**Aufero 10W Laser Engraver with 17x15.7 inch Platform (ASIN: B0DJM44FC9)**

# Aufero Laser Engraver Machine User Manual

Model: 10W Laser Engraver with 17x15.7 inch Platform

## 1. Product Overview

The Aufero Laser Engraver Machine is designed for precision engraving and cutting, featuring a 10W diode laser output and a spacious 17x15.7 inch engraving platform. This beginner-friendly machine incorporates safety features such as X&Y axis limit switches to enhance positioning accuracy and prevent collisions. The unique knife-edge platform, also known as a vector grid platform, provides a flat surface with narrow, parallel, and closely spaced slits, ideal for various engraving and cutting tasks. Its design allows for a removable, size-adjustable working panel.
Key specifications include a 32-bit MCU motherboard, support for up to 921600 baud rate, an engraving speed of 12000mm/min, and a fine laser spot size of 0.1 x 0.05mm. The engraving platform is constructed from all-metal with high-precision CNC processing, ensuring durability and resistance to laser heat.


Figure 1.1: Overview of the Aufero Laser Engraver Machine, showcasing its design and the 10W Aufero branding on the engraving surface.

## 2. Safety Information

This laser engraver is a Class 4 laser product. Class 4 lasers are high-power lasers that can cause severe eye and skin injuries from direct or scattered exposure. They can also pose a fire hazard. Adherence to all safety guidelines is critical for safe operation.

- **Eye Protection:** Always wear appropriate laser safety goggles that are rated for the specific wavelength and power of this laser (10W diode laser). Never look directly into the laser beam or its reflection.
- **Skin Protection:** Avoid direct exposure of skin to the laser beam.
- **Ventilation:** Operate the machine in a well-ventilated area to dissipate fumes and smoke produced during engraving and cutting, which can be harmful. Consider using an exhaust system.
- **Fire Safety:** Keep a fire extinguisher nearby. Do not leave the machine unattended during operation, especially when cutting flammable materials. Ensure the work area is clear of combustible materials.

- **Material Compatibility:** Only engrave or cut materials known to be safe for laser processing. Avoid materials that produce toxic fumes or catch fire easily.
- **Emergency Stop:** Familiarize yourself with the location and operation of the emergency stop button or power switch to quickly shut down the machine in an emergency.
- **Children and Pets:** Keep children and pets away from the operating area.
- **Stable Surface:** Place the machine on a stable, level, and non-flammable surface.

## 3. Features

- **Powerful 10W Diode Laser:** Capable of engraving and cutting a wide range of materials with precision.
- **Large Engraving Area:** A generous 15.7 x 15.7 inch (400mm x 400mm) working area accommodates larger projects.
- **High-Speed Operation:** Engraving speeds up to 12000mm/min for efficient workflow.
- **Precision Laser Spot:** A fine 0.1 x 0.05mm laser spot ensures detailed and accurate results.
- **Advanced Motherboard:** Equipped with a 32-bit MCU for stable and fast processing, supporting high baud rates up to 921600.
- **X&Y Axis Limit Switches:** Enhance positioning accuracy and prevent the laser head from exceeding the working area, protecting the machine from collisions.
- **All-Metal Knife-Edge Platform:** Durable and heat-resistant, designed for optimal material support and smoke extraction during operation. The platform is made from high-precision CNC processed metal.
- **Removable and Adjustable Working Panel:** The unique splicing design allows for size adjustment and easy removal of the working panel, offering flexibility for various project sizes and cleaning.


Figure 3.1: Illustration of the Aufero Laser Engraver's all-metal construction and the knife-edge platform, designed for durability and heat resistance.

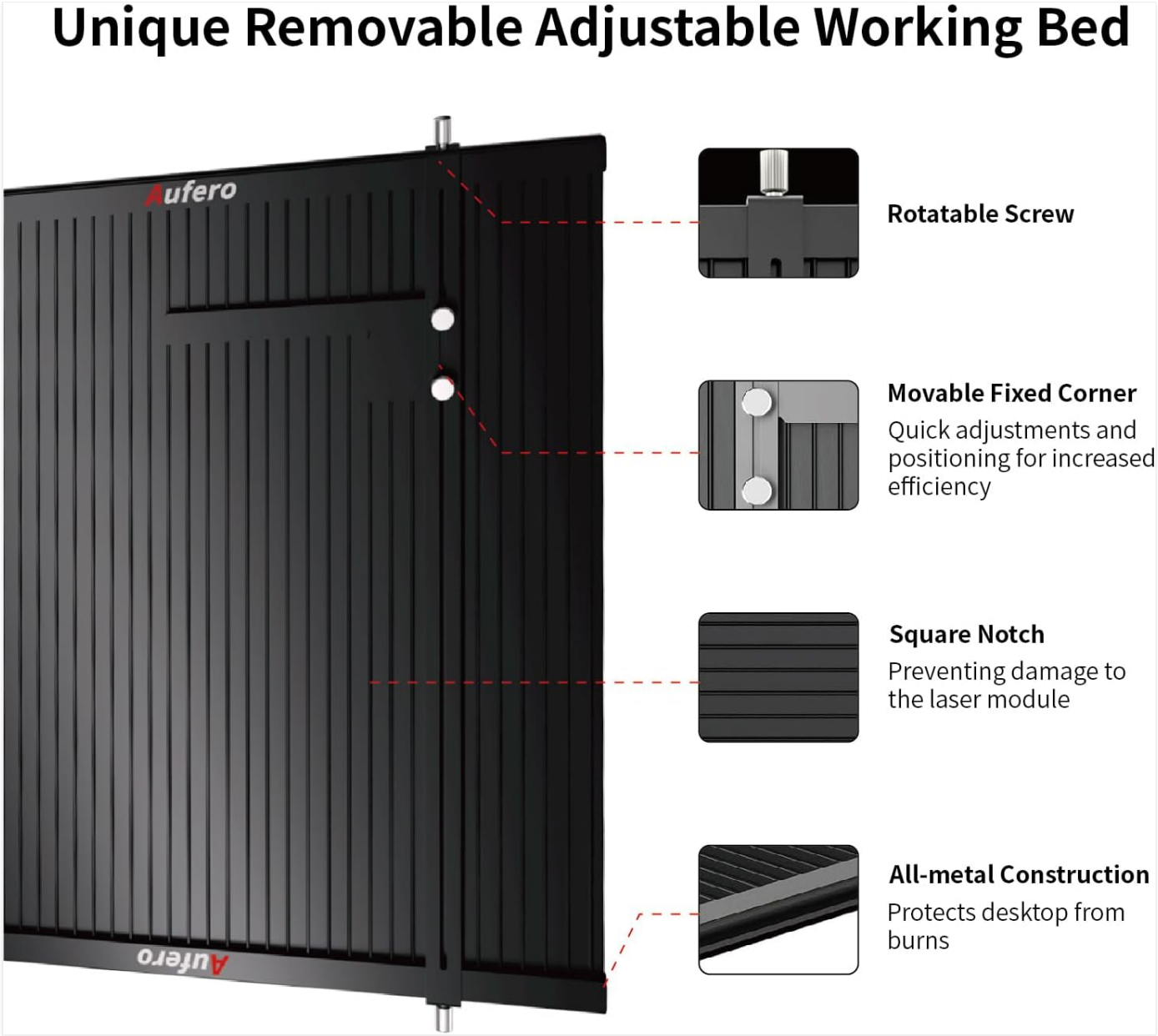


Figure 3.2: Detailed view of the unique removable and adjustable working bed, highlighting its features such as rotatable screws, movable fixed corners, and square notches for protection.

## 4. Setup

Proper setup is essential for the safe and effective operation of your Aufero Laser Engraver. Follow these general steps:

1. **Unpacking:** Carefully remove all components from the packaging. Verify that all parts listed in the packing list are present and undamaged.
2. **Assembly:** Assemble the frame according to the provided assembly instructions. Ensure all screws are tightened securely.
3. **Laser Module Installation:** Install the laser module onto the gantry. Ensure it is firmly seated and the electrical connections are secure.
4. **Working Platform Setup:** Place the knife-edge working platform on a stable, level, and non-flammable surface. The platform should be positioned directly beneath the laser's working area.
5. **Cable Connections:** Connect the power cable, USB cable (if applicable), and any other necessary cables to the machine and your computer.
6. **Software Installation:** Install the recommended laser control software on your computer. Refer to the software's specific instructions for installation and driver setup.

7. **Ventilation Setup:** Ensure adequate ventilation for the work area. If using an enclosure or exhaust system, set it up according to its instructions.
8. **Safety Gear:** Always have your laser safety goggles readily available and wear them before powering on the machine.

## 5. Operating Instructions

This section provides general guidance for operating the Aufero Laser Engraver. Specific operations may vary based on the software used.

1. **Material Preparation:**
    - Select a material suitable for laser engraving or cutting. Common materials include wood, acrylic, leather, and certain metals (for engraving).
    - Place the material securely on the knife-edge working platform. Ensure it is flat and does not move during operation.
2. **Design Preparation:**
    - Create or import your design using the laser control software.
    - Adjust the design size and position to fit your material and desired output.
3. **Parameter Settings:**
    - Set the laser power, speed, and number of passes based on the material type and desired effect (engraving or cutting). Refer to material testing guides or recommended settings within your software.
    - Ensure the laser focus is correctly set for your material thickness.
4. **Framing/Preview:**
    - Use the framing function in your software to preview the laser's path on the material without firing the laser at full power. This helps confirm correct positioning.
5. **Start Operation:**
    - Ensure all safety precautions are in place, including wearing laser safety goggles and having adequate ventilation.
    - Initiate the engraving or cutting process from the software.
    - Monitor the machine closely during operation. Be prepared to use the emergency stop if any issues arise.
6. **Completion:**
    - Once the operation is complete, wait for the laser to stop completely and for any fumes to clear before removing the material.
    - Carefully remove the engraved or cut material.

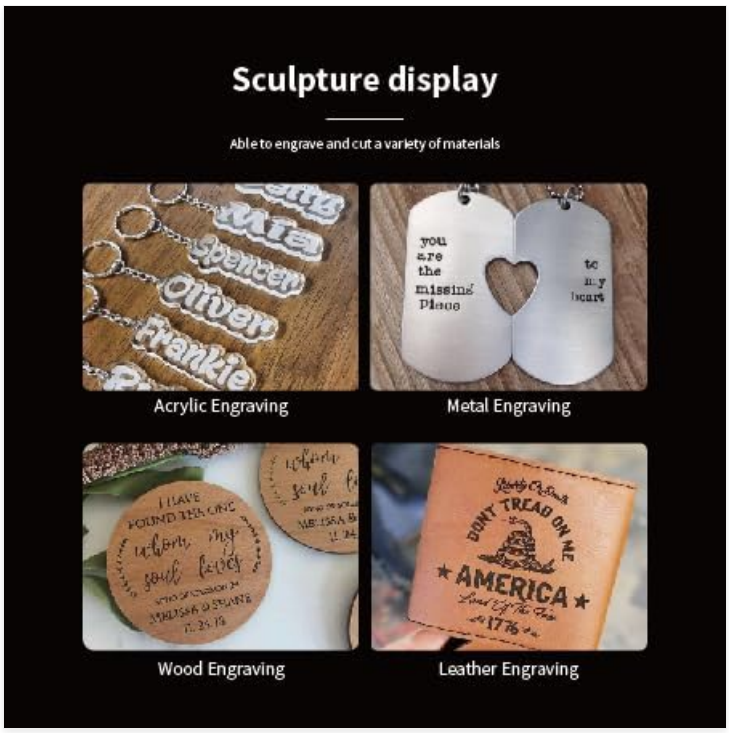


Figure 5.1: Examples of various materials that can be engraved, including acrylic, metal, wood, and leather, demonstrating the machine's versatility.

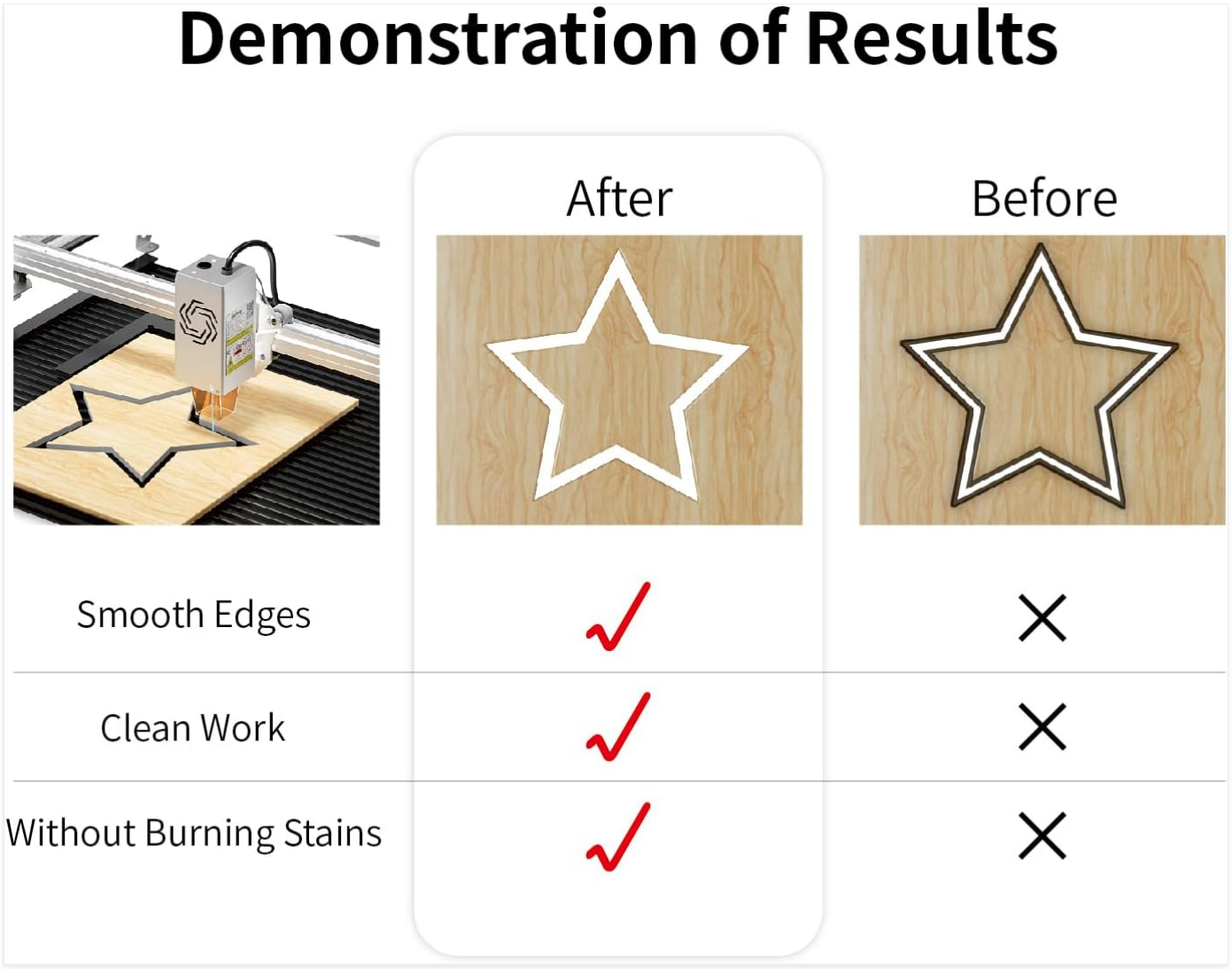


Figure 5.2: Demonstration of optimal laser cutting results, highlighting smooth edges, clean work, and the absence of burning stains when proper settings are applied.

## 6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your Aufero Laser Engraver.

- **Cleaning the Laser Lens:** The laser lens can accumulate dust and debris, affecting laser performance. Gently clean the lens with a specialized lens cleaning solution and a lint-free cloth or cotton swab. Perform this regularly, especially after extended use.
- **Cleaning the Working Platform:** The knife-edge platform can collect residue from engraved materials. Clean it regularly to maintain optimal air circulation and prevent buildup.
- **Lubricating Guide Rails:** Periodically apply a small amount of lubricant to the guide rails to ensure smooth movement of the laser module.
- **Checking Belts:** Inspect the timing belts for tension and wear. Adjust or replace them if necessary to maintain engraving accuracy.
- **General Cleaning:** Keep the entire machine free of dust and debris. Use compressed air to clear hard-to-reach areas.
- **Power Off When Not in Use:** Always power off and unplug the machine when not in use for extended periods.

## 7. Troubleshooting

This section addresses common issues you might encounter with your laser engraver.

| Problem | Possible Cause | Solution |
| --- | --- | --- |
| Laser not firing or weak output | ◦ Loose cable connection<br>◦ Dirty laser lens<br>◦ Incorrect power settings<br>◦ Laser module failure | ◦ Check all cable connections.<br>◦ Clean the laser lens.<br>◦ Verify power settings in software.<br>◦ Contact support if module is suspected faulty. |
| Engraving/Cutting is not precise or distorted | ◦ Loose belts<br>◦ Unstable machine or material<br>◦ Incorrect focus<br>◦ Motor issues | ◦ Check and tighten timing belts.<br>◦ Ensure machine and material are stable.<br>◦ Adjust laser focus.<br>◦ Inspect motors for smooth operation. |
| Machine not connecting to computer | ◦ USB cable issue<br>◦ Driver not installed or corrupted<br>◦ Software conflict | ◦ Try a different USB port or cable.<br>◦ Reinstall drivers and software.<br>◦ Close other applications. |

| Problem | Possible Cause | Solution |
| --- | --- | --- |
| Material burning or excessive smoke | ◦ Too high laser power or too slow speed<br>◦ Improper ventilation<br>◦ Material not suitable | ◦ Reduce laser power or increase speed.<br>◦ Improve ventilation in the work area.<br>◦ Ensure material is laser-compatible. |

## 8. Specifications

| Feature | Detail |
| --- | --- |
| Laser Output Power | 10,000 mW (10W) |
| Laser Class | Class 4 |
| Engraving Area | 15.7 x 15.7 inches (400mm x 400mm) |
| Engraving Speed | Up to 12000 mm/min |
| Laser Spot Size | 0.1 x 0.05 mm |
| Motherboard | 32-bit MCU |
| Baud Rate Support | Up to 921600 |
| Limit Switches | X & Y Axis |
| Platform Type | All-metal Knife-Edge (Vector Grid) |
| Platform Dimensions | 17 x 15.7 inches (approx. 432mm x 400mm) |
| First Available Date | October 7, 2024 |

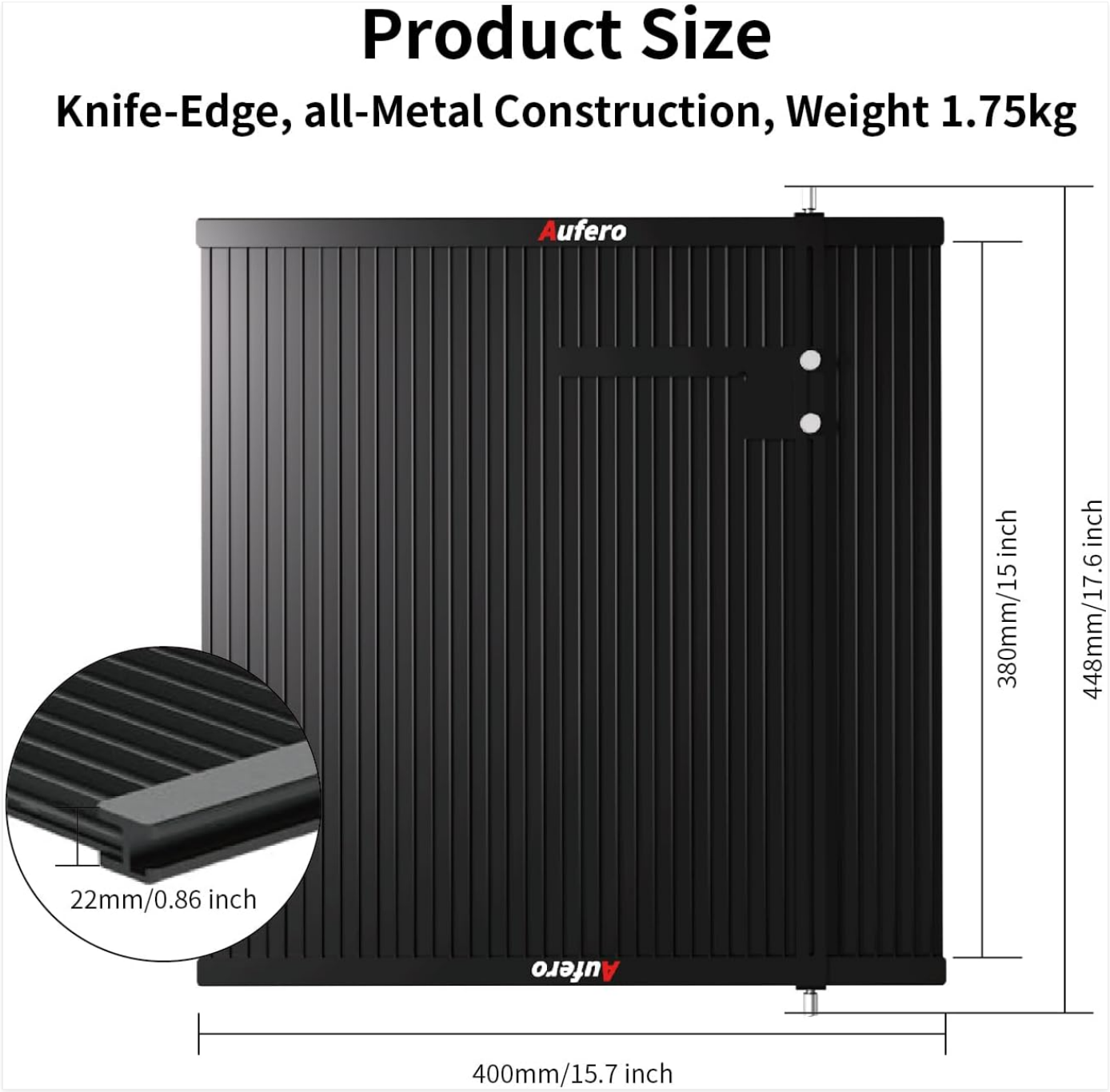


Figure 8.1: Product size and dimensions of the knife-edge working platform, indicating its all-metal construction and weight.

## 9. Warranty and Support

For warranty information and technical support, please refer to the documentation included with your product or contact Aufero Technology directly. As per Amazon's return policy, this product may be eligible for returns within 30 days of purchase. For specific warranty terms and conditions, please consult the manufacturer's official website or the warranty card provided with your machine.

You can visit the official Aufero Store on Amazon for additional resources and contact information:Aufero Store



**Related Documents**

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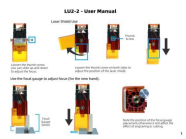
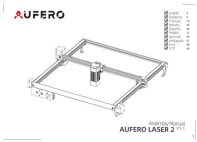
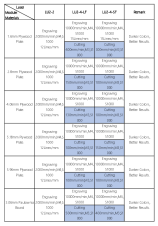
|  | [AUFERO LU2-2 Laser Module: User Manual and Focus Adjustment Guide]<br>Comprehensive user manual for the AUFERO LU2-2 laser module, detailing focus adjustment methods using a focal gauge and aluminum plate, along with laser shield positioning. Includes product specifications and safety information. |
|  | [AUFERO LASER 2 Assembly Manual: Step-by-Step Guide]<br>Detailed assembly manual for the AUFERO LASER 2 laser engraving machine, covering setup, components, and multiple laser module options (LU2-2, LU2-4-LF, LU2-4-SF). |
|  | [AUFERO LU2-4-LF Laser Module User Manual - Focus and Air-Assist Installation Guide]<br>Comprehensive user manual for the AUFERO LU2-4-LF laser module. Learn how to adjust laser shield, set focus using focal gauge or aluminum plate, and install the optional air-assist system. |
|  | [Aufero Laser 2 Module Engraving and Cutting Parameters Guide]<br>Comprehensive guide detailing engraving and cutting parameters for various materials using Aufero Laser 2 modules (LU2-2, LU2-4-LF, LU2-4-SF), including speed, power, and line settings for optimal results. |