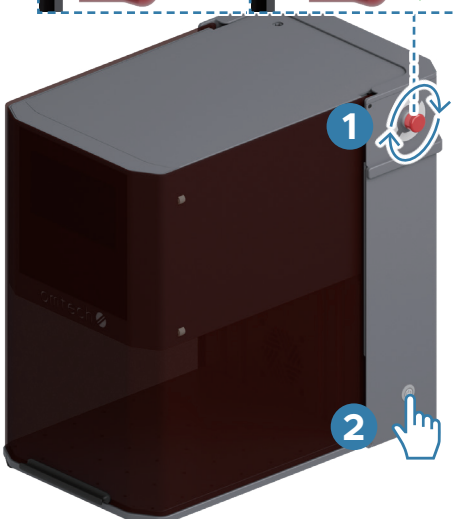
7 Operation

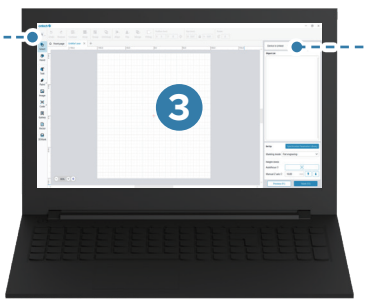
This manual only introduces the basic engraving instructions as an example.

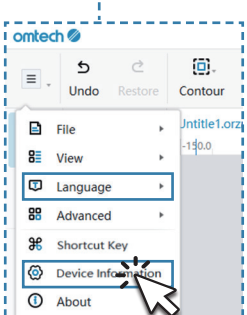
7.1 Powering On the Machine

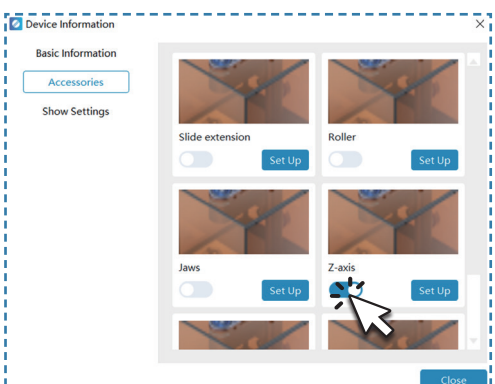
1. Ensure the emergency stop switch is released.
2. Press the power switch.
3. Run the software and open a new task.
   Set the language and enable the **Z-axis** function.











7 Operation

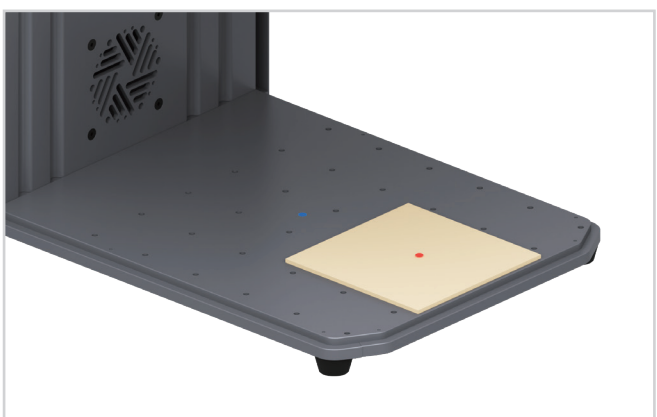
7.2 Placing the Material

- We recommend you use the material pack for a test before formal engraving work.
- This machine is not suitable for engraving transparent materials such as acrylic.

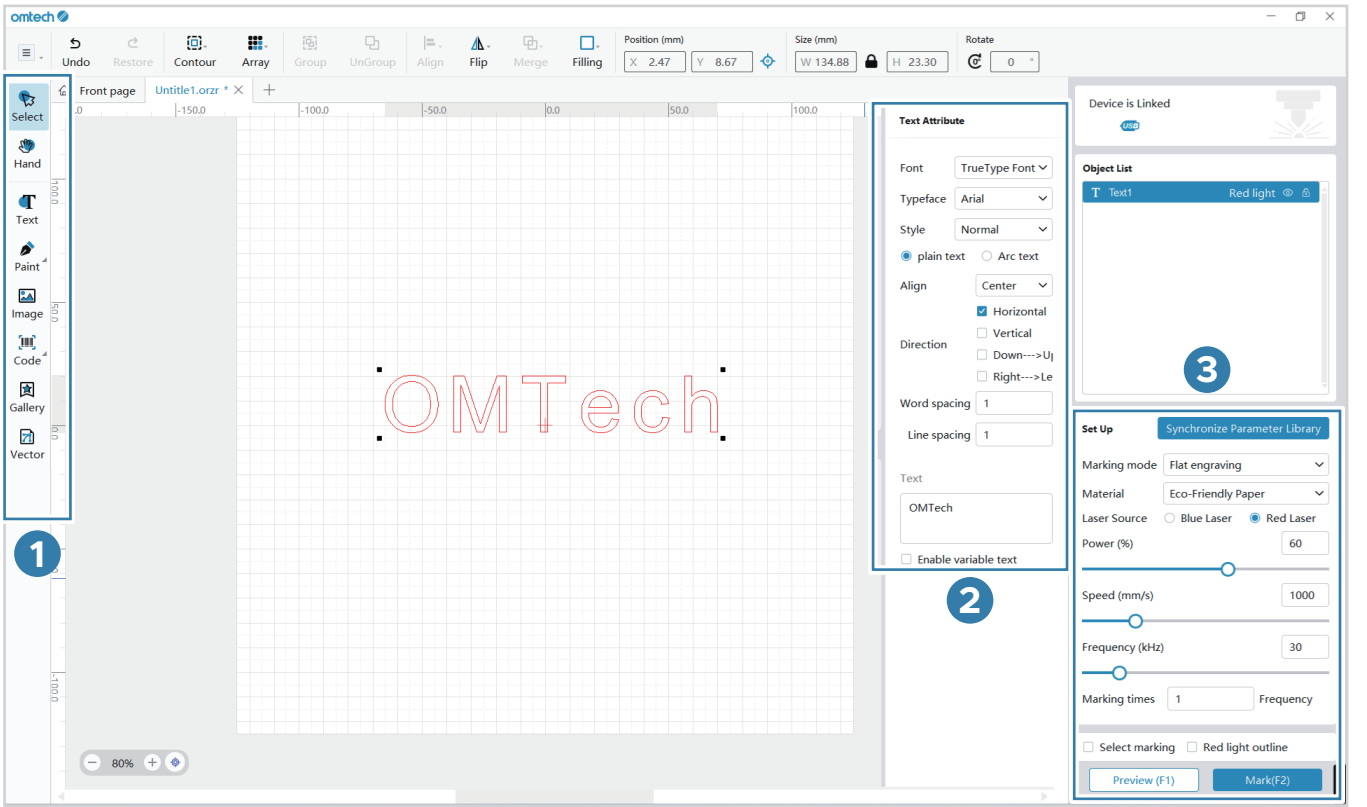
Place the material on the workbed. Ensure the red dot is visible on the material.

For a Big Material

For a Small Material

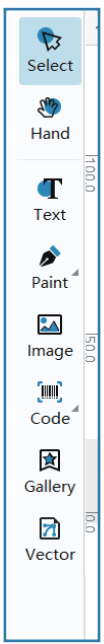


7.3 Setting Parameters

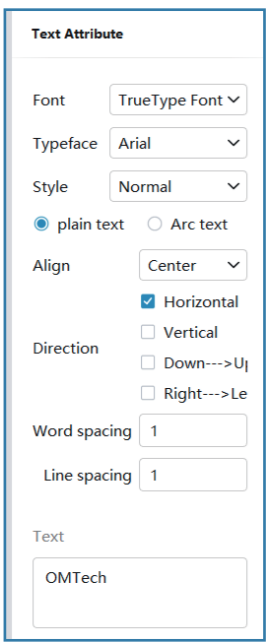


7 Operation

1. Select a design mode from the left sidebar.



2. Adjust the parameters for your design.

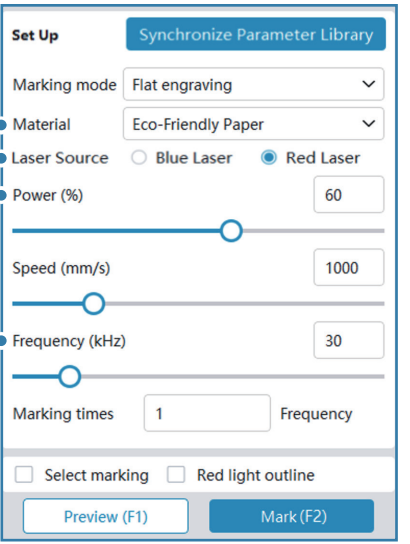


3. Set the engraving parameters.

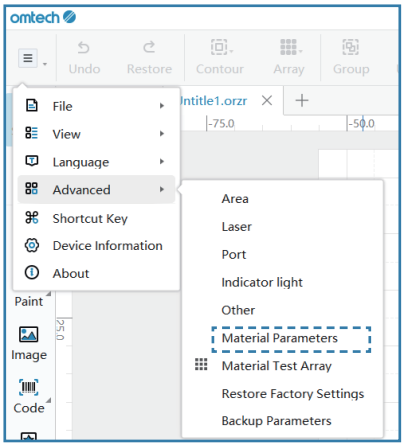
For unlisted materials, select **Default** and adjust the parameters.

Use **Blue Laser** for opaque non-metal materials, and **Red Laser** for metals.

Customize parameters as needed, or refer to the sample card for guidance.



You can add, rename, adjust, or delete all material parameters in the **Material Parameters**.



7 Operation

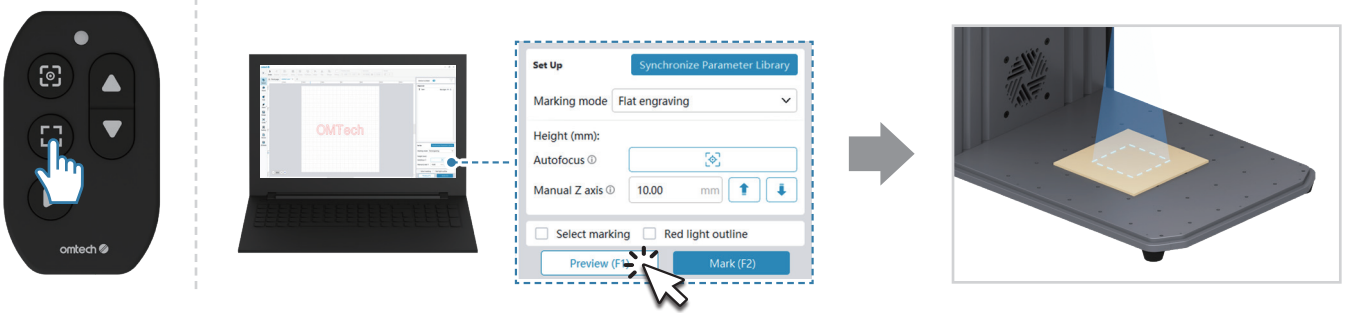
7.4 Engraving

You can operate the machine using the Remote Control, software, or touchscreen.

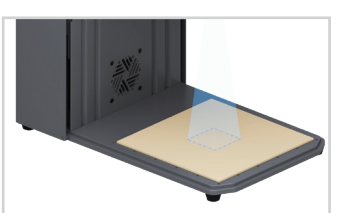
1. Focus on the material. The laser module automatically moves to the proper position.

2. Preview the estimated engraving area and time. Adjust your design size and material position to ensure the blue-highlighted engraving area appears correctly on your material.

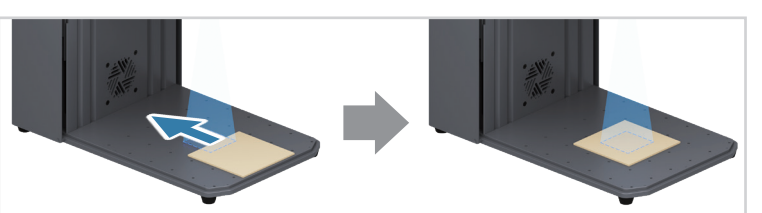
Avoid skin contact with the laser when moving the material.



For a Big Material



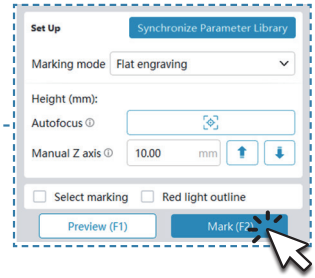
For a Small Material



7 Operation

3. Close the cover.

4. Start engraving.



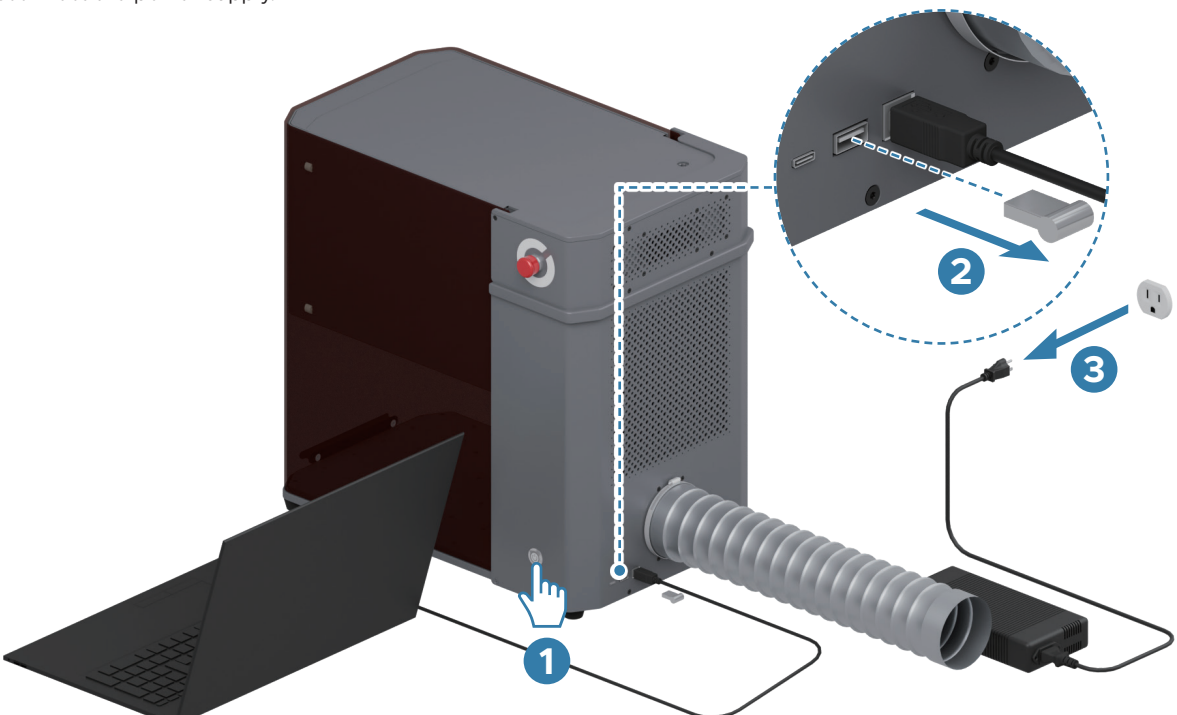
For safety, **DO NOT** lift the cover while the laser is operating. If the cover is lifted, the laser automatically pauses.

5. After the engraving is completed, take out your material.

7 Operation

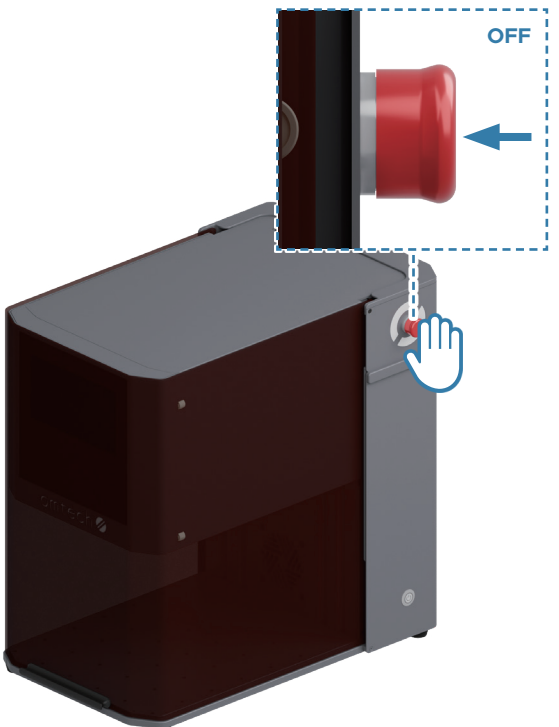
7.5 Powering Off the Machine

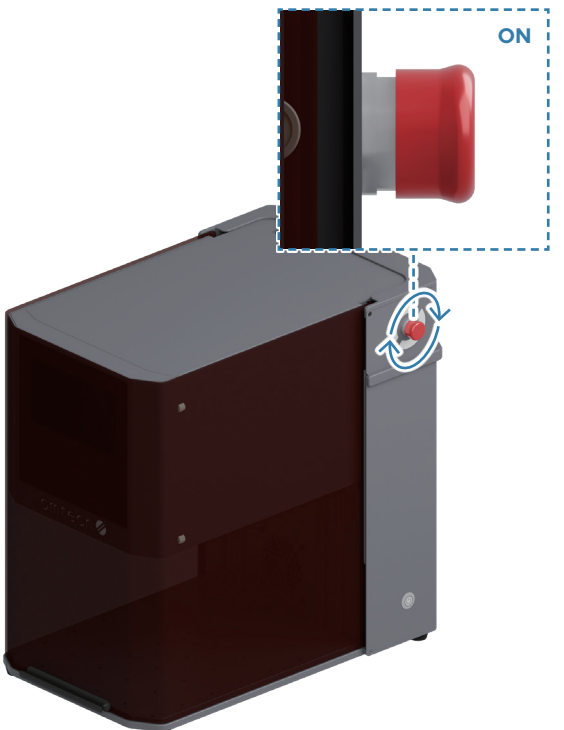
1. Press the power switch to turn off the machine.
2. Remove the laser key.
3. Disconnect the power supply.



7.6 Emergency Stop

If an emergency occurs, press the emergency stop switch to turn off the machine.
After dealing with the emergency, turn the emergency stop switch clockwise to restart the machine.

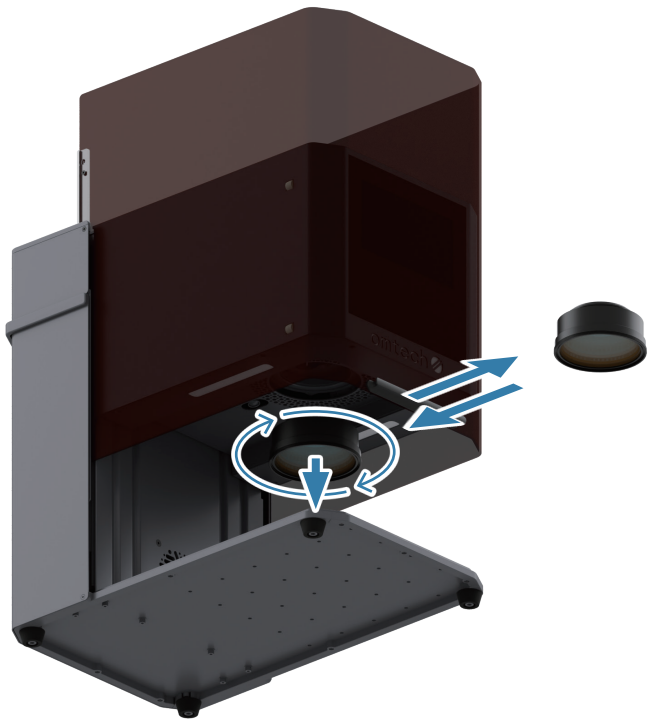




8 More Applications

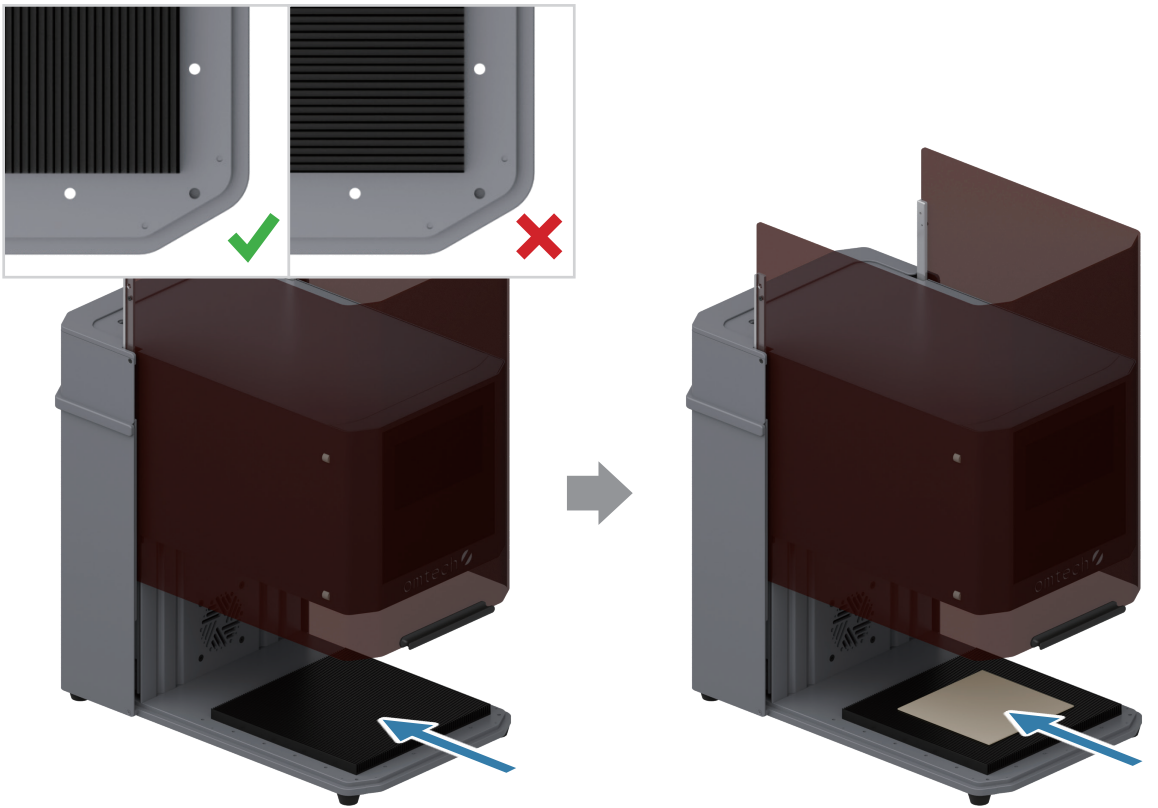
8.1 Replacing the Field Lens

For high-precision, detailed processing, or small-scale engraving tasks, you can use the provided small field lens. Remove the preinstalled field lens and screw the small one. When you hear a click, the field lens is in place.



8.2 Using the Slatted Panel

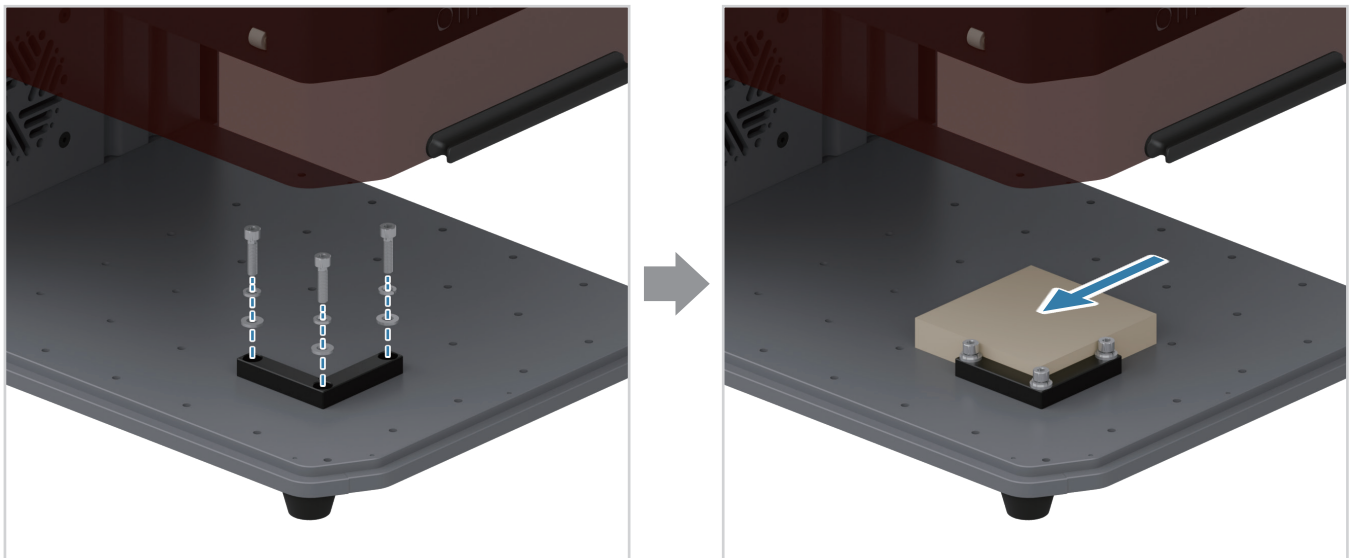
To cut a material, attach the provided slatted panel to reduce burning areas during material processing and protect the workbed.



8 More Applications

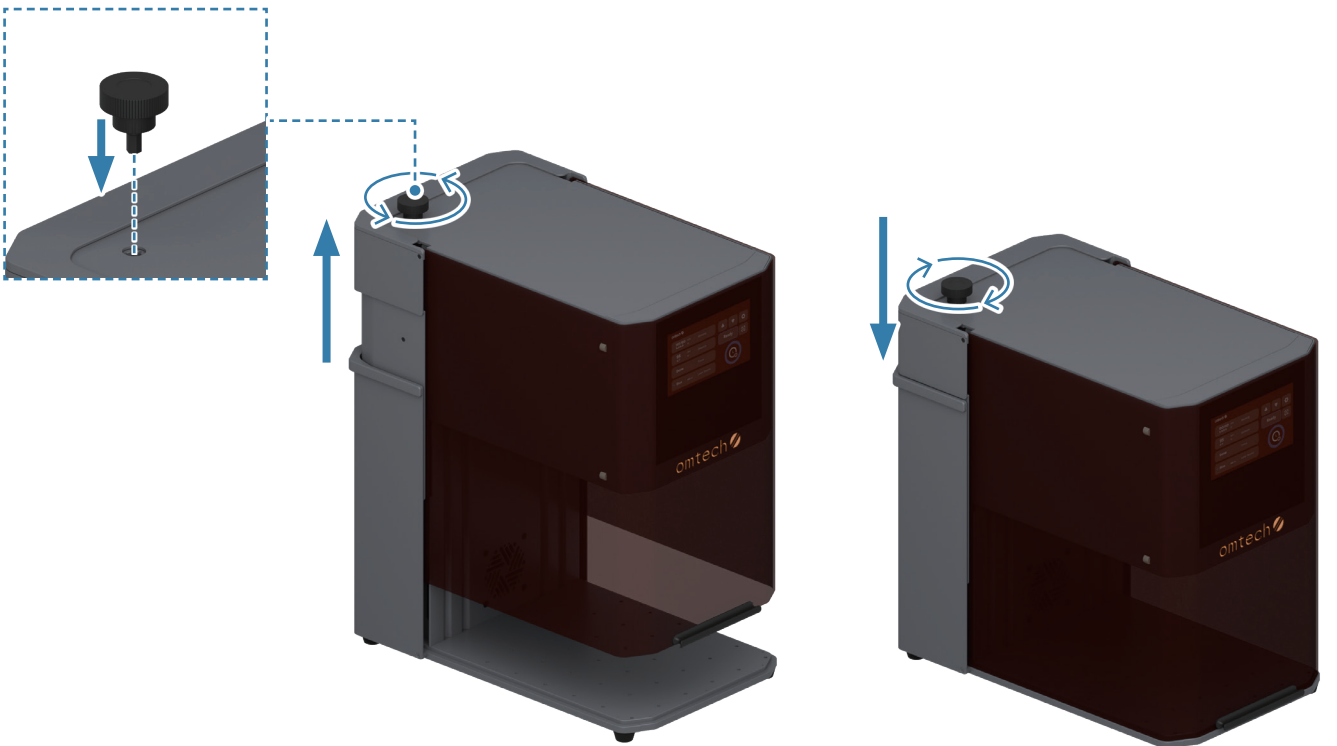
8.3 Using the L-Shaped Positioning Pieces

During batch processing, install the L-shaped positioning piece on the workbed to secure the material in the same position every time.



8.4 Using the Handwheel

If the protective cover cannot be adjusted during an emergency, use the provided handwheel to control its movement manually.



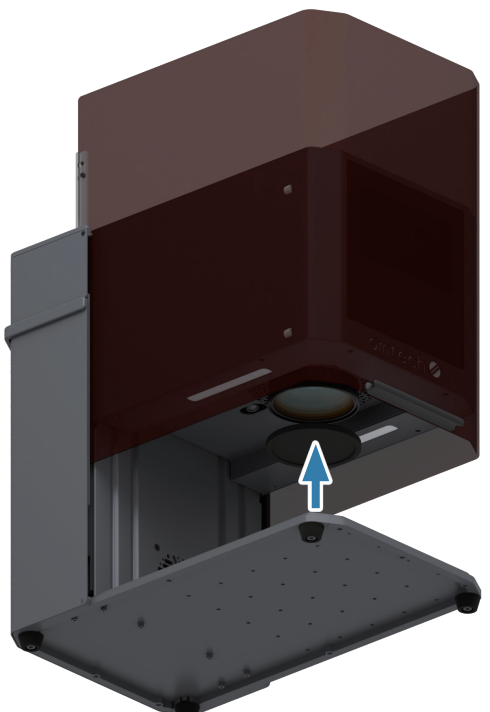
9 Maintenance

Field Lens Cleaning

If the laser power decreases, causing engraved patterns to be shallow or materials not to cut properly, the field lens may become dirty. Clean it with a lint-free cloth moistened with alcohol.

Field Lens Protection

Install the field lens cover when the machine is not used for extended periods to keep the field lens dust-free. Remove the cover before each use.



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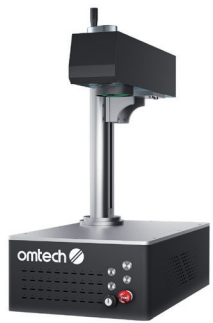
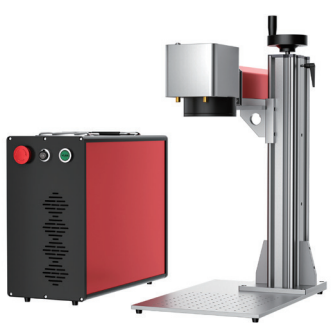


OMTech Compact Autofocus Fiber Laser Engraver

OMTech Split Galvo Fiber Laser Engraver



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