Dymax UV Light Shield
For Use with Dymax EC & PC Flood-Lamp Systems

- Instructions for Safe Use
- Setup and Operation
- Maintenance
- Ordering Spare Parts and Accessories
About Dymax

UV/Visible light-curable adhesives. Systems for light curing, fluid dispensing, and fluid packaging.

Dymax manufactures industrial adhesives, light-curable adhesives, epoxy resins, cyanoacrylates, and activator-cured adhesives. We also manufacture a complete line of manual fluid-dispensing systems, automatic fluid-dispensing systems, and light-curing systems. Light-curing systems include LED light sources, spot, flood, and conveyor systems designed for compatibility and high performance with Dymax adhesives.

Dymax adhesives and light-curing systems optimize the speed of automated assembly, allow for 100% in-line inspection, and increase throughput. System designs enable stand-alone configuration or integration into your existing assembly line.

Please note that most dispensing and curing system applications are unique. Dymax does not warrant the fitness of the product for the intended application. Any warranty applicable to the product, its application, and use is strictly limited to that contained in the Dymax standard Conditions of Sale. Dymax recommends that any intended application be evaluated and tested by the user to ensure that desired performance criteria are satisfied. Dymax is willing to assist users in their performance testing and evaluation by offering equipment trial rental and leasing programs to assist in such testing and evaluations. Data sheets are available for valve controllers or pressure pots upon request.
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Introduction

Introduction to the User Guide
This guide describes how to assemble, use, and maintain the Dymax UV Light Shield safely and efficiently.

Intended Audience
Dymax prepared this user guide for experienced process engineers, technicians, and manufacturing personnel. If you are new to UV light curing and do not understand the instructions, contact Dymax Application Engineering to answer your questions before using the equipment.

Where to Get Help
Additional resources are available to ensure a trouble-free experience with our products:

- Detailed product information on www.dymax.com
- Customer Support and Application Engineering teams are available by phone and email in the United States, Monday through Friday, from 8:00 a.m. to 5:30 p.m. Eastern Standard Time. You can also email Dymax at info@dymax.com. See the back cover for worldwide contact information.
- Dymax adhesive Product Data Sheets (PDS) on our website
- Material Safety Data Sheets (MSDS) provided with shipments of Dymax adhesives

Safety

WARNING! If you use this UV light shield without first reading and understanding the information in this user guide, injury can result from exposure to high-intensity light. To reduce the risk of injury, read and ensure you understand the information in this user guide before assembling and operating a Dymax flood lamp system with light shield.

General Safety Considerations
All users of Dymax equipment should read and understand this user guide before assembling and using the equipment.

To learn about the safe handling and use of light-curable formulations, obtain and read the MSDS for each product. Dymax includes an MSDS with each adhesive sold. In addition, fluid product MSDS can be requested on the Dymax website.

Specific Safety Considerations
The light shield is designed to maximize operator safety and minimize exposure to light-curing energy. To use the shield safely, it must be set up and operated in accordance with the instructions in this user guide. Please also read and understand the safety considerations unique to flood lamp light-curing systems.
Product Overview

Description of the UV Light Shield

The Dymax light shield is part of a UV flood-lamp light-curing system that incorporates an optional shutter and a light source into a unique system. These systems generate conditioned quality UV light for curing photosensitive adhesives, coatings, and inks applied to various size and shape parts. There is a choice of two types of shutters and six flood lamp models which can be integrated into the flood-lamp curing system to optimize an application, providing higher throughput at the best curing quality. The flood lamp curing system can also be used without the shutter in rare cases when especially long (several hours) exposure is needed, or timing accuracy is not an issue.

The UV light shield can accommodate all Dymax AS, PC, and EC silver series flood lamps.

NOTE: Users considering special or customized configurations should contact Dymax Application Engineering for recommendations and/or guidance to prevent equipment malfunction. Dymax cannot foresee every possible use of these light sources and reserves the right to invalidate warranties, expressed or implied, due to non-recommended installation or use of this equipment.

System Components

The light shield serves as the base of a flood-lamp system (Figure 2). It is constructed of acrylic material that filters out UV light but also allows some visible light to pass through so the operator can safely observe objects in the curing process.

The light shield features a front loading door which swings up and down on dual supporting hinges. The door has an optional interlock switch (PN 38402) that can be installed with a ZIP™ shutter to prevent the shutter from being open when the light shield door is open. The light shield also includes a fireproof tray, which slides along adjustable height rails and can be removed and replaced with ease.

Figure 1. Dymax Flood-Lamp System with Light Shield
Special Features and Benefits of the Dymax UV Light Shield

Key features include:

<table>
<thead>
<tr>
<th>Feature</th>
<th>Benefit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Accommodates parts for curing up to 7.5&quot; high</td>
<td>Can be used with a variety of parts sizes and geometries</td>
</tr>
<tr>
<td>Work surface may be adjusted from 2&quot; - 6.5&quot; from the bottom of the enclosure</td>
<td>The light shield can be used in light-curing applications to process a variety of part sizes</td>
</tr>
<tr>
<td>Door interlock</td>
<td>Extra safety precaution preventing the shutter from being open when the light shield door is open</td>
</tr>
</tbody>
</table>

Assembly and Setup

Unpacking and Inspecting Your Shipment

When your UV Light Shield arrives, inspect the boxes for damage and notify the shipper of box damage immediately.

Open each box and check for equipment damage. If parts are damaged, notify the shipper and submit a claim for the damaged parts. Contact Dymax so that new parts can be shipped to you immediately.

Check that the parts included in your order match those listed below. If parts are missing, contact your local Dymax representative or Dymax Customer Support to resolve the problem.

Parts Included in the Light Shield

- Light Shield (1)
- Reflector Adapter Plates for the 5000 (2) and 2000 Lamps (4)
- Tray (3)
- Support Bracket (5)
- Interface Cable (6)
- Hex Wrenches (7) – 1/8", 5/32", 3/32", and 5/64"
- Goggles (8)
- Screws – 8-32 x 3/8 in (Not Shown)
- Dymax UV Light Shield User Guide (Not Shown)
Figure 2. Light Shield (PN 38125) Components

**System Interconnection**

Place the Light Shield on the designated workbench. Remove all packaging used for securing the unit during shipping and save it in the event you need to repackage the unit for return.

**Suggested Sequence of Flood-Lamp Curing System Connection**

1. Install the Bulb (included with Flood Lamp) into the Reflector Housing Assembly (Figure 3, 4); follow the installation instructions provided with the Bulb.

2. Connect the Connection Cable (Figure 3, 5) to the rear panel of the Power Supply (Figure 3, 2) and then to the 8-Pin Receptacle in the rear of the Reflector Housing Assembly (Figure 3, 4).

3. Connect the Foot Pedal (Figure 3, 9) to 4-Pin Receptacle right rear of the Shutter (Figure 3, 3).

4. Connect the Cable (Figure 3, 7) provided with the Shutter (Figure 3, 3) from the 8-Pin Connector on the rear of the Reflector Housing Assembly (Figure 3, 4) to the 8-Pin Connector on the rear of the ZIP™ Shutter (Figure 3, 3).

5. Connect the Cable (Figure 3, 6) provided with the Light Shield (Figure 3, 1) from the 9-Pin Connector on the rear of Reflector Housing Assembly (Figure 3, 4) to the 9-Pin Connector located on back of Light Shield (Figure 3, 1).

6. Plug the female connector of an AC Power Cord (Figure 3, 8) into the male receptacle on the rear panel of the Power Supply (Figure 3, 2).
Installing Light Shield with Reflector Housing

1. Prepare the Reflector Housing with the appropriate Support Plate provided with the Light Shield. Place the Reflector on its top. Remove the four screws from corner of the Reflector Housing.

2. Using the four screws that were removed in Step 1, assemble the appropriate Support Plate to the bottom of the Reflector Housing (Figure 4).

Figure 4. Reflector Housing with Support Plate Attached (From Left: 1200-EC, 2000-EC, & 5000-EC)
3. Place the Reflector Housing/Support Plate Assembly onto the Light Shield (Figure 5). Using the 8-32 x ⅜” screws provided with the Shutter, secure the Reflector/Support Plate(s) Assembly to the Light Shield.

**NOTE:** Do not tighten until directed in Step 4.

4. Center the Reflector Housing on the Light Shield. When the desired position is achieved, tighten the Securing Brackets to the Light Shield.

**Figure 5. Reflector Housing Mounted on Light Shield (2000-EC, & 5000-EC)**

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**Installing Light Shield with Reflector Housing and Shutter**

1. Take a Shutter and carefully place it on the top of the Light Shield.

2. Install the Support Brackets to the top of Light Shield with the 8-32 x ⅜” screws provided.

   **NOTE:** Do not tighten until directed in Step 5.

3. Prepare the Reflector Housing with the appropriate Support Plate(s) for use with the Shutters as described in the Shutter manuals (Figures 6-7).

   **NOTE:** Do not install the Reflector Housing to the Shutter by installing the four 8-32 x ⅜” screws and fastening the Support Plate(s) to the Reflector Housing until directed.

**Figure 6. 2000-EC Reflector Housing with Support Plate Attached (Front)**

**Figure 7. 5000-EC Reflector Housing with Support Plate Attached (Front)**
4. Place the Reflector Housing/Support Plate(s) Assembly into the Shutter. Using the 8-32 x ⅜" screws provided with the Shutter, secure the Light Shield and Shutter to the Reflector Housing Support Plate(s) Assembly.

5. Center the Shutter on the Light Shield. When the desired position is achieved, tighten the Securing Brackets to the Light Shield.

Figure 8. 2000-EC Reflector Housing Mounted on ZIP™ Shutter and Light Shield

Figure 9. 5000-EC Reflector Housing Mounted on ZIP™ Shutter and Light Shield

Figure 10. 2000-EC Reflector Housing Mounted on Manual Shutter and Light Shield

Figure 11. 5000-EC Reflector Housing Mounted on Manual Shutter and Light Shield
Optional: Assembling the Safety Interlock Switch

Figure 12. Light Shield in Upside-Down Position

1. Remove the Reflector Housing and Shutter from the top of the Light Shield. Turn the Light Shield upside down (Figure 12).

2. Remove the Left Front Foot (1) and the Left Front Fastening Screw (2) with a hex wrench. Lift the corner of the Light Shield’s Bottom Plate to allow access under it.

3. Attach the Magnetic Switch Cable (3) to the Light Shield’s Bottom Plate using the two 4-40 Screws with nuts (6 & 10) and spacers (9).

4. Reinstall the Left Front Fastening Screw (2) and Left Front Foot (1) to the bottom of the Light Shield.

5. Remove the three 10-32 screws (5) from the left side of the Light Shield. Route the Interlock Switch Cable along the left side of the Light Shield and fasten the cable into place by using the three Cable Clamps (4) and longer screws provided in this kit.
6. Attach the Magnetic Actuator (8) to the Light Shield Door using the 4-40 Hex Nuts (6) and screws provided as shown in Figure 16.

7. Plug the Connector to the Power Jack at the back of the Light Shield.

8. Turn the Light Shield right side up and reinstall the Shutter and Reflector to the Light Shield.

**Operation**

For a detailed description of flood lamp operation, maintenance, and troubleshooting, see the appropriate flood lamp operation manual. This is a suggested sequence of activities that can be altered to better match your working conditions, process requirements, and work habits.

Estimate the height of the curing part in respect to its base, or to the base of the part holder (if the object to be cured is not free standing), and then adjust the position of the work surface at a proper distance from the curing part. Use a ruler for setting accuracy.

The recommended working distances for each type of reflector housing assembly is indicated in the appropriate flood lamp manual. You can set this distance differently to optimize your throughput with respect to adhesive properties and irradiant energy required to achieve the best curing quality in the shortest time. Dymax Application Engineering is ready to assist you if needed.

**Cleaning and Maintenance**

**General**

For detailed technical assistance, please call Dymax Application Engineering.

**UV Light Shield**

The UV light shield is designed to be maintenance free. Periodic cleaning will ensure long, trouble-free operation.

**Flood Lamps**

See the appropriate flood lamp manual for maintenance recommendations.

**Shutters**

See the appropriate shutter manual for maintenance recommendations.
Spare Parts and Accessories

Replacement Parts/Accessories

<table>
<thead>
<tr>
<th>Item</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Cables</td>
<td></td>
</tr>
<tr>
<td>Reflector Housing to Light Shield Cable</td>
<td>38239</td>
</tr>
<tr>
<td>Interlock Switches</td>
<td></td>
</tr>
<tr>
<td>Interlock Switch</td>
<td>38402</td>
</tr>
<tr>
<td>Misc. Replacement Parts</td>
<td></td>
</tr>
<tr>
<td>Front Door Handle</td>
<td>38204</td>
</tr>
<tr>
<td>Hinge, Friction, Adjustable</td>
<td>36447</td>
</tr>
<tr>
<td>Fan, 24 Volts</td>
<td>35761</td>
</tr>
<tr>
<td>Work Surface Tray Assembly</td>
<td>38330</td>
</tr>
<tr>
<td>UV Shields</td>
<td></td>
</tr>
<tr>
<td>Side, Two Panels (Complete Wall Requires Two)</td>
<td>38291</td>
</tr>
<tr>
<td>Door, Two Panels (Complete Wall Requires Two)</td>
<td>38292</td>
</tr>
</tbody>
</table>

Specifications

<table>
<thead>
<tr>
<th>Property</th>
<th>Specification</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
<td>38125</td>
</tr>
<tr>
<td>Compatible Dymax Flood Lamps</td>
<td>5000-PC &amp; 5000-EC</td>
</tr>
<tr>
<td></td>
<td>2000-PC &amp; 2000-EC</td>
</tr>
<tr>
<td></td>
<td>1200-PC &amp; 1200-EC</td>
</tr>
<tr>
<td>Compatible Shutters</td>
<td>37863 ZIP™ Shutter</td>
</tr>
<tr>
<td></td>
<td>35572 Manual Shutter</td>
</tr>
<tr>
<td>Compatible Dymax Bulbs</td>
<td>Standard – 400 Watt Metal Halide Bulb</td>
</tr>
<tr>
<td></td>
<td>Optional – 400 Watt Hg Vapor Bulb</td>
</tr>
<tr>
<td></td>
<td>Optional – 400 Watt Visible Bulb</td>
</tr>
<tr>
<td>Work Area</td>
<td>10” x 10” (25.4 cm x 25.4 cm)</td>
</tr>
<tr>
<td>Work Surface Load Capacity</td>
<td>Up to 5 lbs. (2.3 kg)</td>
</tr>
<tr>
<td>Overall Dimensions (W x D x H)</td>
<td>17.3” x 18.0” x 10.8” (43.9 cm x 45.7 cm x 27.4 cm)</td>
</tr>
<tr>
<td>Inside Dimensions (W x D x H)</td>
<td>10.6” x 14.9” x 8.0” (26.9 cm x 37.9 cm x 20.3 cm)</td>
</tr>
<tr>
<td>Weight (Light Shield Only)</td>
<td>14 lbs. (6.4 kg)</td>
</tr>
<tr>
<td>Unit Warranty</td>
<td>1 year from purchase date</td>
</tr>
</tbody>
</table>
Definition of Terms

**Brightness**, also known as **Luminance** - description of energy in the visible region of the spectrum (approximately from 400 to 700 nm) and recorded in photometric units. “**Intensity**” (see below) of visible light energy is called Luminance.

**Bulb** - light source generating ultraviolet, visible, and infrared radiant energy from burning matter stimulated by electrical power conditioned by a proper power supply which is an integral part of a lamp. A light source is usually placed into a reflector (of various geometry) to increase light source efficiency by collecting and directing radiant energy of selected spectra (for a given curing process).

**Dose** - is irradiance integrated over time, or Irradiance (W/cm²) x Time (s) = Dose (Joules/cm²). Note: Watt is the power that gives rise to the production of energy at the rate of 1-joule (J) per second(s).

**Intensity** - a measure of light energy over the unit of surface area (usually surface at the specified working distance from the bottom of a reflector housing) in W/cm² or mW/cm². For the UV portion of light, this measure is often called in literature “irradiance”, i.e. radiant energy arriving at a point on a surface per unit area.

**Luminance** - luminous flux (energy of visible light) incident per unit area, and measured in Lx (lux) or Lumen/cm².

**Ozone** - oxidizing agent (O₃) produced by the action of Ultraviolet radiant energy (below 185 nm) or electrical corona discharge of oxygen on air.

**Ultraviolet (UV)** - The invisible region of the spectrum just beyond the violet end of the visible region. Wavelength ranges in general from 1.0 to 400 nm. Dymax bulbs (burners) do not radiate energy in deep Ultraviolet; there are very minute amounts below 220 nm and practically nothing can be sensed below 200 nm. This is due to the use of an ozone-blocking quartz bulb envelope (See Ozone).

1. **Ultraviolet A (UV-A)** - UV of long wavelength from within approximately 400 to 320 nm of the spectral band (4000 to 3200˚) - predominately produced by Dymax Flood Lamps.
2. **Ultraviolet B (UV-B)** - UV of medium wavelength from within approximately 320 to 280 nm - Dymax Flood Lamps produce some amount of their energy within this bandwidth.
3. **Ultraviolet C (UV-C)** - UV of short wavelength below 280 nm (we say from 280 to 200 nm) – a large amount of this energy is present in sunlight.
4. **Visible** – Light that can be seen 400-700 nm.

**OSHA 1910.145**: “Regulation of Accident prevention Signs and Tags” defines the following headers as:

- **WARNING** – is used when there is a hazardous situation that has some probability of severe injury.
- **CAUTION** - is used to indicate a hazardous situation that may result in minor or moderate injury.
- **NOTICE** - is used to convey a message related directly or indirectly to the safety of personnel or protection of property.
Warranty

From date of purchase, Dymax Corporation offers a one-year warranty against defects in material and workmanship on all system components with proof of purchase and purchase date. Unauthorized repair, modification, or improper use of equipment may void your warranty benefits. The use of aftermarket replacement parts not supplied or approved by Dymax Corporation will void any effective warranties and may result in damage to the equipment.

**IMPORTANT NOTE:** Dymax Corporation reserves the right to invalidate any warranties, expressed or implied, due to any repairs performed or attempted on Dymax equipment without written authorization from Dymax. Those corrective actions listed above are limited to this authorization.

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In addition to our light-curing equipment, Dymax also offers high-performance adhesives designed to rapidly bond glass, metal, and plastic substrates upon exposure to UV/Visible light and a variety of dispensing equipment. Our products are perfectly matched to work seamlessly with each other, providing design engineers with tools to dramatically improve manufacturing efficiency and reduce costs. Dymax is committed to providing the best chemistry, curing equipment, and dispensing systems that offer customers complete manufacturing solutions for their challenging applications.