

WTTTOOLS BLC-3000

WTTTOOLS BLC-3000 Laser Cleaning Machine User Manual

Model: BLC-3000
Brand: WTTTOOLS

1. INTRODUCTION AND PRODUCT OVERVIEW

The WTTTOOLS BLC-3000 is a high-power 3000W continuous fiber laser cleaning machine designed for efficient and non-contact removal of rust, paint, oil, and oxide layers from various metal surfaces. This industrial-grade cleaner operates on a 380V 3-phase power supply and utilizes water cooling for stable performance. Its advanced features, including a handheld laser gun with red light positioning and a smart control panel, make it suitable for a wide range of applications in automotive, construction, aerospace, and maritime industries.



Figure 1: WTTTOOLS BLC-3000 Laser Cleaning Machine with handheld gun and examples of cleaned surfaces.

2. PRODUCT FEATURES

- **High Power Output:** Equipped with a 3000W MAX laser source, providing powerful and consistent cleaning performance.
- **Efficient Cleaning:** Achieves a cleaning efficiency of 15-45 /h, significantly reducing time and labor costs.
- **Non-Contact Cleaning:** Offers 360° non-contact cleaning, preserving the base material.
- **Extended Cable Length:** Features a 65ft (customizable to 98ft) integrated cable for extended reach and flexibility. The cable is protected by anti-flame material for safety.
- **User-Friendly Operation:** Intuitive operation interface with English manual and videos. Double-click switch activation prevents accidental starts, and red light positioning assists in precise control.
- **Robust Components:** Utilizes high-quality components including a MAX Laser Source, Smart Control Panel, neat wiring, air switch, and universal casters for durability and ease of movement.

- **Environmentally Friendly:** Operates without damaging the base material, making it an eco-conscious cleaning solution.

UPGRADED LASER CLEANING HEAD

CONTINUOUS OPERATION WITHOUT BURNING THE LENS



Figure 2: Upgraded Laser Cleaning Head with red light assisted positioning and safety switch.

STRICT SELECTION OF MATERIALS

KEEP IMPROVING



MAX Laser Source

Stable, high efficiency, energy saving,
basically maintenance-free, good experience, low cost



Smart Control Panel

Full touch screen operation interface, multilingual support
Work status is clear at a glance
Process library design, set once, use at any time



Neat Wiring

The selection of components has been
scientifically calculated.
The layout is reasonable.
The logo is clear and easy to maintain.



Air Switch

Fine manufacturing escorts
your electricity safety



Universal Casters

Oil, stain, and impact resistant,
reliable and durable, easy to lock

Figure 3: Internal components and design features of the BLC-3000.

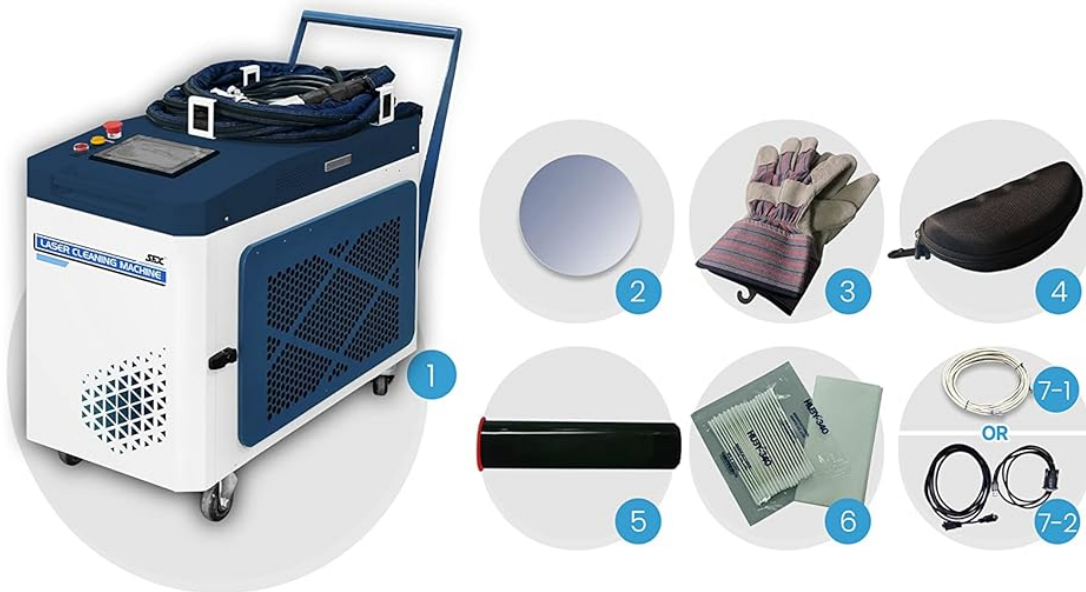
3. WHAT'S IN THE BOX

Upon receiving your WTTTOOLS BLC-3000 Laser Cleaning Machine, please verify that all the following items are included in the package:

- Laser Cleaning Machine (1 unit)
- Transformer (1 unit)
- Protective Lens (2 pieces)
- Gloves (1 pair)
- Goggles (1 pair)
- Cleaning Kit (1 set)

LASER CLEANING MACHINE

PACKING LIST



PACKING LIST

1	MACHINE	1 PC	6	CLEANING KIT	1 SET
2	PROTECTIVE LENS	2 PCS	7-1	INTERNET CABLE	1 PC (for laser with 15m/20m fiber optic)
3	GLOVES	1 PAIR	7-2	SERIAL LINE	2 PCS (Note: For adjustment use when laser failure)
4	GOGGLES	1 PAIR			
5	DUST CAP	1 PC (It will be used when you disassemble the cleaning head or laser source)			

*Product images are for illustrative purposes only and may differ from the actual product.

Figure 4: Packing list for the BLC-3000 Laser Cleaning Machine.

4. SETUP INSTRUCTIONS

Follow these steps to set up your BLC-3000 Laser Cleaning Machine:

1. **Unpacking and Placement:** Carefully unpack the machine and place it on a stable, level surface in a well-ventilated area. Ensure there is sufficient space around the machine for air circulation and operation.
2. **Power Connection:** The machine requires a 380V 3-phase power supply. If your facility has a 220V 3-phase supply, use the provided transformer to convert the voltage to 380V 3-phase. Connect the machine securely to the appropriate power outlet.
3. **Water Cooling System Setup:** The BLC-3000 uses a water cooling system. Fill the integrated water tank with 14-15 liters of deionized, distilled, or purified water. Do not use tap water as it can cause mineral buildup and damage the system. Ensure the water level is within the recommended range.
4. **Connect Laser Gun:** Connect the handheld laser cleaning gun to the machine using the integrated cable. Ensure the connection is secure.
5. **Safety Gear:** Before powering on, always wear the provided safety goggles and gloves to protect your eyes and hands from laser radiation and debris.



Figure 5: The BLC-3000's integrated design allows for easy transport.

5. OPERATING INSTRUCTIONS


Once the machine is set up and safety precautions are in place, follow these steps for operation:

1. **Power On:** Turn on the main power switch on the machine. The smart control panel will illuminate.
2. **System Initialization:** Allow the system to initialize. The touch screen will display the operation interface.
3. **Select Cleaning Mode:** Navigate the touch screen to select the desired cleaning parameters based on the material and type of contamination. The machine supports Continuous/Modulation laser types.
4. **Positioning:** Use the red light positioning feature on the handheld laser gun to accurately target the area to be cleaned. This assists in precise control and ensures effective cleaning.
5. **Start Cleaning:** To begin the cleaning process, double-click the switch on the handheld laser gun. This safety feature prevents accidental activation.
6. **Cleaning Process:** Move the laser gun steadily over the surface to be cleaned. Observe the cleaning progress and adjust your movement speed as needed.

- 7. **Stop Cleaning:** To pause or stop cleaning, release the switch on the laser gun.
- 8. **Power Off:** After completing your work, power off the machine using the main power switch.


SMART CONTROL PANEL

Full touch screen and process library design provides precision control.



The image shows a close-up of a blue control panel for a 'Swing Cleaning System'. It features a central touch screen displaying 'Swing Cleaning System' with 'Cleaning' and 'Settings' icons. To the left of the screen are three buttons: a red 'EMERGENCY' button, a yellow 'POWER' button, and a red 'ENABLE' button.

Figure 6: Smart Control Panel for easy operation.



LASER CLEANING GUN


Red light positioning assist operation.
Designed with double-click switch, only click twice of switching can start cleaning.

The image shows a hand holding a blue and silver handheld laser cleaning gun. The gun has a trigger and a nozzle at the front.

Figure 7: Handheld Laser Cleaning Gun with safety features.

360° NON-CONTACT CLEANING

10m/15m/20m Cable for your Choice.



The image shows a person using a laser cleaning gun with a long cable to clean a surface. A laptop is open on the surface being cleaned, and a color calibration chart is visible on the left.

Figure 8: Demonstrating 360° non-contact cleaning.

6. MAINTENANCE

Regular maintenance ensures the longevity and optimal performance of your BLC-3000 Laser Cleaning Machine:

- **Water Cooling System:** Regularly check the water level in the tank and replenish with deionized, distilled, or purified water as needed. It is recommended to replace the water periodically to prevent algae growth or contamination.
- **Protective Lens:** Inspect the protective lenses on the laser gun regularly for any signs of damage, dust, or debris. Clean them gently with a suitable lens cleaning solution and cloth, or replace them if necessary. Two spare protective lenses are included in the package.
- **Machine Exterior:** Keep the exterior of the machine clean and free from dust and debris. Use a soft, dry cloth for cleaning.
- **Cable Inspection:** Periodically inspect the integrated cable for any signs of wear, cuts, or damage to the flame-retardant fabric. Ensure the cable is not kinked or pinched during storage or operation.
- **Storage:** When not in use, store the machine in a dry, dust-free environment, away from extreme temperatures.

7. TROUBLESHOOTING

If you encounter any issues with your BLC-3000 Laser Cleaning Machine, please refer to the following common troubleshooting tips:

- **Machine Not Powering On:** Check the main power connection and ensure the power outlet is functional. Verify that the transformer (if used) is correctly connected and supplying the required 380V 3-phase power.
- **No Laser Output:** Ensure the laser gun is securely connected to the machine. Confirm that the safety switch on the laser gun has been double-clicked to activate. Check the smart control panel for any error messages or indicators.
- **Poor Cleaning Performance:** Verify that the protective lens is clean and undamaged. Adjust the cleaning parameters (power, scan width, frequency) on the smart control panel according to the material and contamination type. Ensure the water cooling system is functioning correctly and the water level is adequate.
- **Overheating Warning:** Check the water level in the cooling tank. Ensure there are no obstructions to the machine's ventilation ports. Verify that the ambient temperature is within the operating range.

For issues not covered here or persistent problems, please contact WTTTOOLS customer support for assistance.

8. SPECIFICATIONS

Detailed technical specifications for the BLC-3000 Laser Cleaning Machine:

Parameter	Value (BLC-3000)
Laser Brand	MAX
Laser Source Power	3000W
Laser Wavelength	1080±10nm
Scanning Width	160±10mm
Laser Type	Continuous/Modulation
Maximum Modulation Frequency	20KHz
Output Power (KW)	13
Cleaning Efficiency	15-45 /h
Cable Length	65ft (Customized to 98ft)
Voltage	380V 3-phase (transformer provided for 220V 3-phase)
Cooling Method	Water Cooling
Package Dimensions	56.3 x 28.3 x 48 inches
Water Tank Capacity	16L (14-15L of water to be added)
Product Dimensions	48.82 x 22.99 x 45.22 inches
Item Model Number	BLC-3000
Weight	518.09 Pounds
Manufacturer	Luoyang Xincheng

TECHNICAL PARAMETER

Model	BLC-1000	BLC-1500	BLC-2000	BLC-3000
Laser Source Power	1000W	1500W	2000W	3000W
Laser Wavelength	1080±10nm			
Laser Type	Continuous / Modulation			
Maximum Modulation Frequency	20KHz			
Cable Length	10m (15m can be customized)			20m
Scan Width	10-160mm			
Power Configuration	AC220V±10%			AC380V±7%
	6kw	8kw	10kw	13kw
Cooling Method	Water cooling (Medium: Deionized water, distilled water or purified water)			
Machine Dimension	845*460*605mm		905*480*630mm	1240*584*1148mm
Package Dimensions	1120*565*1050mm			1430*720*1220mm
Net Weight	106kg	113kg	137kg	225kg
Gross Weight	138kg	145kg	169kg	285kg
Water Tank Capacity	16L (14-15L of water to be added)			

Figure 9: Technical Parameters for BLC series laser cleaning machines.

EFFICIENCY TEST

Comparison of Rust Removal Efficiency of Laser Cleaning Machine

Model	BLC-1500/LC-1500	BLC-2000/LC-2000	BLC-3000
Efficiency	3.9 m ² /h	5.5 m ² /h	15 m ² /h

In the case of the best cleaning effect that 1500W can achieve:

3000W efficiency is about 3.8 times of 1500W, 2.7 times of 2000W

Test Conditions

Cleaning Requirements	Rust Removal	Ambient Temperature	16°C	
Material Description	10*1830*2100 steel plate. The cleaning area of each model is 0.8 m ² .			
Power Full load	Scan Width 50(mm)	Scan Speed 25000(mm/s)	Duty Cycle 100%	Frequency 20(kHz)

*For different materials, the test results will be different. The above data is for reference only.

Figure 10: Efficiency Test results for rust removal.

9. WARRANTY AND SUPPORT

WTTTOOLS is committed to providing quality products and customer satisfaction. Your BLC-3000 Laser Cleaning Machine comes with the following warranty:

- **Machine Warranty:** 1 year warranty for the entire machine from the date of purchase.
- **Laser Source Warranty:** 2 years warranty for the laser source.

Warranty Exclusions:

- Damage caused by improper use, such as violent bumping or bending.
- Human-caused damage.
- Laser accessories and consumables (e.g., collimating mirrors, galvanometers, field mirrors, other optical parts, integrated cables) are not covered by warranty.

Customer Support:

WTTTOOLS offers comprehensive customer support, including 7x24h online service, US-based tech support, and lifetime online service. For any inquiries or support needs, please refer to the contact information provided with your purchase or visit the official WTTTOOLS website.



Warranty

The warranty period of this product is one year for the whole machine, and the warranty period for the laser source is two years:

1. From the date of purchasing this product, our company provides free warranty within one year. If the machine need to be returned to the factory for repair, the user only needs to bear the cost of two-way transportation.
2. This product is repaired free of charge for life, and the user only needs to bear the cost of spare parts and two-way transportation.

The following scopes are not covered by warranty:

1. Damage caused by improper use such as violent bumping, bending, etc.
2. Human-caused damage.
3. Laser accessories and consumables are not guaranteed (collimating mirrors, galvanometers, field mirrors and other optical parts, Integrated cables, etc. are not covered by the warranty).

Figure 11: Warranty information for the BLC-3000.

Do You Have Questions?

—FAQs—

Q: Are you a manufacturer?

A: Sure, we are the subsidiary company of **SFX Laser**. We are the manufacture of laser products since 2004. We have set up many R&D Centers to produce high-quality products and continue to innovate according to new technology.

Free Shipping to Your Door by Air (DHL/UPS/Fedex) within 7-9 Days. **No Additional Fees.**

Q: What is the difference between "CW" and "pulsed" laser cleaner?

A: The differences between the two types are as follows

1. For "**CW laser cleaner**", this type involves a constant laser beam which is suitable for large area cleaning such as pipe and bearing, etc.
2. For "**pulsed laser cleaner**", this type uses short, intense pulses for precise or wood surfaces, etc.


Q: How to choose a suitable model for a laser cleaning machine?

A: Here are some tips to help you choose

1. If you want to control the temperature of the workpiece and require less loss of workpiece, such as mold, **Pulsed Laser Rust Removal** is better for you.
2. If you do not mind of loss of the workpiece, and what you want to clean are large steel structures, pipelines, etc., because of the huge volume and fast heat dissipation, **Continuous Laser Rust Removal** is better for you.

Q: Do you have some local service sites or centers in the USA?

A: Sure, we have various **local demo sites** across the USA, and the **service center** in **Buffalo, NY** so if you worry about the performance and want to schedule a local demo, pls contact the following info. We also provide a **2-year warranty** for the laser source and 1-year warranty for the whole machine. **Lifetime online support.**

 **If you have more questions, pls contact**

WhatsApp: **+(86)15978615908** or send email to **una@sfxlaser.com**.

00124H

Figure 12: Frequently Asked Questions and Support Contact Information.

