

2018 Product Catalog



blue photon®

Technology & Workholding Systems LLC



blue photon®

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Blue Photon Technology & Workholding Systems can help you simplify workholding for difficult to hold or delicate parts while improving tolerances and part access, reducing scrap and eliminating extra processes. Since the inception of the adhesive workholding system; research, development and new products have been introduced.

Blue Photon is made up of a diversified team including technical sales agents and design; manufacturing and quality engineers; all here to assist you in lowering your manufacturing costs.

Blue Photon Mission Statement

As a dedicated team, we are committed to providing consistently innovative, customer-relevant workholding products and systems that deliver real and lasting value to manufacturers.

Best wishes and kind regards,
Dan Billings – President/CEO

Warranty

Blue Photon is proud to offer a 5-year warranty on all Blue Photon Grippers. Our Grippers are warrantied against manufacturer's defects when used exclusively with BlueGrip Adhesive.

All other Blue Photon equipment is warrantied for a period of one year from the date of delivery against manufacturing defects that affect the performance of the Blue Photon System. Equipment and supplies not manufactured by Blue Photon may have different manufactures warranties.

Consult the information provided with the equipment or contact the Blue Photon sales team for additional information.

FAILURE TO USE BLUEGRIP ADHESIVES AND BLUE PHOTON APPROVED EQUIPMENT WILL VOID ALL WARRANTIES AND MAY SUBJECT THE USER TO UNSAFE CONDITIONS.



Safety Considerations

The user 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.



Design Considerations

The user 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.

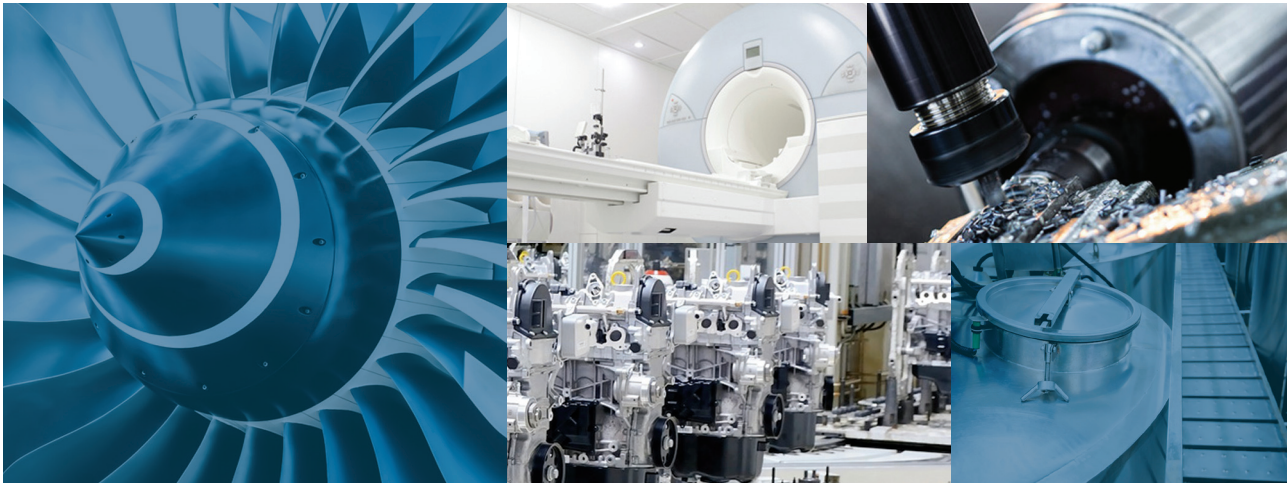
Before you begin, refer to our user guide and read the manual carefully. In particular, pay attention to the warnings and cautions that appear in the safety and design sections at the front of the manual. For more information, visit our website for the most up-to-date product and safety information: www.BluePhotonGrip.com.

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Introduction

Blue Photon Markets

Blue Photon's innovative workholding system is solving problems for manufacturers throughout many different industries. From machining food processing equipment to powering jet propulsion, Blue Photon is unlike any workholding system in the world. Ask us how to put Blue Photon to work for you in your application.



The Blue Photon Difference

What makes Blue Photon an unique workholding device?

The Blue Photon technology and workholding system is unlike any other workholding device available.

The Blue Photon workholding system means:

- Less scrap
- Less damage
- No or reduced part distortion
- Fewer operations
- Lower cost
- Higher efficiency
- Improved part access
- Improved accuracy
- Simplified fixture design

The Grippers and BlueGrip™ adhesive create a versatile and simplified workholding device that:

- Holds ceramic
- Holds composite and laminate materials
- Holds plastics
- Holds irregular and complex shaped parts
- Stands up to oils and cutting fluids
- Stands up to heavy machining

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Grippers & Inserts



Unique workholding grippers that allow for complete photo-activated adhesive curing.

Blue Photon's workholding grippers are a patented, load bearing and light transmitting fixture component. The grippers are inserted into a fixture. The workpiece is secured to the grippers with BlueGrip™ workholding adhesive, which is cured with UV light that is transmitted through the core of the gripper. Machine processes can be simplified and automated by use of standardized fixture plates built with various gripper configurations to hold a variety of different sized and shaped workpieces.

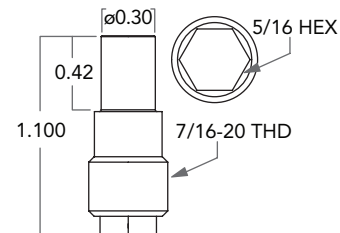


Small Head-In Gripper

Part #: 11130

Features

- Gripper use in applications to hold small size workpieces for lighter duty machining
- Insert into fixture from the backside
- Can be retracted during workplace loading
- Debonds with 1/4 turn twist
- Average tensile holding power with BlueGrip S2 workholding adhesive is 200 lbs.*

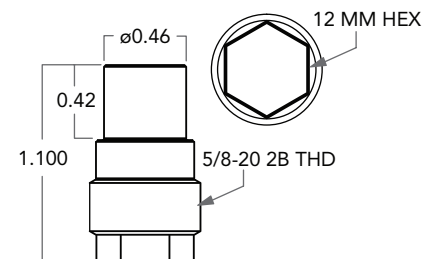


Medium Head-In Gripper

Part #: 12130 & 12131

Features

- To hold small to medium size workpieces
- Insert into fixture from the backside
- Can be retracted during workplace loading
- Debonds with 1/4 turn twist
- Use for most applications with materials where there is no risk of damage from twist debonding, such as delamination
- Use P/N 12131 where deionized water is used
- Average tensile holding power with BlueGrip S2 workholding adhesive is 400 lbs.*

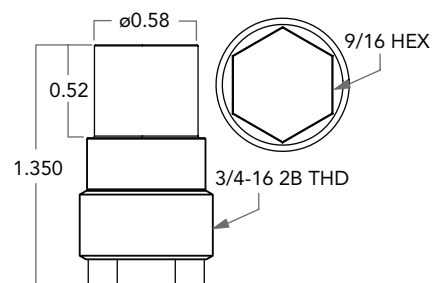


Large Head-In Gripper

Part #: 13160

Features

- To hold medium to large size workpieces
- Offers more surface area on gripper head for stronger holding power
- Insert into fixture from the backside
- Can be retracted during workplace loading
- Debonds with 1/4 turn twist
- Use for most applications with materials where there is no risk of damage from twist debonding, such as delamination
- Average tensile holding power with BlueGrip S2 workholding adhesive is 605 lbs.*



*Testing done under controlled conditions.

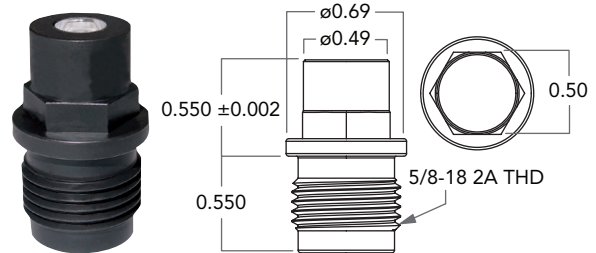
Medium Head-Out Gripper

Part #: 12230

Features

- To hold small to medium size workpieces
- Insert into fixture from the topside
- Cannot be retracted during workplace loading
- Debonds with hot water soak or twisting
- Use in applications for simplified fixture design
- Average tensile holding power with BlueGrip S2 workholding adhesive is 400 lbs.*

*Testing done under controlled conditions.

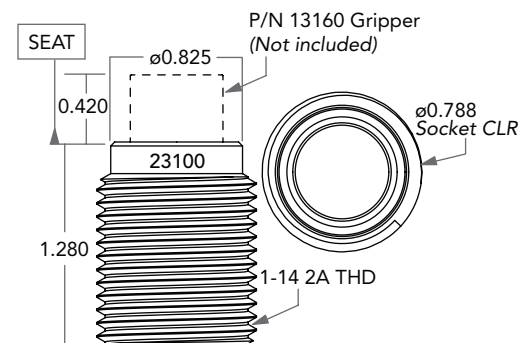
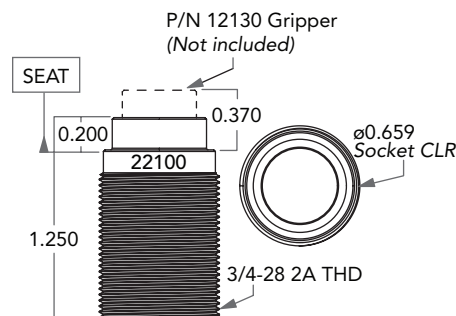


Gripper Insert

Part #: 22100 & 23100

Features

- Use gripper inserts to protect aluminum fixtures from thread galling
- Made from hardened steel with a black oxide finish
- Gripper insert fixed, non-removable
- Screws in from the bottom

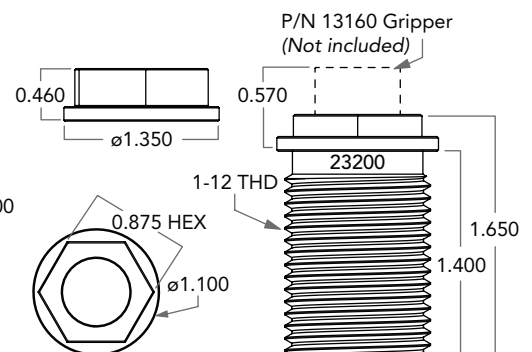
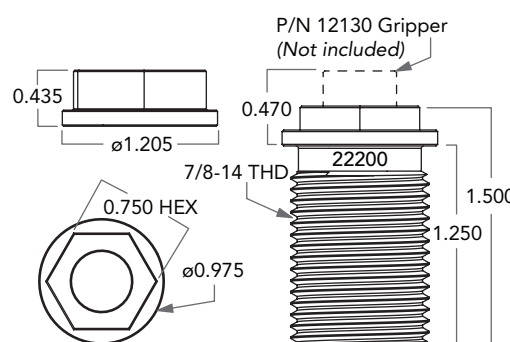


Gripper Insert Assembly

Part #: 22200 & 23200

Features

- Includes the gripper insert and insert nut
- Use to increase standoff from the fixture and/or to protect aluminum fixtures from thread galling
- Inserts allow for additional flexibility for exact gripper height positioning
- Made from hardened steel with a black oxide finish
- Screws in from the top



Workholding Adhesives



BlueGrip™ workholding adhesive – nothing is too hard to hold!

BlueGrip workholding adhesive is designed specifically and exclusively for Blue Photon's workholding system. The gel-like adhesive fills the gap between the surface of the gripper and the surface of the workpiece for outstanding holding power. Joint thickness can range from .020" to .120".

Features

- Works on ferrous and non-ferrous metals, ceramic, composite materials and most plastics
- Cures in 60 seconds
- Impervious to cutting fluids and oils
- Removable with steam or hot water
- Available with a fluorescent dye

BlueGrip™ S2 Workholding Adhesive

Specifically formulated for Blue Photon's photo-activated adhesive workholding.

Part #: 43200 - 30 cc syringe

Part #: 46200 - 1L cartridge

Part #: 48200 - 40 lb pail

Features

- 30 cc syringes are for manual and pneumatic dispensing
- 1L cartridges and 40 lb pails for automated dispensing
- Impervious to most cutting fluids and oils
- Easily removable with CNC machine mounted cleaning tool, hot water, steam or hot water spray
- Fills gaps between the gripper and workpiece of .020" to .120"



BlueGrip™ S2-F Fluorescent Workholding Adhesive

Specifically formulated with a dye that fluoresces under black light for easy identification of residual adhesive on workpieces and grippers.

Part #: 43210 - 30 cc syringe

Part #: 46210 - 1L cartridge

Part #: 48210 - 40 lb pail

Features

- 30 cc syringes are for manual and pneumatic dispensing with high visibility under black light
- 1L cartridges and 40 lb pails for automated dispensing with high visibility under black light
- Impervious to most cutting fluids and oils
- Easily removable with CNC machine mounted cleaning tool, hot water, steam or hot water spray
- Fills gaps between the gripper and workpiece of .020" to .120"



Barrel Loader

Barrel-filling system for BlueGrip workholding adhesive.

Part #: 46600

Features

- 1L cartridge reservoir
- Includes stand with retainer block
- Use to fill 30 cc syringes from a 1L cartridge



Syringe Barrel

UV blocking barrels block UV light, while allowing fluid levels to be monitored.

Part #: 43402

Features

- 30 cc amber syringe barrel
- Includes piston and labels
- 20 per box



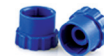
Tip Cap

Tip caps protect assembly fluids with unique vents that are engineered to actually prevent air from being introduced into the syringe during installation.

Part #: 43700

Features

- Use to cap 30 cc amber syringe barrel
- 50 per box



End Cap

End caps fit securely over syringe tabs and feature a center pushbutton that makes it easy to create a snug, airtight seal.

Part #: 43800

Features

- Use to cap 30 cc amber syringe barrel
- 20 per box



Adhesive Dispensers



Manual or automated adhesive dispensers for our workholding system.

From a simple, manual plunger to sophisticated, automated and precise delivery, Blue Photon offers a range of adhesive dispensers compatible with our groundbreaking photo-active adhesive workholding system. Options include pneumatic dispenser, digital pneumatic dispenser and a high precision dispenser, refer to features on pages 10 and 11.

Contact us for help selecting the best adhesive dispensing equipment for your application.

Pneumatic Dispenser

Pneumatic adhesive dispensing unit with digital time/pressure display.

Part #: 71900

Features

- Digital time/pressure display
- Timed or steady modes of operation
- Vacuum control keeps thin fluids from dripping between cycles
- Optional electric finger switch - use P/N 75490



Digital Pneumatic Dispenser

Fully digital adhesive dispenser with all-digital, multi-function display and 16 memory settings.

Part #: 72000

Features

- All-digital, multi-function display
- Multilingual display
- Operator security lockout
- 16 memory settings and a 4-decimal time setting
- High-speed solenoid for highly accurate deposits
- Universal power supply



Adhesive Dispensers

High Precision Dispenser

Includes controls and settings to electronically change/adjust dispensing time, pressure and vacuum. Consists of an auto-increment feature to adjust dispensing parameters after a certain number of shots or a specific lapsed time and auto-sequence mode that allows deposit patterns to be repeated automatically.

Part #: 73000

Features

- 400 individual memory storage cells
- Scroll or select cells via front panel keypad or external PC/PLC control
- Switch between steady, timed and teach modes
- Front panel manual cycle key
- Teach function
- Multi-level operator lockout
- Alarm indicators
- End of cycle feedback loop
- Soft button data input 0-9 keypad
- Operator control of LCD display brightness
- Easy up/down arrow key navigation
- External PC interface for data input
- Display cycle counter
- RS-232 communication capability
- ESD safe via connection with external ESD
- 0-100 psi (0-6.9) bar air regulation range
- D-sub I/O (15-pin) and communication (9-pin) connections
- Alarm I/O signals



Manual Plunger

Plunger for adhesive dispensing by hand.

Part #: 74000



5 Gallon Pail Dispenser

Dispenser to fill and load cartridges and barrels with BlueGrip workholding adhesive.

Part #: 77700

Features

- Used to fill 30 cc syringes and 1L cartridge
- Cartridge filling - use P/N 75850 1/4 NPT male adapter
- Barrel loading - use P/N 75840 luer-lock adapter

LED Controller & Accessories

UV lightsource to quickly cure BlueGrip™ workholding adhesive.

Curing the adhesive is a “60-second” proposition with our patented system, and we supply UV LED controllers, UV LED light heads and cables to do so. The controller is capable of multiple UV LED light heads and is available in 2 and 4 channel configurations. We also supply handheld radiometers, long and short UV LED heads, extension cables and right angle adapters for various sized grippers.

UV LED Controller

LX500 spot curing system has been uniquely designed with proprietary Intelli-Lamp® technology that monitors LED head temperature, lifetime data and automatically maintains optical stability +/- 5%.

Part #: 65530 - UV LED controller, 2 channel

Part #: 65540 - UV LED controller, 4 channel

Features

- 1-2 individual UV LED heads or 1-4 individual UV LED heads, interchangeable to any channel
- 2.4" full color display with main control, input configurations, system maintenance, LED information, calibration and micro SD log information
- 4-way membrane mode control for system display and programming
- Countdown timer mode: programmable from 99.9s to 0.1s intervals
- 5% to 100% intensity level (in 1% increments)
- Start/stop – control start or stop of the LED emission
- Alarm icon on screen in the event of an error or fault
- External control via optional foot pedal, PLC or PC through USB communication



UV LED Head

UV LED head cures BlueGrip workholding adhesive through grippers.

Part #: 56811 - 125 mm length

Part #: 59811 - 55 mm length



Extension Cable

Provides extra cable length from the UV LED controller to the UV LED head where the UV assembly process needs to be farther away from the controller.

Part #: 50907 - 1M length

Part #: 50908 - 3M length

Part #: 50909 - 5M length

Part #: 50900 - 10M length

Features

- Cable type - USB
- Cable characteristic - extension cable
- Color - black



LED Controller & Accessories

Right Angle Adapter



Attaches to the UV LED head for when clearance issues arise.

Part #: 64850 - standard adapter use with head-in gripper 12130 or 12131

Part #: 64860 - extended adapter use with gripper insert 22200

Part #: 64950 - standard adapter use with head-in gripper 13160

Part #: 64960 - extended adapter use with gripper insert 23200



UV LED Light Sensor

Measures UV light output from LED head.

Part #: 62600

Features

- Accuracy +/- 10%
- Calibration Cycle - One Year
- Operating Temperature Range - Ambient to 40° Centigrade
- Certification - Complies with IEC, Canadian and US Standards, RoHS compliant
- Traceability - NIST and NRC Compliant
- Sensor Dimension (LxWxH) - 75 mm x 25 mm x 11.95 mm
- Use with P/N 66700



Handheld Radiometer

Measures stray UV light output in the range of 280 to 400 nm.

Part #: 62020

Features

- Measuring Range - 1 to 1999 uW/cm2, 0.01 to 40 mW/cm2
- Accuracy +/-4% +/- 1 Digit
- Display - Backlit 4 Digit LCD
- Data Hold
- Min./Max. Memory
- Memory - 20 Point
- Battery Type - 9V
- Cord Length - 46"
- Calibration Certificate - NIST



Beam Positioning Kit

Sensor the LED head over the UV sensor.

Part #: 66700

Features

- Consistent measurements by accurately positioning the beam on the detector sensor
- Reduction in calibration time and cost with its easy to use alignment and setup
- Elimination of the need for expensive and bulky alignment tools
- Use with P/N 62600



Cleaning Equipment

Debonding and clean up is simple with Blue Photon.

Blue Photon offers a variety of soak tanks, pressure washers and cleaning tools to efficiently debond the workpiece and remove any cured, residual adhesive.

Contact us for more information about our cleaning equipment and methods.

X-ACTO Knife and Blade

The X-ACTO knife and blade is used to clean parts and grippers of cured adhesive.

Part #: 80030

Features

- 5" aluminum handle knife
- Heavyweight adhesive removing blade



Hot Water Spray Washer

The hot water spray washer is designed with a hot water soak tub for part debonding and a pressurized hot water spray chamber for part and gripper cleaning.

Part #: 81100

Features

- Temperature control
- All wetted parts made of stainless steel
- Ergonomic design
- Adjustable height
- Foot switch operation for pressurized spray

Product Specifications*

- Model No. - PW-3
- Voltage - 120VAC
- Phase - 1
- Supply Current - 20A
- Largest Load Current - 14.5A
- Max Water Capacity - 15-18 gallons

** This washer can be custom fabricated to accommodate any size part.
Contact us for pricing and specifications.*



Soak Debond Tank

The soak debond tank allows for debonding the part from the grippers without twisting. This method is preferred in applications where twist debonding could cause delamination or other damage to the workpiece. Available in multiple sizes.

Part #: 81300

Features*

- Power requirements - 480V 3 PH or 220V 1PH
- Thermostat control - Soak temp: Digital 100-190°F
- Signal timer - Digital 0-9999 sec

**All external walls of the unit are insulated to help protect from hot surface contact. All specifications subject to change.*

Cleaning Equipment

Soak and Spray Washer

This washer is designed with a hot water soak tub for part debonding and a pressurized hot water spray chamber for part and gripper cleaning.

Part #: 81110

Features

- Temperature control
- Soak timer with "Soak Finished" indicator light
- "Lower Tray" and "Raise Tray" functions
- Safety features
- Foot pedal operation for pressurized spray

Product Specifications*

- Power - 480V 3ph
- Max full load amps - 16.8
- Empty weight - approximately 1,200 lbs
- Full weight - approximately 1,600 lbs
- Max part size - 13" x 14" x 20"
- Max part weight - 50 lbs
- Max water capacity - 48.5 US gallons
- Max outside dimensions - 66W x 40D x 67H
- Thermostat control
- Water temperature - 100-190°F
- Pressure output (variable) - 100-1000 psi
- Signal timer
- LED signal light
- Part blow off
- Height from floor to arm holes - 43.5"-58.5"

**This washer can be custom fabricated to accommodate any size part. Contact us for pricing and specifications.*



CNC Spindle Mounted Cleaning Tool

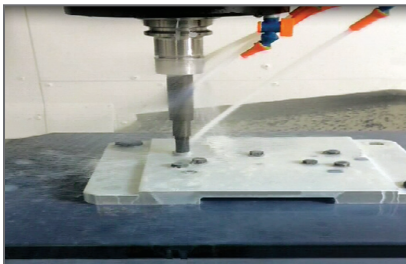
The spindle mounted gripper cleaning tool loads in a CNC machine to remove cured adhesive from grippers.

Part #: 82400 - Tool Assembly

Part #: 82500 - Replacement Head

Features

- Mounts in any 3/4 diameter collet or end mill holder
- Replaceable head



Tool assembly loaded in CNC machine spindle to remove cured adhesive.



Hot water spray washer to debond part and fixture in hot water soak tub.



Handheld pressurized steamer to remove residual adhesive from grippers and workpieces.

Cleaning Equipment

Handheld Pressurized Steamer

The handheld steamer provides pressurized steam for easy spot removal of residual cured adhesive from grippers and workpieces. Economical solution for prototypes or low-volume parts.

Part #: 84750

Features

- 8 x 5.2 x 10.7 inches
- 3 lbs
- 6 oz water capacity
- Emits steam continuously for 10 minutes
- 15 ft power cord
- 900W of pressurized steam
- 200°F steam temperature



Medium Capacity Steamer

The steamer provides pressurized steam for easy removal of residual cured adhesive from grippers and workpieces. Designed solution to clean prototypes for low to medium volume production.

Part #: 81700

Features

- 13.5 x 10.5 x 17.2 inches
- 10 lbs
- 48 oz water capacity
- Emits steam continuously for 45 minutes
- 15 ft power cord
- 1500W of pressurized steam
- 200°F steam temperature



Heavy Duty Handheld Steamer

The heavy duty steamer produces 50 PSI of steam pressure and reaches temperatures up to 221°F at the tip. This steamer is ideally suited for cleaning away cured adhesive on grippers.

Part #: 84820

Features

- 110V/120V 1000W element
- .66 gallon, 2.5L water capacity
- Low water light indicator
- 50 PSI, 3.5 bar operating pressure
- 12-gauge heavy duty wiring
- Copper heating element
- Carrying handle
- 10-15 minute heat up time
- Stainless steel tank and outer casing
- Up to 4 hours of continuous steam



Workholding Kit

The workholding kit includes everything you need to start using the Blue Photon workholding solution for manufacturing. Actual unit may vary from one shown.



Part Number Configurator

Select your kit based on the configuration below:

Kit	Gripper	Controller	UV LED Head	UV LED Head Qty.
<input type="text" value="3"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>
	2 - Med. Head-In Gripper*	1 - 2 Channel	1 - 55 mm length	1
	3 - Lg. Head-In Gripper*	2 - 4 Channel	2 - 125 mm length	2
	4 - Med. Head-Out Gripper*			3
				4

In addition to your selections above, each kit contains:

- BlueGrip™ S2 Workholding Adhesive
- Manual Plunger
- X-ACTO Knife and Blade
- Handheld Steamer

*6 grippers included within each kit.



Universal Fixture Kit

Universal Fixture Kit

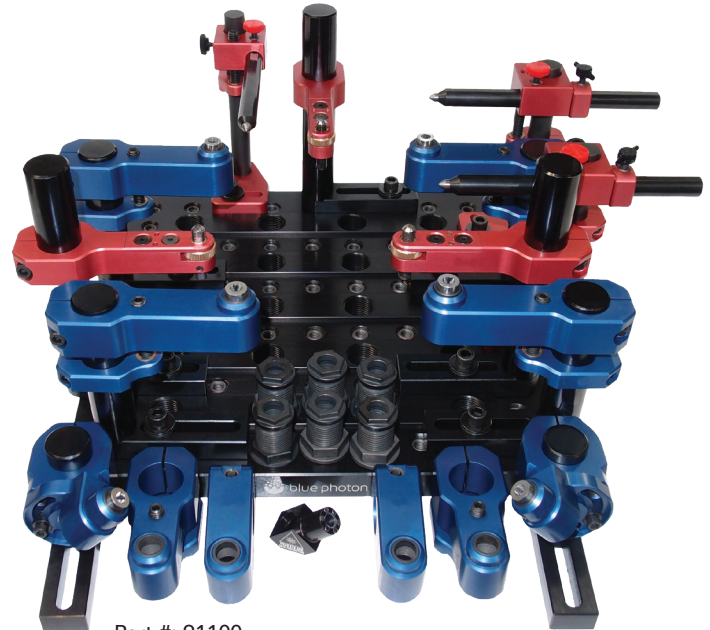
The kit allows the user to very simply and immediately get started using Blue Photon workholding technology. The collection of included inserts, pins and articulating arms can be set up to hold a workpiece for 5- and even 6-sided tool access.

Part #: 91100

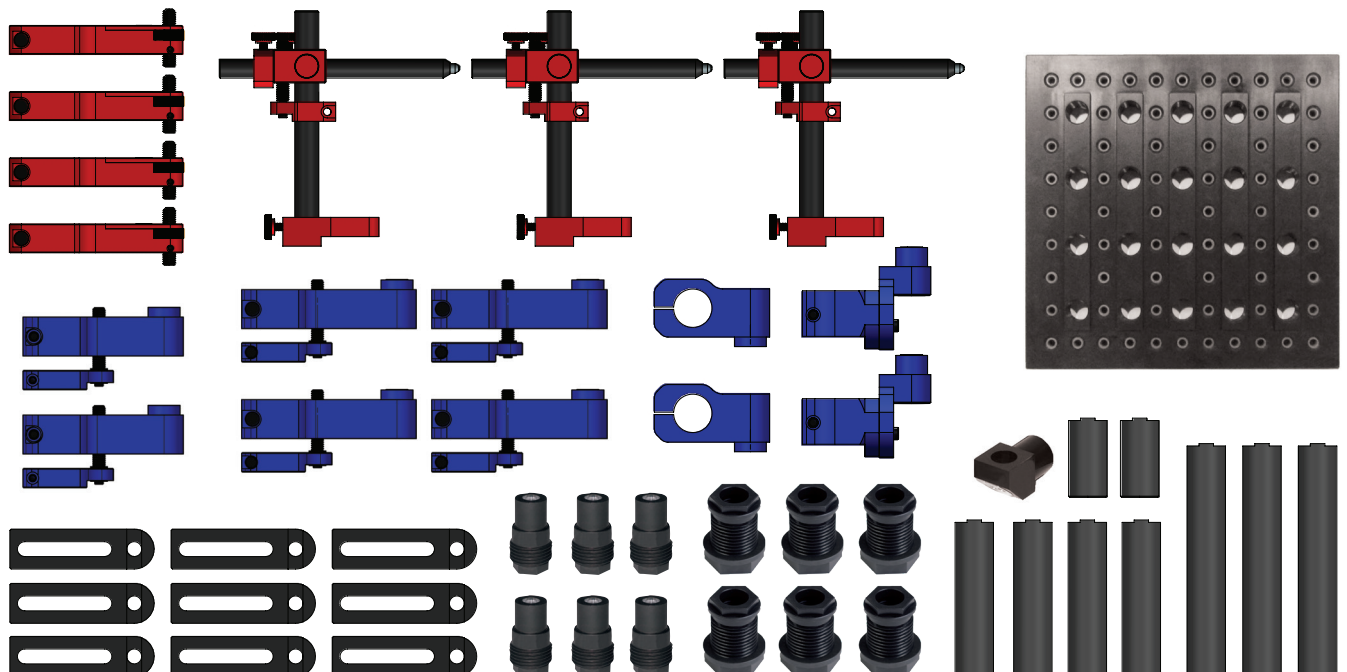
Each kit includes these components:

P/N	QTY	DESCRIPTION
91101-000	4	Z Locator Assy
91102-000	3	XY Locator Assy
91103-200	2	2" Vertical Gripper Arm Assy
91103-300	4	3" Vertical Gripper Arm Assy
91103-400	2	Horizontal Gripper Arm Assy
91104-000	2	Pivoting Gripper Assy
91105-000	1	12" x 12" Base Plate*
91109-110	9	Shaft Foot
91109-420	2	1" dia Shaft, 2" length
91109-440	4	1" dia Shaft, 4" length
91109-460	3	1" dia Shaft, 6" length
12130	6	Medium Head-In Gripper
22200	6	Gripper Insert
64860	1	Right Angle Adapter, extended

* Custom sizes available upon request, fees may apply.



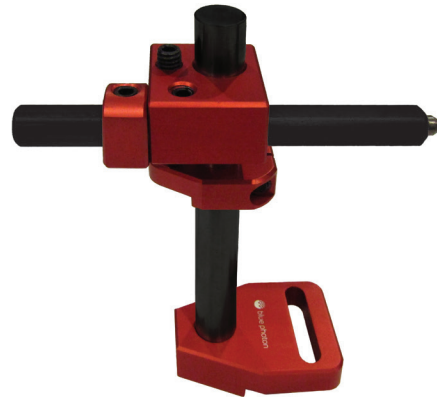
Part #: 91100
Universal Fixture Kit
Entire standard kit shown.



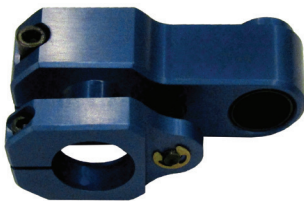
Universal Fixture Kit Components



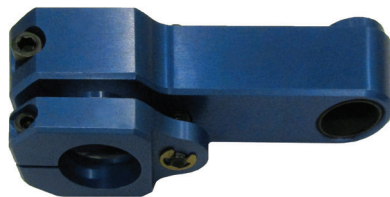
Part #: 91101-000
Z Locator Assy



Part #: 91102-000
XY Locator Assy



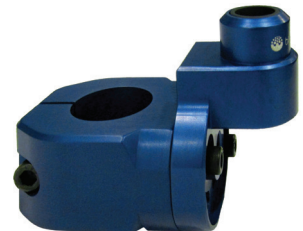
Part #: 91103-200
2" Vertical Gripper Arm Assy



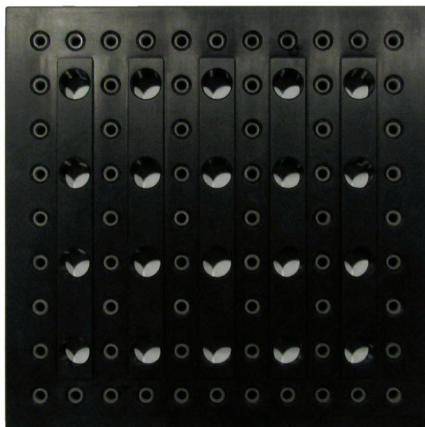
Part #: 91103-300
3" Vertical Gripper Arm Assy



Part #: 91103-400
Horizontal Gripper Arm Assy



Part #: 91104-000
Pivoting Gripper Assy



Part #: 91105-000
12" x 12" Base Plate



Part #: 91109-460
1" dia Shaft, 6" length



Part #: 91109-440
1" dia Shaft, 4" length



Part #: 91109-420
1" dia Shaft, 2" length



Part #: 91109-110
Shaft Foot

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