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SainSmart 182486381

SainSmart Genmitsu Vacuum Clamp Pod User Manual

Model: 182486381

1. INTRODUCTION

The SainSmart Genmitsu Vacuum Clamp Pod is an aluminum CNC hold-down kit designed to securely hold workpieces for various milling projects. This accessory is compatible with a wide range of materials including wood, acrylic, plastic, and metal. It provides a stable workholding solution without the need for traditional clamps, maximizing the engraving area and preventing tool collisions.

This manual provides detailed instructions for the proper setup, operation, and maintenance of your Vacuum Clamp Pod to ensure optimal performance and longevity.

2. PACKAGE CONTENTS

Verify that all items listed below are included in your package. If any items are missing or damaged, please contact SainSmart customer support.

- 1 x Vacuum Clamp Pod
- 1 x Pneumatic Air Fitting
- 1 x Straight Air Tube Fitting 6mm to 8mm
- 1 x Straight Air Tube Fitting 8mm to 10mm
- 2 x Φ 24mm Suction Area Rubber (O-Ring)
- 2 x Φ 40mm Suction Area Rubber (O-Ring)
- 2 x Φ 60mm Suction Area Rubber (O-Ring)
- 2 x Φ 95mm Suction Area Rubber (O-Ring)
- 3 x M6x20 Hexagon Socket Screw
- 2 x M6x12 Hexagon Socket Screw
- 3 x M6 T-Nuts
- 1 x Allen Wrench
- 1 x Φ 6mm Air Tube
- 1 x Φ 8mm Air Tube
- 1 x User Manual

3. SAFETY INFORMATION

Always prioritize safety when operating CNC machinery and accessories. Read and understand all instructions before use.

- Ensure the vacuum pump (not included) is properly connected and functioning before securing any workpiece.
- Verify the workpiece is firmly held by the vacuum before beginning any milling operation.
- Do not attempt to mill workpieces that are too small or irregularly shaped to achieve a complete seal with the vacuum pod.
- Wear appropriate personal protective equipment (PPE), including eye protection, during CNC operations.
- Keep hands and loose clothing away from moving parts of the CNC machine.

4. SETUP

4.1 Mounting the Vacuum Clamp Pod

The vacuum clamp pod can be mounted on MDF/aluminum boards with M6 screw holes or hybrid tables with T-slot tracks.

1. Position the vacuum clamp pod on your CNC machine's work surface.
2. Align the mounting holes on the pod with the M6 screw holes or T-slots on your table.
3. Insert the M6 screws through the pod's mounting holes and secure them with the M6 T-nuts (for T-slots) or directly into threaded holes.
4. Tighten the screws firmly to ensure the pod is stable and does not move during operation.



Figure 1: Vacuum Clamp Pod mounted on a T-Slot spoilboard (top) and an MDF/Aluminum spoilboard (bottom).

4.2 Connecting to a Vacuum Pump

This vacuum pod kit requires an external vacuum pump (not included) for operation. The kit includes various air tubes and connectors for compatibility.

1. Select the appropriate air tube ($\Phi 6\text{mm}$ or $\Phi 8\text{mm}$) and air tube fittings (6mm to 8mm, 8mm to 10mm) that match your vacuum pump system.
2. Connect one end of the air tube to the pneumatic air fitting on the vacuum clamp pod.
3. Connect the other end of the air tube (using adapters if necessary) to your vacuum pump.
4. Ensure all connections are secure and airtight to prevent vacuum leaks. Applying Teflon tape to threaded fittings can help create a better seal.



Figure 2: Air tube fittings for connecting to a vacuum pump.

5. OPERATING INSTRUCTIONS

5.1 Selecting the Correct O-Ring

The kit includes multiple sizes of rubber O-rings ($\Phi 24\text{mm}$, $\Phi 40\text{mm}$, $\Phi 60\text{mm}$, $\Phi 95\text{mm}$) to accommodate different workpiece sizes. Only one seal ring should be used at a time.

- Choose an O-ring that is slightly smaller than the workpiece's footprint to ensure the workpiece covers the entire rubber sealing area.
- Place the selected O-ring into the corresponding groove on the vacuum clamp pod.
- Ensure the O-ring is seated properly and free from debris to create an effective seal.

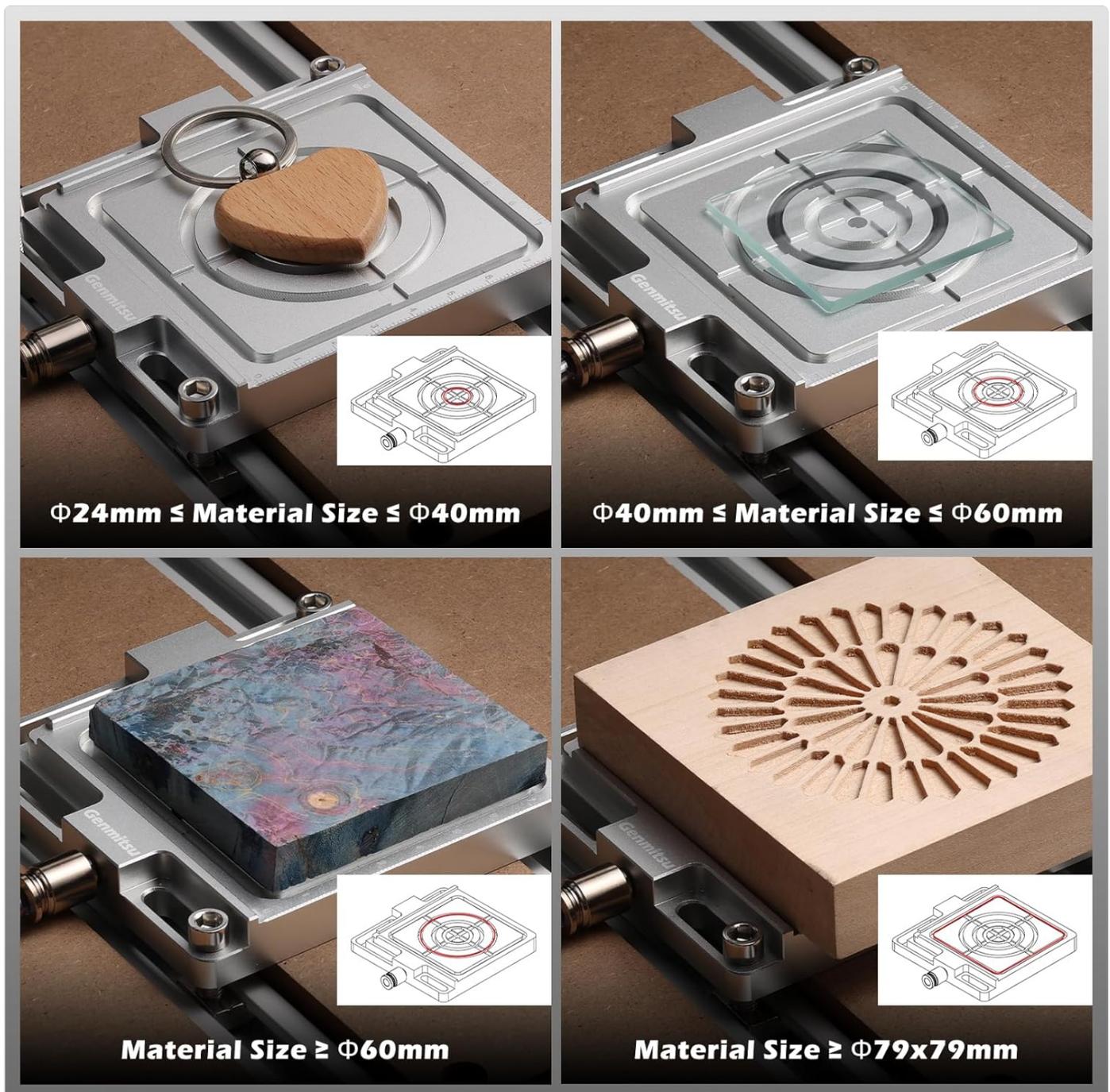


Figure 3: Examples of various material sizes compatible with different O-rings.

5.2 Securing a Workpiece

The vacuum clamp pod is designed to hold workpieces with a flat bottom surface that can cover the chosen O-ring entirely.

1. Place the workpiece onto the vacuum clamp pod, ensuring it completely covers the O-ring.
2. Turn on your external vacuum pump.
3. The vacuum will create a strong hold, securing the workpiece in place.
4. Gently test the workpiece to confirm it is firmly held before starting any CNC operations.



Figure 4: Workpiece secured, allowing 100% engrave area.

The integrated length scale on the vacuum pod surface assists with quick and accurate measurements for workpiece placement.

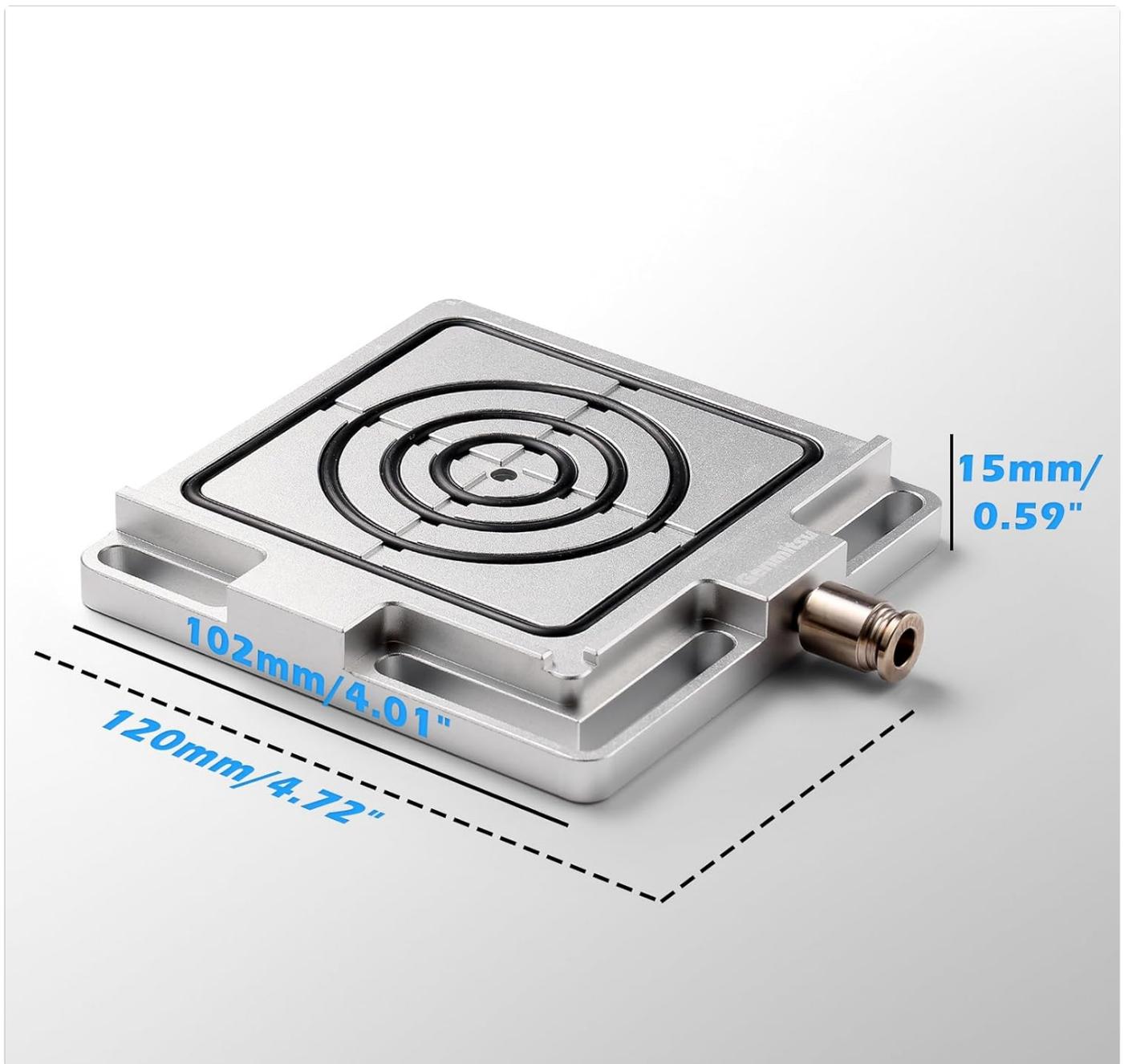


Figure 5: Dimensions of the Vacuum Clamp Pod.

6. MAINTENANCE

- **Cleaning:** Regularly clean the surface of the vacuum clamp pod and the O-rings to remove dust, chips, and debris. A clean surface ensures a proper vacuum seal.
- **O-Ring Inspection:** Periodically inspect the rubber O-rings for any signs of wear, cracks, or damage. Replace worn O-rings to maintain optimal vacuum performance.
- **Air Connections:** Check all air tube connections and fittings for leaks. Tighten any loose connections and replace damaged tubes or fittings as needed.
- **Storage:** Store the vacuum clamp pod in a clean, dry environment when not in use to prevent damage and prolong its lifespan.

7. TROUBLESHOOTING

Problem	Possible Cause	Solution
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Problem	Possible Cause	Solution
Workpiece not holding securely	<ul style="list-style-type: none"> ◦ Improper O-ring size ◦ Workpiece surface not flat ◦ Debris on O-ring or pod surface ◦ Vacuum leak in connections ◦ Insufficient vacuum pump power 	<ul style="list-style-type: none"> ◦ Ensure workpiece covers the entire O-ring. ◦ Use a workpiece with a flat bottom surface. ◦ Clean the O-ring and pod surface thoroughly. ◦ Check all air tube connections for tightness and seal. ◦ Verify your vacuum pump is powerful enough for the application.
Difficulty connecting air tubes	<ul style="list-style-type: none"> ◦ Incorrect fitting size ◦ Stiff air tubes 	<ul style="list-style-type: none"> ◦ Use the provided adapters (6mm to 8mm, 8mm to 10mm). ◦ Warm stiff tubes slightly to make them more pliable for connection.
Vacuum pod moves during operation	<ul style="list-style-type: none"> ◦ Mounting screws are loose ◦ Improper mounting method 	<ul style="list-style-type: none"> ◦ Tighten all M6 mounting screws securely. ◦ Ensure the pod is correctly installed on M6 holes or T-slots.

8. SPECIFICATIONS

Feature	Detail
Model Number	182486381
Material	High-quality Aluminum
Product Dimensions	120 x 102 x 15 mm (4.72 x 4.01 x 0.59 inches)
Item Weight	0.53 kg (1.17 pounds)
Compatibility	Genmitsu CNC machines and most CNC routers with M6 screw holes or T-slot tracks
Workpiece Material Compatibility	Wood, Acrylic, Plastic, Metal, etc. (requires flat bottom surface)
Minimum Workpiece Size	Approx. 24mm diameter (coin size)
Maximum Workpiece Size	Approx. 90mm diameter (wooden block size)
Vacuum Connection	Requires external vacuum pump (not included)
Included Air Tube Sizes	Φ6mm, Φ8mm
Included Air Tube Connectors	Φ6mm to Φ8mm, Φ8mm to Φ10mm

9. WARRANTY AND SUPPORT

SainSmart products are designed for quality and reliability. For warranty information and technical support, please refer to

the official SainSmart website or contact their customer service directly.

SainSmart Official Website: www.sainsmart.com

For assistance with product issues, setup, or operation, please have your product model number (182486381) and purchase details ready when contacting support.

