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Genmitsu 3018-PROVer V2

Genmitsu 3018-PROVer V2 CNC Machine User Manual

Model: 3018-PROVer V2 (3018PV2L)

1. Introduction

This manual provides essential information for the safe and effective operation of your Genmitsu 3018-PROVer V2 CNC Machine. Please read this manual thoroughly before assembly and operation to ensure proper usage and to prevent damage or injury.



Figure 1: Genmitsu 3018-PROVer V2 CNC Machine overview.

The Genmitsu 3018-PROVer V2 is a compact CNC router designed for hobbyists and beginners, featuring a sturdy aluminum frame, limit switches, and an emergency stop button for enhanced safety and precision.

2. Safety Instructions

Always prioritize safety when operating CNC machinery. Failure to follow these instructions may result in injury or damage to the machine.

- **Read the Manual:** Understand all instructions and warnings before operation.
- **Wear Safety Gear:** Always wear safety glasses to protect your eyes from flying debris. Consider hearing protection and a dust mask.
- **Work Environment:** Operate the machine in a well-ventilated area. Keep the workspace clean and free of clutter.
- **Secure Workpiece:** Ensure the material is firmly clamped to the spoilboard to prevent movement during carving.
- **Emergency Stop:** Familiarize yourself with the location and function of the emergency stop button.

- **Power Disconnection:** Disconnect power before performing any maintenance, adjustments, or when changing bits.
- **Supervision:** Never leave the machine running unattended.
- **Keep Clear:** Keep hands, hair, and loose clothing away from moving parts and the spinning spindle.
- **Proper Bits:** Use only sharp, appropriate bits for the material being carved.

3. Package Contents

Verify that all components are present upon unboxing. If any parts are missing or damaged, contact Genmitsu customer support.

- Genmitsu 3018-PROVer V2 CNC Machine (Semi-assembled)
- Spindle Motor
- Power Supply
- USB Cable
- Acrylic Safety Baffles
- Limit Switches (Pre-installed)
- Emergency Stop Button (Pre-installed)
- Clamps for Workpiece
- Basic Carving Bits
- Assembly Tools (Wrenches, Hex Keys)
- User Manual (this document)

4. Setup Guide

4.1 Assembly

The Genmitsu 3018-PROVer V2 comes semi-assembled, allowing for quick setup. Typical assembly time is approximately 35 minutes.

1. **Unpack Components:** Carefully remove all parts from the packaging and place them on a clean, flat surface.
2. **Attach Gantry:** Secure the pre-assembled gantry to the base frame using the provided screws and tools.
3. **Install Spindle:** Mount the spindle motor into its bracket on the Z-axis assembly. Ensure it is securely fastened.
4. **Connect Wiring:** Connect the motor cables (X, Y, Z axes, spindle) to the control board according to the labels. Ensure all connections are firm.
5. **Install Acrylic Baffles:** Attach the acrylic safety baffles to the sides of the machine.
6. **Power Connection:** Connect the power supply to the control board and then to a suitable power outlet. Do not power on yet.

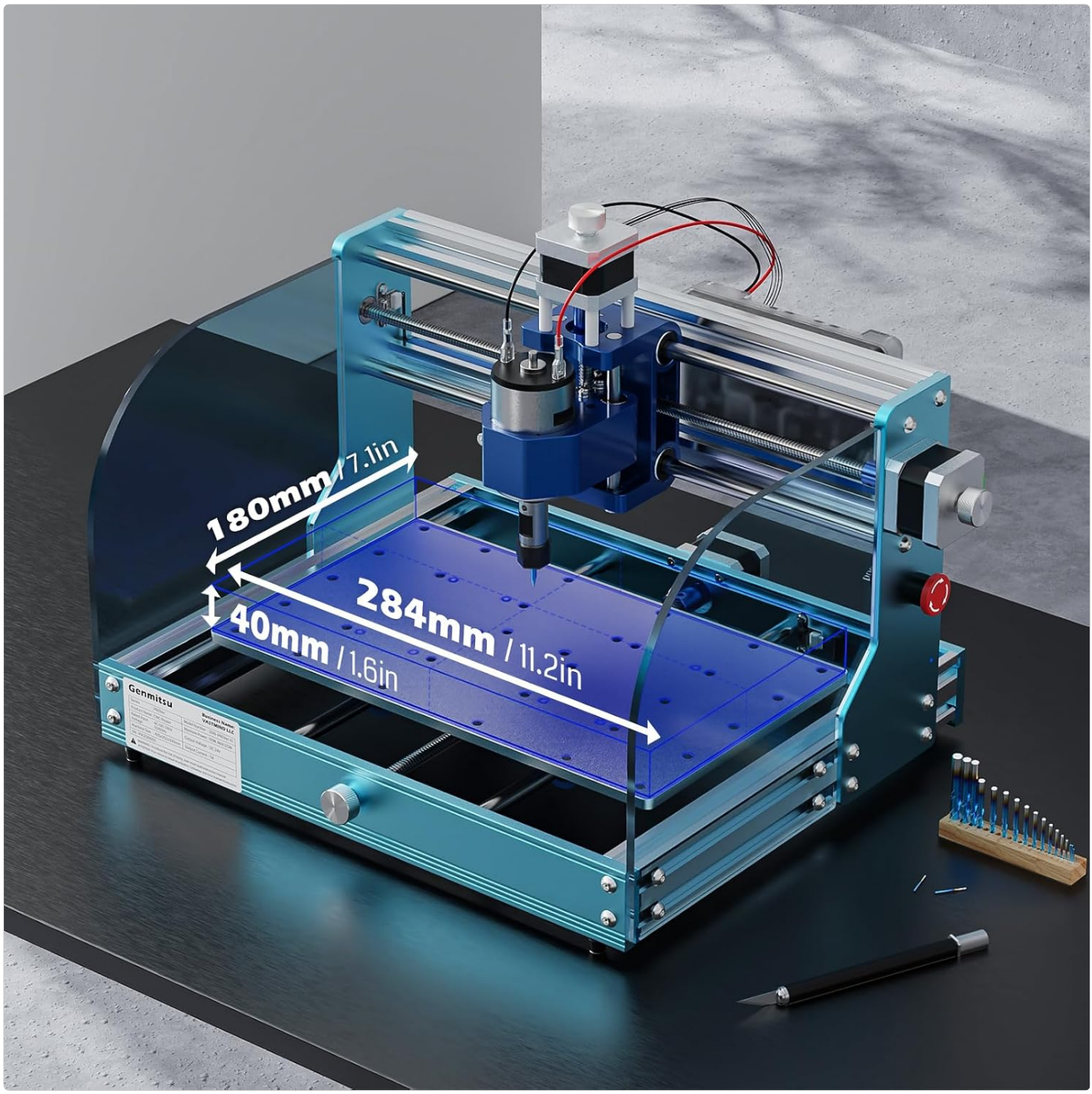


Figure 2: Semi-assembled state of the CNC machine, highlighting the Z-axis range.

The machine arrives with major components pre-assembled, simplifying the setup process. The effective Z-axis range is 40mm.

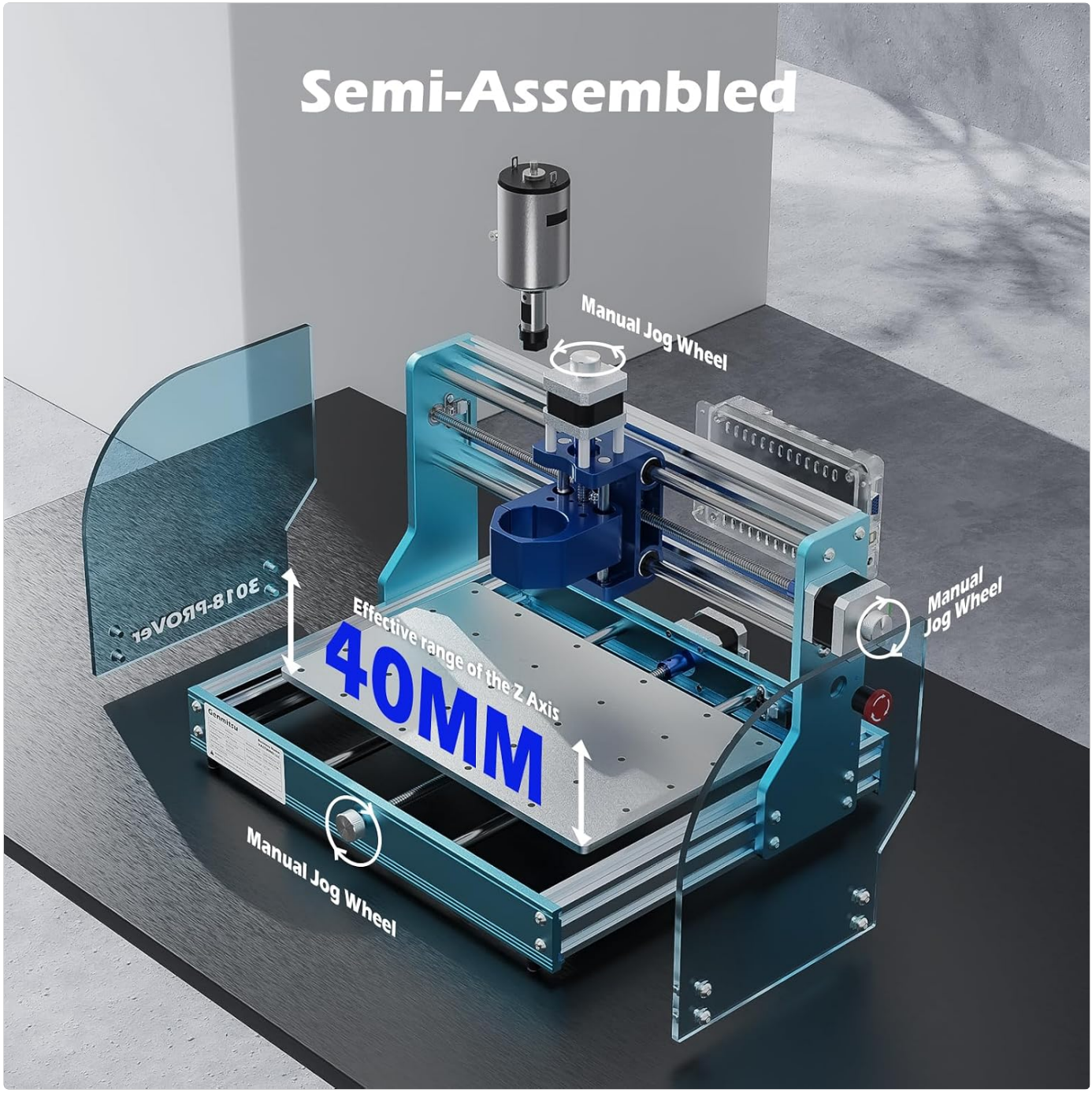


Figure 3: Acrylic baffles installed on the CNC machine.

The included acrylic baffles help contain debris during operation, keeping your workspace cleaner.

4.2 Software Installation

The Genmitsu 3018-PROVer V2 is compatible with various CNC software. It typically uses GRBL-compatible control software.

- **Design Software (CAD):** Use software like Fusion360, Carveco, or Easel to create your designs.
- **CAM Software:** This converts your design into toolpaths and generates G-code. Many CAD programs include CAM features.
- **Control Software:** This sends the G-code to the CNC machine. Popular options include Candle (GRBL Control), UGS (Universal Gcode Sender), or Easel (which integrates design, CAM, and control).

Download the latest versions of your chosen software from their official websites. Follow their respective installation guides.



Figure 4: Software compatibility for the Genmitsu 3018-PROVer V2.

The machine supports a wide range of software, including Fusion360, Carveco, and GRBL-based control applications.

5. Operating Instructions

5.1 Basic Operation Workflow

1. **Power On:** Connect the machine to your computer via USB and then plug in the power supply. Turn on the machine's power switch.
2. **Connect Software:** Open your chosen control software (e.g., Candle). Select the correct COM port and baud rate (usually 115200) to connect to the machine.
3. **Homing (Optional but Recommended):** If your machine has homing switches, click the "Home" button in your software. This moves the machine to a known origin point.
4. **Load Material:** Secure your workpiece onto the spoilboard using the provided clamps. Ensure it is flat and stable.
5. **Install Bit:** With the power off or spindle locked, insert the appropriate carving bit into the collet and tighten it securely with the collet wrench.

6. **Set Work Zero:** Manually jog the spindle to the desired starting point (X, Y, Z origin) on your workpiece. In your control software, click the "Zero X", "Zero Y", and "Zero Z" buttons to set this as your work zero.
7. **Load G-code:** Load your prepared G-code file into the control software.
8. **Start Job:** Ensure all safety precautions are met. Start the spindle (if not controlled by G-code) and then click "Start" or "Run" in your software to begin the carving process. Monitor the machine closely.
9. **Emergency Stop:** Be prepared to press the emergency stop button if any issues arise.
10. **Job Completion:** Once the job is finished, the spindle will stop and return to its final position. Turn off the spindle, remove the workpiece, and clean the machine.

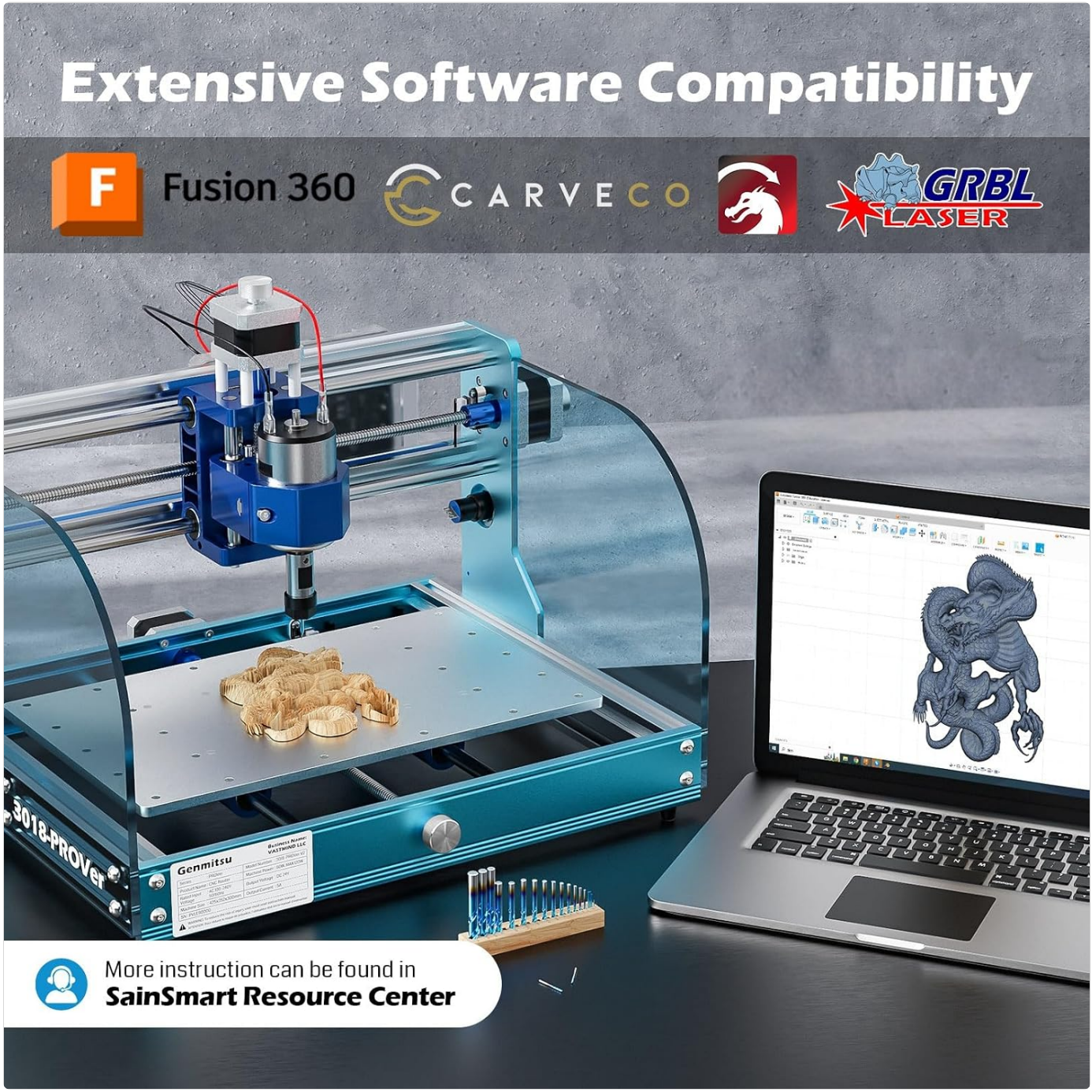


Figure 5: The one-piece molded aluminum spoilboard.

The robust aluminum spoilboard provides a stable base for your materials and is compatible with most CNC clamps.

6. Maintenance

Regular maintenance ensures the longevity and optimal performance of your CNC machine.

- **Cleaning:** After each use, clean dust and debris from the machine, especially from the lead screws, guide rails, and spindle area. Use a brush or vacuum.
- **Lubrication:** Periodically apply a small amount of light machine oil or grease to the lead screws and guide rails to ensure smooth movement.
- **Check Connections:** Regularly inspect all electrical connections and mechanical fasteners. Tighten any loose screws or connectors.
- **Spindle Maintenance:** Keep the spindle collet clean. Replace worn or damaged collets and bits promptly.
- **Belt Tension (if applicable):** Check the tension of any drive belts. They should be taut but not overly tight.

7. Troubleshooting

Here are some common issues and their potential solutions:

Problem	Possible Cause	Solution
Machine not connecting to software	Incorrect COM port, wrong baud rate, USB driver issue, loose USB cable.	Verify COM port in Device Manager, set baud rate to 115200, install USB drivers, check USB cable.
Motors not moving	Emergency stop engaged, loose motor cables, power supply issue, software not connected.	Release E-stop, check all motor connections, ensure power supply is on, connect software.
Poor carving quality / Inaccurate cuts	Loose workpiece, dull bit, incorrect feed rate/spindle speed, loose mechanical components.	Secure workpiece, replace bit, adjust cutting parameters, check for loose screws on gantry/spindle.
Spindle not spinning	Loose spindle connection, spindle power issue, software command error.	Check spindle wiring, ensure power supply is adequate, verify G-code for spindle commands.

8. Specifications

Feature	Detail
Brand	Genmitsu
Model Number	3018PV2L
Material	Aluminum
Working Area (X, Y, Z)	28.4 x 18 x 4 cm (11.2 x 7.1 x 1.6 inches)
Power Source	Corded Electric
Voltage	240 Volts
Weight	9.24 Kilograms (20.37 lbs)
Control Software	GRBL-compatible (e.g., Candle, UGS, Easel)
Safety Features	Limit Switches, Emergency Stop Button, Acrylic Baffles

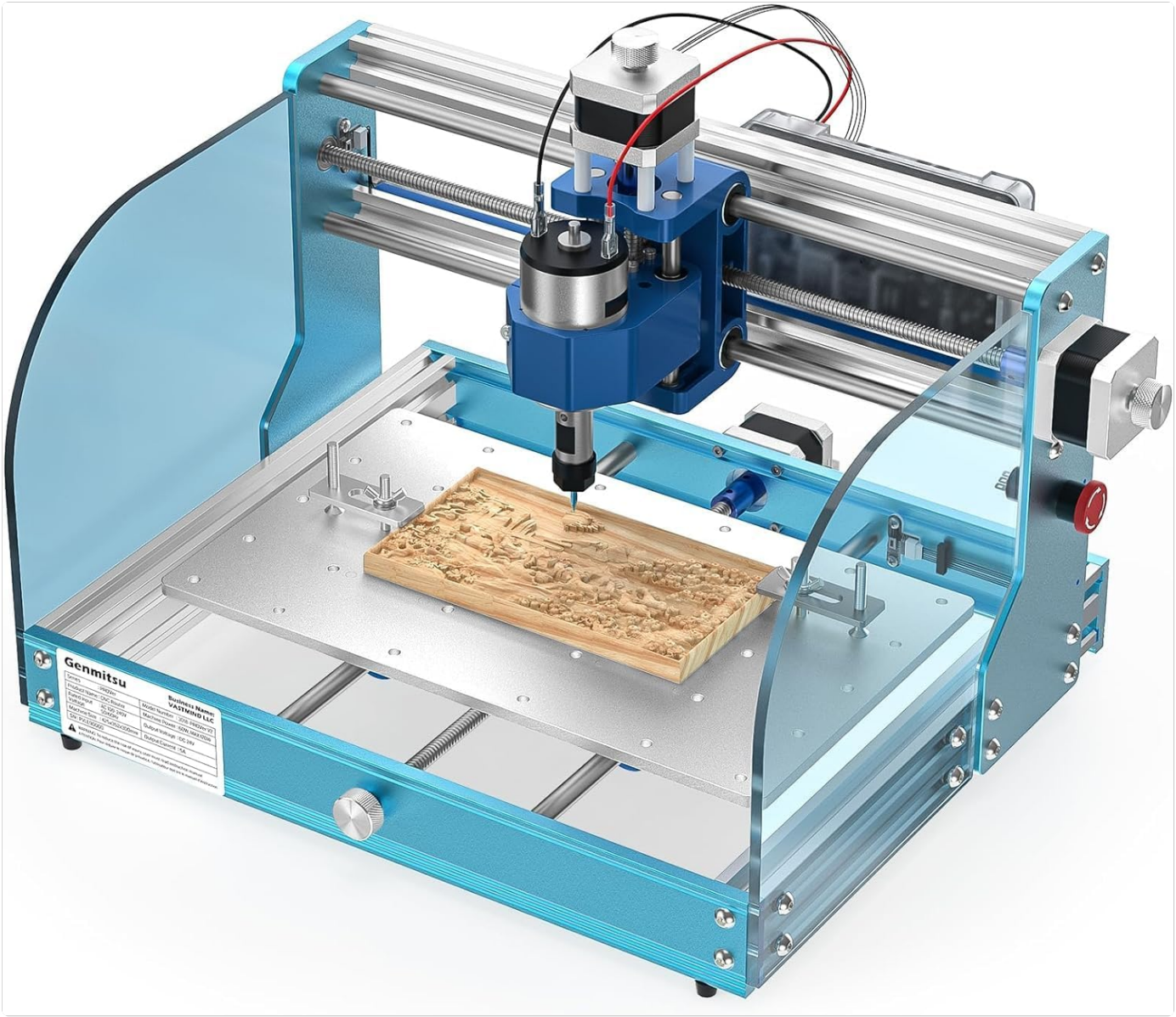


Figure 6: Key dimensions of the Genmitsu 3018-PROVer V2 working area.

The working area is approximately 284mm (11.2in) in X, 180mm (7.1in) in Y, and 40mm (1.6in) in Z.

9. Warranty and Support

For warranty information, please refer to the official Genmitsu or SainSmart website, or the documentation included with your purchase. Warranty terms may vary by region and retailer.
For technical support, troubleshooting assistance, or to access additional resources, please visit the SainSmart Resource Center or contact their customer service directly. You can find contact information on the official SainSmart website.

Visit SainSmart Resource Center

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