



blue photon®

Technology & Workholding Systems LLC

Adhesive Workholding Quick Start Guide | BlueCure 4

Before you start: review all safety and design precautions

This quick start guide was written for the users of Blue Photon’s workholding technology. Before you use, read this manual carefully. In particular, pay attention to the warnings and cautions that appear in the safety and design sections at the front of the manual. Before you begin, you should also read the user guide. For more information, visit our website for the most up-to-date product and safety information: www.BluePhotonGrip.com.

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CAUTION

This guide as well as additional manuals provide a description of the function, application and safety considerations of the Blue Photon system. These manuals must be read and understood before any attempt is made to install or use this system. Improper use could result in damage to the product or unsafe conditions for the user. Follow these safeguards to prevent serious injury or property damage. Consult the factory on turning applications.



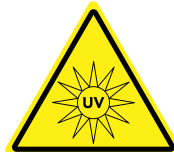
DESIGN CONSIDERATIONS

This guide provides general operating procedures. Your specific application will have special considerations in setup, function and use. There are several design considerations that must be addressed before implementing Blue Photon workholding. Review these considerations with your design and engineering teams, including the number and position of grippers, adhesive joint temperature, adhesive cure time, amount of adhesive, setting the part on applied adhesive, and part and gripper cleaning.



WARNING

Do not use the Blue Photon workholding system to hold overhead loads. The Blue Photon workholding system is not designed to support people. Never stand under a lifted fixture and/or part. If insufficient holding strength to resist cutting forces; or if improperly used, a workpiece may be ejected from the fixture at a high rate of speed. Always follow employer work instructions and Blue Photon user guide recommendations to minimize any risk. Always use proper guarding to protect people from injury due to a workpiece coming dislodged from the fixture.



IMPORTANT

Before using the ultraviolet (UV) LED equipment read and understand all manufacturer’s documentation for proper setup, safety and necessary maintenance.

****Caution**** Do not stare directly at the light emitted from the LED head. This may be harmful, resulting in eye injury.

Always use UV protective eyewear.

Adhesive Workholding Quick Start Guide Instructions

1. Installing the gripper adapters to the UV LED heads

The adapters protect the UV LED heads and provide an accurate alignment to the back of the gripper.

- **Small Gripper Adapter**
The adapter is screwed onto the UV LED head.
- **Medium Gripper Adapter**
UV LED head is inserted and pushed into the adapter until the head stops, then tighten the set screw to lock in place.*
- **Large Gripper Adapter**
UV LED head is inserted into the adapter until the head is flushed, then tighten the set screw to lock in place.*

**Caution: Do not over tighten the set screw.*

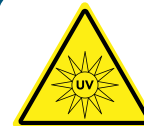
2. Setting up the UV LED head controller

Setup: A Mode: UV Power 100%
Irradiation time 060.0s

CH1	100% A	060.0 S
CH2	100% A	060.0 S
CH3	100% A	060.0 S
CH4	100% A	060.0 S

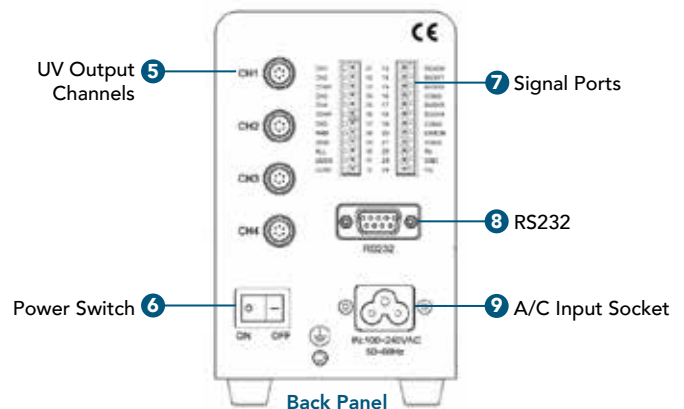
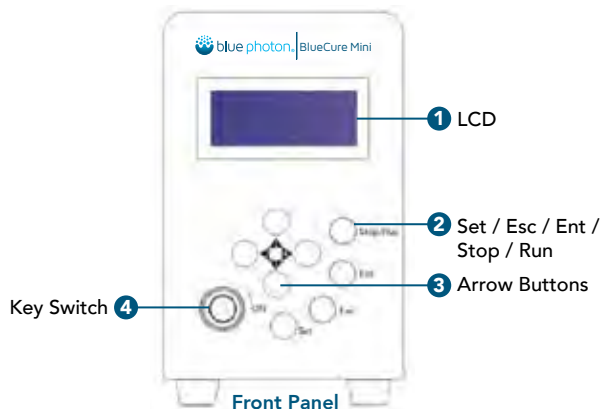
Left: CH1~CH4 is the UV Channel Number
Middle: UV Power / Irradiation Mode
Right: Irradiation Time

1. Turn the controller power switch on.
2. Turn the key switch on, located on front of control panel.
3. Press the "Run / Stop" button.
4. Press the "Set" button to enter into parameters setup mode.
5. Press "←" and "→" button to move cursor "_" to the irradiation mode.
6. Press "↑" and "↓" button to change it to A mode.
7. Press "←" and "→" button to move cursor "_" to the UV power.
8. Press "↑" and "↓" button to change it to 100%.
9. Press "←" and "→" button to move cursor "_" to the irradiation time.
10. Press "↑" and "↓" button to change it to 060.0s.
11. Press the "Ent" button to save parameters.
12. Turn the key switch off and remove key.
13. Start the UV light source by pushing "Ent".



CAUTION

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3. Bond your part

1. First clean your workpiece and grippers of any dust and debris by swiping with 90% pure or greater isopropyl alcohol or another cleaning agent. Do not use an abrasive cleaner or cloth on the grippers. See Step 3a below.
2. Apply the required amount of BlueGrip™ workholding adhesive to the face of each of the grippers. The ideal gap is 0.02 (0.50 mm) for small grippers and 0.04 inches (1.02 mm) for medium and large grippers. See Step 3b below.
3. Place the part onto the fixture using care not to smear or scrape off the adhesive that has been applied to the face of the grippers. See Step 3c below.
4. Insert the LED heads into fixture. See Step 3d below.
5. Start the UV light source by pushing “Ent”. Consult with your design and engineering team for specific process parameters and configuration. BlueGrip workholding adhesive cures in 60 to 90 seconds. See Step 3e below.
6. Remove heads and repeat if more grippers need curing.
7. Your part is ready for machining. See Step 3f below.

Step 3a



Clean dirt and oil from the grippers and workpiece.

Step 3b



Apply enough adhesive to the grippers to fully fill the gap between the part and gripper.

Step 3c



Position the part onto locators.

Step 3d



Insert LED heads into fixture.

Step 3e



Polymerize the adhesive by applying UV light for 60 to 90 seconds.

Step 3f



Machine the workpiece.

4. Release the part

The part is released from the grippers with a 1/4 turn twist of the grippers or by a hot water soak.

- **Twist Debond** - twist the gripper 1/4 turn counter-clockwise to shear the adhesive bond. See Step 4 below. *Retighten the grippers after debonding.*
- **Soak Debond** - soak the part and fixture in hot water (at least 180°F (82.2°C)) for 3-5 minutes then pull the part off the grippers. Increasing the temperature of the water decreases the required soak time.

Step 4a



Separate fixture from workpiece with a 1/4 turn twist or hot water soak.

5. Cleaning cured adhesive

- **Cleaning Tool** - To remove residual, cured adhesive from the grippers use our spindle mounted cleaning tool (P/N 82400) in your CNC machine along with the included program (formatted for Haas controls). See Step 5a below.
- **Hot Water** - To remove residual, cured adhesive from the part and/or gripper use hot water with a pressurized spray to weaken and strip away the cured adhesive. See Step 5b below.
- **Steam** - An application of pressurized steam will soften the adhesive enough to peel it away. See Step 5c below.
- **Dry Ice Blasting** - A cold jet application will remove residual cured adhesive from the part as well.

Step 5a



Loaded in CNC machine spindle (P/N 82400) to remove cured adhesive.

Step 5b



Soak the part and fixture with hot water.

Step 5c



Remove residual adhesive with steam or hot water spray.



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