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SCULPFUN S10

SCULPFUN S10 Laser Engraver User Manual

MODEL: S10 | BRAND: SCULPFUN

1. Introduction

This manual provides essential information for the safe and effective operation of your SCULPFUN S10 Laser Engraver. The SCULPFUN S10 is a versatile laser engraving and cutting machine designed for precision work on a variety of materials, including wood, metal, and acrylic. It features a powerful 10W diode laser and an integrated air assist system for enhanced performance.

2. Safety Information

WARNING: Laser Class IV. Avoid direct exposure to the laser beam. Always wear appropriate laser safety goggles when operating the machine. Never leave the machine unattended during operation.

- Ensure proper ventilation in the work area to dissipate fumes and smoke.
- Keep flammable materials away from the laser engraver.
- Do not operate the machine if any components are damaged or missing.
- Keep children and pets away from the operating area.
- Familiarize yourself with emergency shutdown procedures.

3. Package Contents

Verify that all components are present in your SCULPFUN S10 package:

- SCULPFUN S10 Laser Engraver Frame
- 10W Diode Laser Module
- Air Assist Nozzle and Hose
- Laser Honeycomb Pad
- Power Adapter (100-240V AC, 50/60Hz input; 12V 5A output)
- USB Connection Cable
- Fixed Focus Column
- Safety Goggles

- User Manual (this document)
- Assembly Tools and Screws

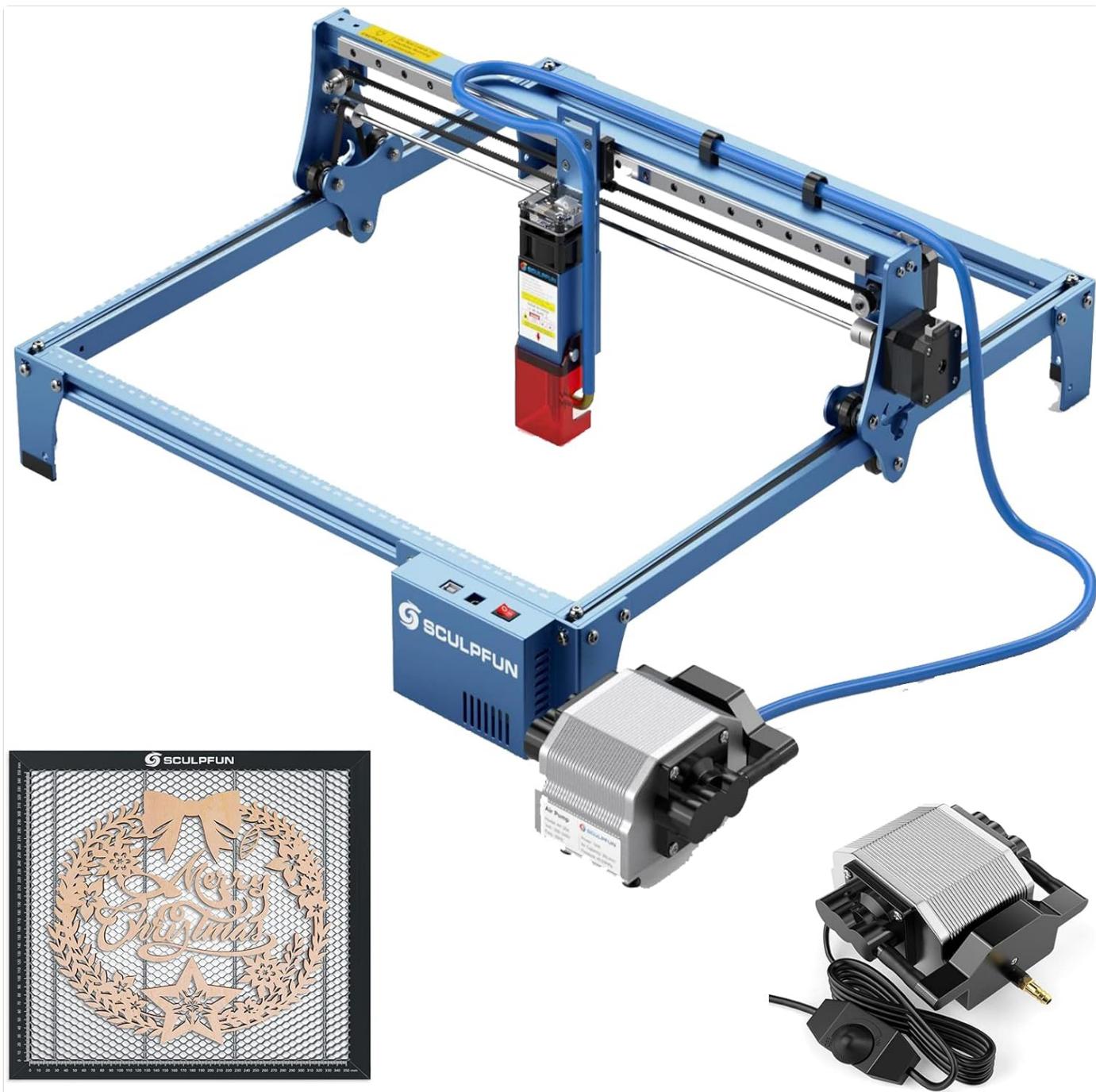


Figure 3.1: SCULPFUN S10 Laser Engraver with included Air Assist and Honeycomb Pad.

4. Setup

4.1 Assembly

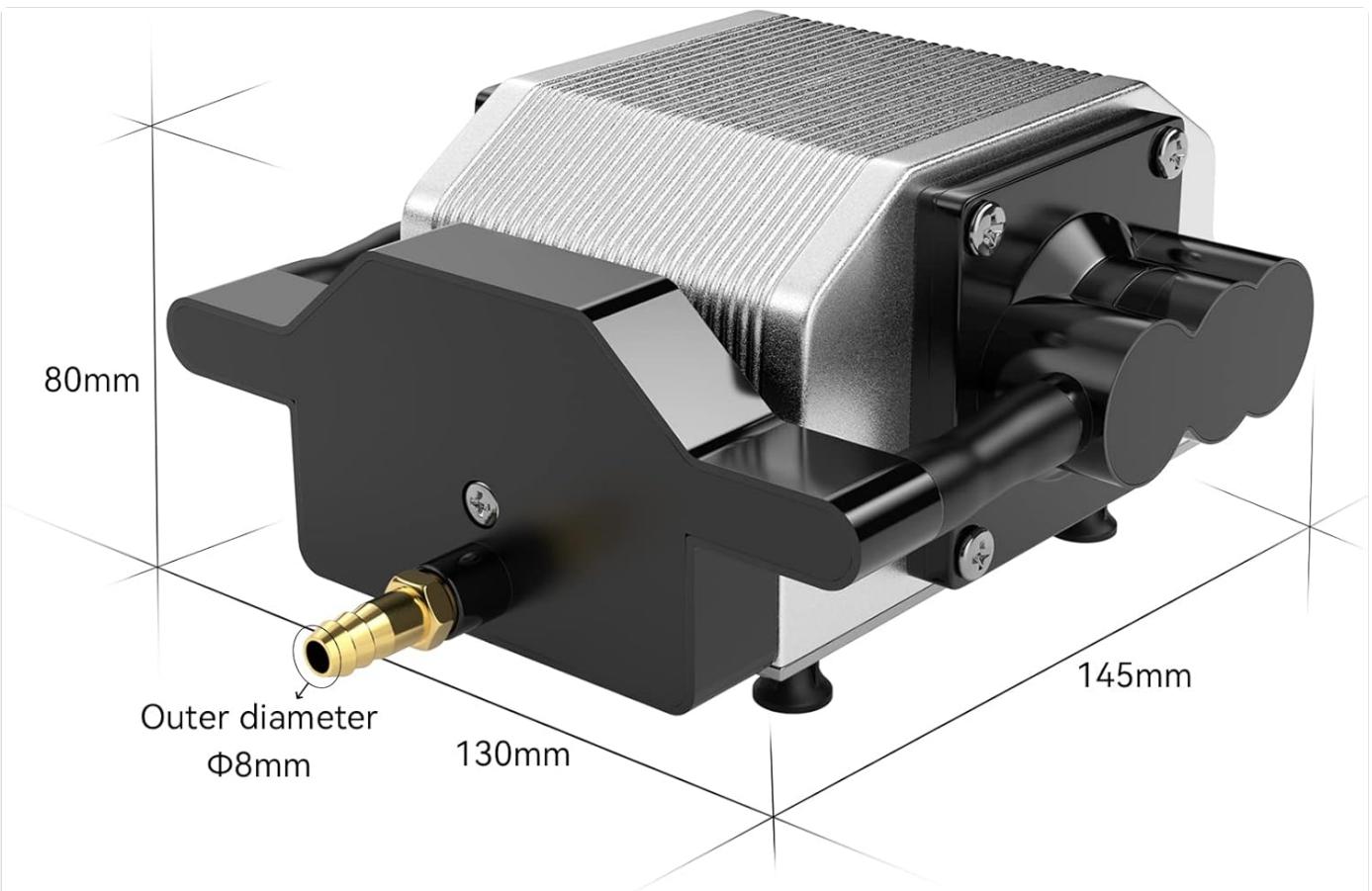
Follow the detailed assembly instructions provided in the separate assembly guide or video. Ensure all screws are tightened securely and cables are properly connected. The industrial-grade X-axis linear slide ensures high precision and stability.



Figure 4.1: Key features of the SCULPFUN S10, including the 10W laser and linear rail slide.

4.2 Air Assist Connection

The SCULPFUN S10 features a high-speed air assist nozzle. Connect an external air compressor (recommended: 30L/min, 0.03Mpa with 8mm outer diameter air outlet interface) to the auxiliary air hose (inner diameter: 7.5mm/0.29"). This significantly improves cutting performance and reduces residue.



**SCULPFUN
AIR PUMP
30L/Min**

Model: AP-30A

Volt.: 200-240V

Freq.: 50Hz

Power: 16W

Air Capacity: 30L/min

Pressure: $\geq 0.03\text{MPa}$

Figure 4.2: Dimensions of the recommended SCULPFUN Air Pump for optimal air assist.



Figure 4.3: Proper connection and adjustment of the air assist system.

4.3 Software Installation

The SCULPFUN S10 supports various operating software, including LaserGRBL and LightBurn, compatible with Windows and MAC systems. Install the necessary drivers and software as per the instructions provided with your chosen software. Data transfer is primarily via USB connection.

5. Operating the Laser Engraver

5.1 Material Compatibility

The SCULPFUN S10 is capable of engraving and cutting a wide range of materials:

- **Engraving Materials:** All kinds of wood (including walnut, cherry, and other high-density wood), MDF, bamboo, cardboard, plastic, leather, PCB board, alumina, 304 stainless steel, ceramic, dark stone.
- **Cutting Materials:** All kinds of wood (including walnut, cherry, and other high-density wood), MDF, acrylic board, cardboard, non-woven fabric, bamboo, leather, some plastic boards, PCB boards.

Supported file formats include NC, BMP, JPG, PNG, DXF, and other image formats.

5.2 Focusing Method

The S10 uses a fixed focus column with a sliding device for precise focusing. Refer to your software's guide for optimal focus settings for different materials and thicknesses.

5.3 Enhancing Performance with Air Assist

The air assist system significantly improves cutting speed and cleanliness by accelerating residue removal. This results in cleaner cuts with less charring, especially on thicker materials.

Your browser does not support the video tag.

Video 5.1: Demonstration of SCULPFUN S10's air assist feature, 10W laser power, and cutting/engraving capabilities on various materials like wood, MDF, stainless steel, leather, and stone.

5.4 Using the Honeycomb Pad

The included laser honeycomb pad protects your work surface and improves cutting results by allowing smoke and debris to pass through, minimizing back-reflection and charring on the underside of the material.

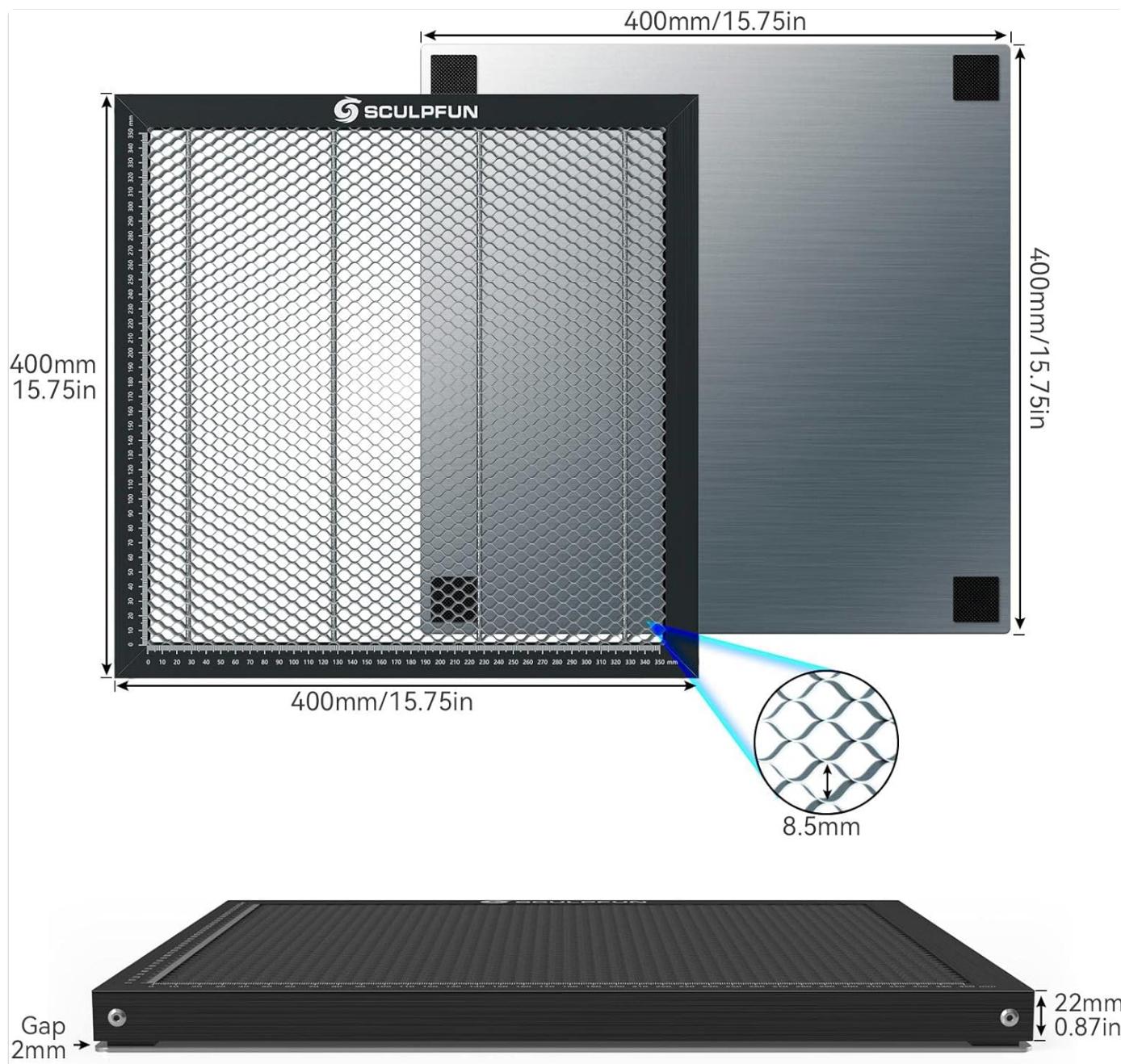


Figure 5.1: The SCULPFUN Honeycomb Pad, measuring 400x400mm (15.75x15.75 inches), designed to protect your desktop and improve cutting quality.



Figure 5.2: The laser engraver positioned over the honeycomb pad, which is placed on a desktop protection board to prevent laser damage to the table.

6. Maintenance

- Regularly clean the laser lens and nozzle to ensure optimal performance and prevent residue buildup.
- Inspect the X-axis linear slide and belts for any debris or wear. Keep the rails clean and lubricated if necessary.
- Ensure all electrical connections are secure and free from damage.
- Store the laser engraver in a clean, dry environment when not in use.

7. Troubleshooting

- **Laser not firing:** Check power connection, USB connection, and ensure the laser module is properly seated. Verify software settings for laser power and mode.

- **Poor engraving/cutting quality:** Adjust laser focus, power, and speed settings in your software. Ensure the material is flat and properly secured. Clean the laser lens and nozzle. Verify air assist is functioning correctly.
- **Machine not moving:** Check power and USB connections. Ensure the software is connected to the machine and sending commands. Inspect belts for tension and proper alignment.
- **Software connection issues:** Reinstall drivers or software. Try a different USB port or cable.

8. Specifications

Feature	Detail
Power Input	100-240V AC, 50/60Hz
Output	12V 5A
Diode Laser Output Power	10W (light energy)
Laser Wavelength	455±5nm
Engraving Accuracy	0.01mm
Engraving Area Size	410*400mm (16.14*15.75")
Focusing Method	Fixed focus column + sliding device
Laser Protection Cover	Detachable, adjustable
Machine Power Consumption	About 36W
Operating Software	LaserGRBL, LightBurn, Benbox, GrblController, LiteFire
Supported File Formats	NC, BMP, JPG, PNG, DXF, etc.
Data Transfer Method	USB connection
Equipment Net Weight	3.42kg
Packing Weight	5.13kg
Product Size	560*510*265mm (22.05*20.08*10.43")

9. Warranty and Support

SCULPFUN products are manufactured to high-quality standards. For warranty information, technical support, or service inquiries, please contact SCULPFUN customer service through their official website or the retailer where you purchased the product. Please have your product model (S10) and purchase details ready when contacting support.