



Dual Sided Vacuum Pod
Owners Manual

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Dual Sided Vacuum Pod
User's Manual
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Please Read This Manual Carefully

This manual provides important setup and operational information for your *SHARK HD CNC* machine. Using your *SHARK HD CNC* requires experience with basic computer operation and the technical knowledge to safely operate power tools.

Product Overview

The Dual Sided Vacuum Pod is a precision workholding solution engineered to deliver reliable, repeatable clamping for a variety of surfacing, sanding, and routing tasks. Designed with versatility in mind, the pod features a dual-sided body that allows for multiple mounting orientations or stacking configurations, making it adaptable to different setups and work environments.

Key benefits include:

Dual-Sided Design: Allows for reversible use or creative mounting setups for unique applications.

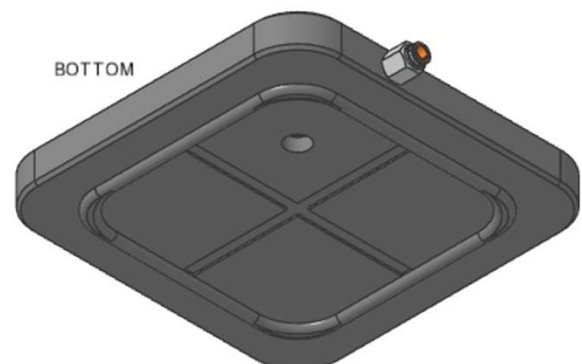
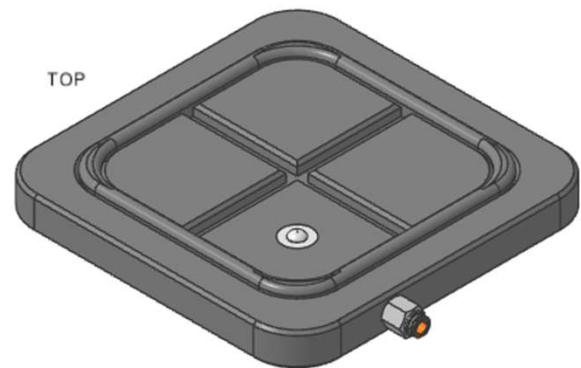
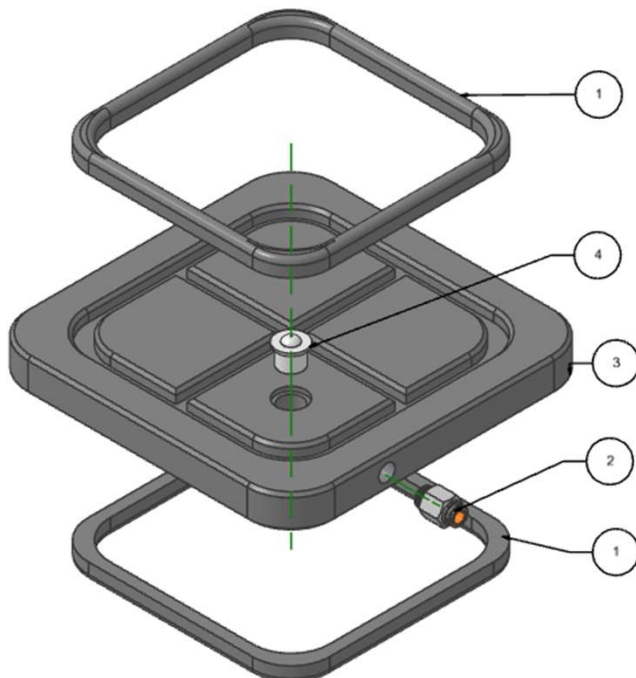
Non-Marring Workholding: Ideal for finished surfaces or delicate materials.

Precision Sealing Surface: Optimized for strong, uniform suction when used on non-porous contact areas.

Low-Profile Form Factor: Compact yet sturdy, making it easy to position.

This vacuum pod is ideal for shops seeking fast changeovers, surface protection, and clean workholding without the constraints of clamps or vises.

Item	QTY	Part Name
1	2	1/4" x 5/16" D Shape Grid Gasket
2	1	Straight Adapter, 5/16" Male
3	1	Dual Sided HDPE Vacuum Pod
4	1	Pressure Activated Ball Valve



Product Setup

1. Prepare the Mounting Surface

- Ensure the surface you're mounting the pod to is flat, clean, and non-porous.
- Wipe away dust, debris, or residual oils that could interfere with vacuum sealing.

2. Position the Vacuum Pod

- Orient the pod so that the desired gasketed face is facing upward.

3. Connect the Vacuum Supply

- Attach your vacuum hose to the pod's vacuum port. Ensure the connection is airtight and secure.
- Check for compatibility with your vacuum pump's flow rate and pressure to avoid underperformance.

4. Activate Vacuum System

- Turn on your vacuum pump and verify suction at the pod's gasketed area.
- Listen for leaks or hissing sounds that may indicate poor sealing or faulty connections.

5. Place the Workpiece

- Carefully center the workpiece on the gasketed area.
- Light pressure may help engage the seal more quickly.
- Ensure the workpiece fully covers the gasket for maximum hold.

6. Verify Holding Power

- Gently attempt to lift or move the workpiece to confirm it is securely held.
- If it shifts, double-check the gasket, surface cleanliness, and vacuum connections before proceeding.



CNC Setup

To use the Dual Sided Vacuum Pod on a CNC machine, a **surfaced, non-porous spoilboard is required**. This ensures proper sealing and vacuum hold. Using a porous or uneven surface will result in vacuum loss and unreliable performance.

Pump Recommendations

The CNC Shark Vacuum Pod System does not include a vacuum pump. Here are the key considerations for selecting the right pump for your system:

Flow Rate: A minimum flow rate of **5 CFM (2.36 L/s)** is recommended. A higher flow rate may be required for multiple pod setups.

Vacuum Pressure: A minimum of **20 in/Hg (67.73 kPa, 0.6773 BAR)** is advised for optimal performance.

Inlet Compatibility: Most vacuum pumps come with various vacuum tubing fittings. The tubing included with your system has an outer diameter (OD) of 5/16 inches, so adapters may be required (available at hardware stores, automotive stores, or online suppliers).

Oil-Less (Recommended): Suitable for light-to-moderate use, clean environments, and for users who prefer convenience and low maintenance. (To see some pumps that we have used and like, visit <http://www.nextwavecnc.com/helpcenter>). Search for "Vacuum Pumps"

Oil-Based (Not Recommended): **NOTE: Oil-based vacuum pumps exhaust a combination of air and oil mist which may be an issue if used indoors. If using an oil-based pump, you may want to set it outside, run the vacuum line into your shop.**

Vacuum Pod Tips

Pod Positioning and Layout

- Arrange the vacuum pods to support the most critical parts of the workpiece, especially under areas where cuts will generate high lateral forces.
- Use enough pods to distribute the force evenly, reducing the risk of vibrations or movements.
- For larger pieces, use multiple pods to provide even support across the entire surface.

Check Surface Cleanliness

- Clean both the workpiece and the vacuum pod surfaces before use. Dust, debris, or oil can reduce the vacuum's effectiveness, leading to potential slippage.

Ensure a Proper Seal

- Check for any wear or damage on the pod seals; cracks or gaps will prevent a good vacuum.

Control Vacuum Pressure

- Ensure adequate vacuum pressure is maintained by regularly inspecting your vacuum pump and lines.
- Monitor for decreases in vacuum pressure during operation, as a consistent vacuum is critical to ensure the part remains in place.

Minimize Air Leaks

- Test for leaks before running the CNC by applying small lateral pressure to the workpiece and seeing if it shifts.

Regular Maintenance

- Regularly inspect vacuum lines, filters, and seals for wear or damage. Ensure that the vacuum system components are cleaned and maintained to prevent suction issues.

Troubleshooting

Issue	Causes	Solutions
Insufficient Vacuum Pressure	<ul style="list-style-type: none"> - Leaks in vacuum lines or fittings - Inadequate pump flow rate/pressure - Blockages in the system 	<ul style="list-style-type: none"> - Check and tighten/replace vacuum lines and fittings - Ensure pump meets required specs - Clear blockages
Pods Losing Suction	<ul style="list-style-type: none"> - Poor seal between pod and workpiece - Damaged/worn gaskets - Uneven or warped workpiece 	<ul style="list-style-type: none"> - Clean and flatten the workpiece surface - Replace damaged gaskets - Use smooth, flat project material
Vacuum Pump Overheating	<ul style="list-style-type: none"> - Prolonged operation without cooling - Blocked air intake/exhaust - Inappropriate pump for usage 	<ul style="list-style-type: none"> - Allow pump to cool between uses - Clean air intake/exhaust - Use a pump rated for continuous operation
Uneven Clamping Force	<ul style="list-style-type: none"> - Daisy-chain configuration - Pods far from vacuum source - Variations in setup/connections 	<ul style="list-style-type: none"> - Use single-path/parallel line configuration - Shorten pod connections - Check connections for uniformity
Workpiece Shifting	<ul style="list-style-type: none"> - Insufficient vacuum pressure - Pods not securely mounted - Project larger than pod - High machining forces 	<ul style="list-style-type: none"> - Fix leaks and ensure adequate pressure - Secure pods to CNC bed - Use additional clamps/supports/ - Reduce pass depth settings
Pods Not Activating	<ul style="list-style-type: none"> - Faulty/disconnected lines - Blocked vacuum channels - Incorrect pump settings 	<ul style="list-style-type: none"> - Reconnect vacuum lines - Clear blockages inside pods - Verify pump settings and power
Excessive Noise or Vibration	<ul style="list-style-type: none"> - Worn pump components - Air leaks - Pods not seated securely 	<ul style="list-style-type: none"> - Repair/replace worn pump parts - Fix system leaks - Align and secure pods
Premature Pod Wear	<ul style="list-style-type: none"> - Excessive forces/improper use - Lack of cleaning/maintenance 	<ul style="list-style-type: none"> - Use pods matched to application - Clean/maintain pods regularly - Replace pods showing wear/damage

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