

DMK DHCP500

DMK DHCP500 Handheld Laser Cleaning Head User Manual

Model: DHCP500

1. INTRODUCTION

Thank you for choosing the DMK DHCP500 Handheld Laser Cleaning Head. This device utilizes advanced double axis pulse and double swing technology to efficiently and precisely remove contaminants from various surfaces, including metal and wood. This manual provides essential information for the safe and effective operation, setup, maintenance, and troubleshooting of your laser cleaning head. Please read this manual thoroughly before use and retain it for future reference.

2. SAFETY INFORMATION

Operating laser equipment requires strict adherence to safety protocols to prevent injury. Always prioritize safety.

2.1 General Safety Precautions

- Always wear appropriate **laser safety goggles** that are rated for the specific wavelength and power of the laser being used.
- Ensure the work area is well-ventilated to dissipate any fumes or particles generated during cleaning.
- Keep flammable materials away from the laser cleaning area.
- Do not point the laser at people or animals.
- Ensure all electrical connections are secure and grounded to prevent electrical shock.
- Only trained personnel should operate this equipment.

2.2 Personal Protective Equipment (PPE)

- **Laser Safety Goggles:** Essential for eye protection.
- **Gloves:** To protect hands from debris and heat.
- **Respirator/Mask:** If cleaning materials may produce hazardous fumes or fine particles.
- **Protective Clothing:** To prevent skin exposure to laser radiation or debris.

3. PRODUCT OVERVIEW

The DMK DHCP500 is a high-performance handheld laser cleaning head designed for versatility and ease of use.

3.1 Key Features

- **Double Axis Pulse Technology:** Utilizes dual-axis pulse technology for efficient and precise cleaning on metal and wood surfaces.
- **Double Swing Feature:** The DHCP500 model includes a double swing feature, providing a wider cleaning area and enhanced productivity.
- **Handheld Design:** Ergonomic handheld design ensures ease of use and control during laser cleaning tasks.
- **Versatile Cleaning Applications:** Ideal for a range of cleaning scenarios, from metal fabrication to woodworking machinery.
- **High-Performance Laser:** Equipped with a powerful laser for effective removal of dirt, grime, and rust from surfaces.
- **Lightweight and Portable:** Designed for easy transportation, making it a convenient tool for on-site cleaning operations.
- **Durable Construction:** Constructed from high-grade aluminum alloy for reliability and longevity.

3.2 Components

The standard package includes the ZBTK Original DHCP500 Handheld Laser Cleaning Head. Additional components such as the control system and fiber optic cable are typically part of the complete laser cleaning machine setup.



Figure 3.1: The DMK DHCP500 Handheld Laser Cleaning Head shown alongside its associated control panel, illustrating the compact and ergonomic design of the cleaning gun and the user interface for system management.



Figure 3.2: A detailed view of the DHCP500 laser cleaning head, highlighting the lens assembly and the robust construction of the unit. This image provides a clear perspective of the working end of the device.

4. SETUP

Proper setup is crucial for safe and effective operation. Ensure all connections are secure before powering on the system.

4.1 Connecting the Cleaning Head

1. Ensure the main laser cleaning machine is powered off and disconnected from the power source.
2. Carefully connect the fiber optic cable from the laser source to the designated input port on the DHCP500 cleaning head. Ensure the connection is clean and free of dust.
3. Connect any auxiliary cables (e.g., control signals, gas lines if applicable) to their respective ports on the cleaning head and the main machine.
4. Verify all connections are tight and secure to prevent signal loss or laser leakage.

4.2 Powering On the System

1. Once all physical connections are made, connect the main laser cleaning machine to a suitable power outlet.

2. Power on the main laser cleaning machine according to its specific operating instructions.
3. The control panel for the DHCP500 should illuminate, indicating it is ready for operation.



Figure 4.1: The DHCP500 handheld unit connected to its control system, displaying the 'Swing Cleaning System' interface with 'Cleaning' and 'Settings' options. This image demonstrates the user-friendly interface for operation.

5. OPERATING INSTRUCTIONS

This section outlines the general steps for operating the DHCP500 laser cleaning head. Refer to your main laser cleaning machine's manual for detailed system-specific operations.

5.1 Pre-Operation Checklist

- Ensure all safety precautions are observed and PPE is worn.
- Verify the work area is clear and properly ventilated.
- Confirm the target material is suitable for laser cleaning.

5.2 Basic Operation

1. From the control panel, select the desired cleaning mode and parameters (e.g., laser power, pulse frequency, scanning speed). The DHCP500 supports various cleaning modes, including pulse cleaning and double swing for wider coverage.
2. Position the cleaning head approximately 1-5 cm from the surface to be cleaned. The optimal focal distance may vary based on the material and desired cleaning effect.
3. Press and hold the trigger button on the handheld unit to activate the laser.
4. Move the cleaning head slowly and steadily across the surface, ensuring even coverage. Observe the cleaning process and adjust parameters as needed via the control panel.
5. Release the trigger button to stop the laser.

5.3 Post-Operation

- Power off the main laser cleaning machine according to its shutdown procedure.
- Disconnect the power supply.
- Allow the cleaning head to cool down before handling or storing.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your DHCP500 laser cleaning head.

6.1 Cleaning the Lens

- The laser lens is a critical component. Inspect it regularly for dust, debris, or damage.
- Use only specialized optical lens cleaning solutions and lint-free wipes.
- Gently wipe the lens in a circular motion from the center outwards. Avoid excessive pressure.
- Never touch the lens surface with bare hands.

6.2 General Cleaning and Storage

- Wipe down the exterior of the cleaning head with a clean, dry cloth after each use.
- Store the DHCP500 in a clean, dry environment, away from direct sunlight, dust, and extreme temperatures.
- Ensure the fiber optic cable is not kinked or bent sharply during storage.

7. TROUBLESHOOTING

This section provides solutions to common issues you might encounter. For problems not listed here, contact DMK customer support.

Problem	Possible Cause	Solution
No laser output	Main machine not powered on; Fiber optic cable loose/damaged; Emergency stop engaged; Low power setting.	Check main machine power; Reconnect fiber optic cable; Disengage emergency stop; Increase laser power setting.
Poor cleaning effect	Incorrect focal distance; Insufficient laser power; Too fast scanning speed; Dirty lens.	Adjust distance to workpiece; Increase laser power; Reduce scanning speed; Clean the laser lens.
Overheating warning	Prolonged use; Insufficient cooling from main machine.	Allow the unit to cool down; Check cooling system of the main laser machine.

Problem	Possible Cause	Solution
Control panel unresponsive	Loose connection to main machine; Software error.	Check all cable connections; Restart the main laser cleaning machine.

8. SPECIFICATIONS

Technical specifications for the DMK DHCP500 Handheld Laser Cleaning Head.

Attribute	Detail
Model Number	DHCP500
Power Source	Laser Cleaning Head (requires connection to a compatible fiber laser cleaning machine)
Included Components	Laser Cleaning Head
Batteries Required?	No
Technology	Double Axis Pulse, Double Swing
Application	Metal, Wood, and various surface cleaning
Material	High-grade Aluminum Alloy

9. WARRANTY AND SUPPORT

For warranty information, please refer to the documentation provided with your complete laser cleaning machine system or contact your point of purchase. For technical support, product inquiries, or service, please contact DMK customer support through the official channels provided by the manufacturer or your authorized dealer.

You can visit the DMK Store for more information: [DMK Laser Store](#)